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SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,

Mining, Mechanic Arts and Inventions.

BY DEWEY & CO., Patent Solicitors.

SAN FRANCISCO, SATURDAY, JANUARY 6, 1872.

VOLUME XXIV. Number 1.

HINTS TO MINERS.—NO. 5.

Formation of Deep Placers.

When we leave the quite recent deposits which are due to forces now in operation, where the gold can be traced to its source, either to a ledge in a hill near by, or the older gravels which the modern stream has cut into and transported, and take into consideration the character, position, extent, etc., of the auriferous deposits of earlier formations, many difficulties are met with. For the purposes of miners deep deposits are not traceable, within reasonable limits, by surface indications in the places where they occur. A small stream may be for some distance easily traced by the strata of sand, gravel, water-worn pebbles, etc., but when it is followed towards low level plains through which the modern stream has cut a channel, the strata increases in thickness and it is not always possible to mark the course of its old bed. It is hidden by layers of sand and drift, and where the distance between the ridges which form the valley is considerable it is often doubtful that when a miner stakes out his claim it will include any considerable length of the old stream bed.

Of course the probable direction of the old channel may be laid out and it is to be supposed that the deposits nearly everywhere run parallel to the modern streams, but the smaller deflections are numerous and there may be many differences from what is supposed to be the proper course. As often occurs, a bed that is rich for some distance spreads considerably, changes its character and ceases to pay. In such places it is difficult to follow the run of the rich ground and where the width is very great it is easily lost. Although the works may be abandoned and many small claims on the supposed course prove unremunerative, the lead is surely there. An interesting chapter on the action of water is observed in modern streams, occurs in Smyth's Gold Fields of Victoria which we condense for the purpose of a more easy understanding of the modes of deposition of more ancient alluvial deposits:

Whether the auriferous drifts, clays and detritus are exposed on the surface or covered by basalt, or by quite recent sedimentary deposits, they present as far as is known at present, everywhere the same features. In other words if the superincumbent strata were removed, the underlying drifts and ranges of clay-slates and mudstones would not differ in the mode of distribution or occurrence from those which are not so covered.

The action of the atmosphere or rain and wind, of the sun and dew, is to wear away and make ready for removal by streams, large or small, even the hardest rocks. A stream once formed acts in two ways; it cuts into the rocks through which it flows and at the same time deposits in the line of its course the heavier materials brought down from the neighboring hights. In this manner are the alluvia formed; and if the stream be strong and the clivity not excessive, and the rocks soft, a comparatively wide extent of drifts and clay arranged nearly in the order of their specific gravities, (having regard to the form of the particles), will be deposited; and these strata will gradually increase in thickness until the stream in its lower parts begins by reason of a fall of the ground to act energetically, scooping out for itself a deeper channel. This will in a time wear back and a new and deeper course will be cut through the alluvia and bed-rock. The result of this action is shown in Fig. 1, in which $x\,x$ is the bed-rock; $A\,A$ the older

Fig. I.

drift; B the newer drift, $c\,c$ the older drift that has been cut through and carried away.

The stream represents the gutter of a lead, and the drifts, $A\,A$, the wash from the lead. It is often supposed that this wash is necessarily younger than the drift of the gutter, but it is perhaps in some instances older. It is easy to conceive that many massive layers, all of different ages, may have been formed in this way; and where it is capable of proof that the stream has always been cutting for itself a deeper

Fig. II.

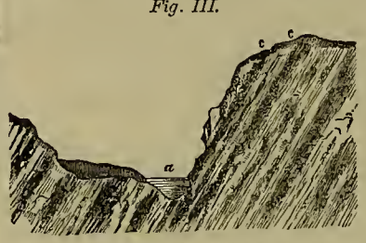
channel, we may assume of a certainty that the upper drifts are older than those lying at lower levels.

It is not often that a stream will continue to deposit materials in the direction of its course for long periods, and until its course is changed, but this sometimes happens in placers where the bounding range on either side is very low, the course will silt up, and when perhaps by some fall of rock the waters are temporarily dammed back, they will find an outlet over some part of the range into a different drainage area. Under such circumstances it is almost impossible to determine the relative ages of the deposits, more especially where the materials composing the drifts are of the same lithological character.

Streams of water, acting on highly inclined strata, composed of argillaceous rocks and soft sandstones, effect very important alterations in a short time. The stream, a, shown in Fig. 2, would rapidly wear away the rock against which it strikes, and every shower of rain would assist in eroding the mass, causing the upper part to fall down as the under part was excavated. The course would shift gradually to the right, and all the materials composing the cliff, including the intersecting veins of quartz, would be broken up and carried away, to be deposited in some part of the stream bed.

Fig. 3, in which a is the stream, shows what is effected when adverse forces cooperate. The water eroding the rocks on the right hand side, would cause masses to fall from time to time; but slips would occur also very frequently. Surface water finding its way into layers of clay, as at $c\,c$, would facilitate this operation, and an insignificant stream would soon percepti-

Fig. III.



bly alter its channel. Where claystones in such places form part of the strata, the layers will not cohere, and large masses will slide into the bed of the creek or river.

Remarkable changes follow this kind of erosion, and none is more common than that shown in Fig. 4. On examining an ordinary horseshoe bend, one sees that the stream has at different periods overflowed and denuded nearly every part of the surface of the peninsula, C, which is therefore much lower than the adjacent country. The waters having finally cut a course as indicated in the diagram, continue to erode

Fig. IV.

the sides of the range, at A and B, in the manner shown by Fig. 2 and Fig. 3, until at last the isthmus is cut through; the channel is deepened, and with the lapse of time the old course around the peninsula is almost obliterated. The detritus in it lies at a much higher level than the more recent alluvia, and when still further changes have taken place, its origin may scarcely be traceable.

The Absorption of Sulphur by Gold.

Mr. William Skey, analyst to the geological survey of New Zealand, has published an interesting paper on the absorption of sulphur by gold, and its effects in retarding amalgamation. While investigating the causes of the reported loss of gold during the process of extraction at the Thames gold fields, he observed that much of this loss could scarcely be referred to any of those causes generally supposed operative for it. He therefore tested the actual condition of the natural surfaces of numerous specimens of Thames gold, in respect to their behavior with mercury, and examined further than has hitherto been done into its comportment with several of those substances likely to be associated with it in a natural way.

The results of these examinations are minutely recorded in his paper, and the following short abstract of them is taken from the London *Chemical News*. The author finds—

1. That numerous samples of bright, clean-looking gold, of all degrees of fineness, refuse to amalgamate on any part of their natural surfaces, though taken directly from the reef and untouched by hand.

2. That on such surfaces sulphur is always present.

3. That native gold, or gold in a pure state, readily absorbs sulphur from moist sulphureted hydrogen or sulphide of ammonium, and absorbs it directly when administered in boiling water.

4. That surfaces so treated refuse to amalgamate, though no apparent change can be observed in their aspect.

5. That gold so affected is rendered amalgamable by roasting in an open fire, unless copper is present to the extent of seven per cent. (or perhaps less), while the same effect is produced by the contact of cyanide of potassium, chromic and nitric acid, and chloride of lime acidified.

6. That this absorption is altogether of a chemical nature.

7. That sulphates of iron, in presence of air and water, decomposed various metallic sulphides common to auriferous reefs, in such a manner as to liberate sulphureted hydrogen.

The action of sulphureted hydrogen upon gold, in rendering it non-amalgamable when placed in contact with mercury, was demonstrated with striking effect by the author before the members of this society.

From these results the author has been led to suppose that a large area of the natural surfaces of native gold is covered with a thin film of an auriferous sulphide, and that the greater part of the gold which escapes amalgamation at the battery is represented by that portion of this sulphurized gold which has remained unabraded during the processes of milling or extraction from the reef; the state of the gold, rather than that of the mercury, therefore, being the greatest impediment to thorough amalgamation.

In addition to these results, the author communicated others relative to the effect of solutions of sulphureted hydrogen and sulphide of ammonium upon platinum. In rendering it non-amalgamable, he believed a sulphide of the metal had formed in each case, since chromic acid rendered it again amalgamable. He also stated that this metal is also so affected by ammonia or the fixed alkalies that it will not amalgamate, except in presence of a mineral acid, from which he suspects platina is capable of superficial oxidizement when in contact with alkaline substances, even at common temperatures. The author found that his samples of gold were not affected by the alkalies in this manner, except in the case of one from Victoria, a singularity from which was argued the presence of palladium in this particular sample.

THE WEATHER.—Mr. F. B. Pilling of the Signal Service Corps, has furnished us with a table showing the monthly mean report which sums up as follows: Mean daily barometer, 30.09; thermometer 53; rainfall, inches, 0,436; prevailing wind, south-west; number of miles travelled by the wind since the 15th ult., 4,430 miles.

CORRESPONDENCE.

RESOURCES OF MONTANA.

[By Our Own Traveler.]

During a recent visit to Virginia City, the capital of Montana. I found it in a flourishing condition. The Daily *Montanian*, the official paper of the Territory, is printed by steam, and has the second steam press introduced into Montana. It contains all the late telegraphic dispatches and the current news of the day. One banking house in Virginia City received $90,000 in currency this fall, and paid the same out to miners in 90 days.

Mr. D. W. White, traveling agent for the Giant Powder Company of your city, made some experiments during my stay at this place, which resulted satisfactorily to all who witnessed them, and demonstrated its peculiar adaptibility for blasting purposes.

In November the wholesale rates of produce were as follows: Flour, XXX, $7.50 per sack; XX, $7.00; X; $6.50. Retailing from 50 cents to $1,00 higher. Wheat, 3½ cents per pound; oats, 2½ cents per pound; potatoes, 2 cents per pound; butter, 45 cents per pound; eggs, 65 cents per dozen; cabbage, 3 cents per pound; onions, 12½ cents per pound; dressed hogs, $18 per hundred pounds; chickens, $9 to $10 per dozen; hoef, 8 cents on foot.

Placer Mining in Alder Gulch

J. M. Knight & Co. have a large mining claim near the city, in this gulch, and have 4,000 feet of fluming, 22 inches wide inside, and employ 10 miners. The mining season is from April to November. They own 9,000 feet of ground up and down the gulch, which has averaged $400 per day. The gold is very fine *(oro fino)*. The gulch is 12 miles long. At the upper end I noticed very fine washed boulders. There are 12 flumes in the gulch, and each company employs about 12 men; and it is said that at the present rate it will be 12 years before the ground is worked out.

The next claim visited was that of the Cork Mining Company, situated a short distance from Knight & Co's claim. During the week, this company, with five men, extracted $1,260, or $50 dollars a day to the hand.

German Bar Fluming Company,

Owned by Sedman & McGregory, has 5,000 feet of ground, and employs seven men. This is one of the most valuable claims in the gulch, and yields, on an average, $400 a week. The banks are 22 feet deep to the bed-rock. By means of a very ingeniously constructed revolving wheel, invented by Mr. Sedman, the large rocks are caught and elevated, while the smaller ones drop through, and pass on down the gulch.

Wright, Pope & Lee have 1,000 feet of ground, and employ six men, and are taking out $50 a day to the man. John Donegan owns 5,000 feet of mining property, employs six men and has taken out upwards $4,000 this season. He has an underground water drain 200 feet long and 20 feet deep. He has also a water wheel, used for hoisting, and so constructed with a clutch, to throw it in and out of gear, that after the load of dirt is hoisted up on a platform, the water is turned off the wheel, and used for sluicing purposes.

McKee's Bar.

Mr. Daniel Emory has a claim on this bar, with a shaft 20 feet, and is drifting in gravel. The timbers used are nine by three and one-half feet, and $30 are extracted to each set of timbers.

Pine Grove Fluming Co.,

Is composed of Robert McAdams and others, who employ four men, and elevate the larger boulders to the surface by means of derricks. The fall of their flume is nine inches in twelve feet. This claim is paying handsomely.

Summit Mining District

Is situated at the head of Alder Gulch, 8 miles from Virginia City. The Keystone lode averages 2 feet in width, has 3 shafts, one 80 feet deep, one 125 and the other 170 feet deep. About $25,000 have been extracted from this lode. It has a good foot wall of limestone, and a hanging wall of granite, and bids fair to become one of the prominent ledges of the district. It is owned by E. B. Coverly & Bro. Mining picks made in San Francisco by Mr. Wright, have been introduced into this district and the miners assure me they give entire satisfaction, and they are well pleased with them. There is in this district one 15-stamp quartz mill, with two arastras and one Wheeler's pan, reducing ores from the Oro Cache and How lodes. These lodes belong to the owners of the mill, who occasionally crush custom ores from the Keystone. Oro Cache has two tunnels, one 550 feet long, running in to a depth of 200 feet from the surface; the other is three hundred feet long and strikes the ledge 500 feet from the surface. The upper tunnel has had about 200 feet of paying quartz, varying from $15 to $60 per ton. About 35 tons per week are now taken out, averaging $18 per ton.

The Keystone is being worked by Coverly Brothers, and they are taking out quartz for crushing at the How mill. The John How lode is also taking out quartz which is being crushed at the mill. This lode is opened by four shafts and a tunnel, which is 700 feet long and strikes the ledge 450 feet from the surface. It has widened from a 2-inch crevice to 7 feet, and the ore is estimated at $10 per ton. Peyton & Co. are at work on the Success lode, Aces on the Emma, and Masters on the Horn, and from appearances I judge this is a very prosperous mining camp.

Brown's Gulch

Is located a few miles from Virginia City. The True silver ledge, situated in this gulch, is the property of Mr. Poznainsky, and is now being worked by him. He has a tunnel run in on the vein about 175 feet, which shows a ledge about eight feet in width, filled with splendid silver sulphuret that will yield from $100 to $200 per ton. The bullion is worth $3 per ounce.

The Pacific True, and Black silver ledges have lately been examined by parties sent here from Salt Lake for that purpose, who expressed themselves highly pleased with their appearance. The Union Pacific Railroad mine assays $125 per ton, and ore has been sold on the dump at $65 per ton. The next district I visited was

The Meadow Creek Mining District,

Situated some 20 miles from Virginia City. The Mother Hendrix mine is located here, and is owned by F. R. Merk, Esq. It has three shafts, 60, 100 and 140 feet deep, respectively. The lode averages 20 inches in width, and contains good gold-bearing quartz, with free gold and a small quantity of sulphurets. Some 24 miners are employed. Mr. M. has invested considerable money in developing this property, which will no doubt yield him handsome returns. He has erected a 10-stamp quartz mill with a 20-foot water wheel, and has introduced Stevenson's patent mould-board amalgamating pan, which holds 5,000 pounds to a charge. Its operations have been entirely satisfactory. Mr. M. was induced to try this pan, from having seen an illustration of it in the Scientific Press. He claims that its grinding qualities are superior to those of any pan in use in the Territory. The mill has a California battery, and a bar of gold is shipped to New York every week.

Want of Reduction Works.

The great need in mining in Montana is proper reduction works, facilities for working ores, and machinery such as is used for reducing like ores in other States and Territories. The machinery necessary is Stetefeldt furnaces, stamp mills for dry crushing, and pans for amalgamation. Provide the quartz miners with works at which they can get their ore reduced, and in another year the country will present a different appearance from the present.

W. H. M.

Columbia District, U. T.

Eds. Press:—Having been a constant reader of your valuable paper for some years, and seeing so many districts represented, and the good results therefrom, I take the liberty of addressing myself to you, and if you think it worthy of publication please give it room in the columns of your paper.

Location,

Columbia is situated 35 miles southwest from East Cañon, 20 miles west from East Tintic, almost due north of West Tintic, and is that section of country that is known as West Mountain, commencing at the head of Rush Valley, and running thence to Point Look Out on the old Overland mail route.

The District was discovered last September, but the first locators were not overanxious to advertise the district till they had received titles to their mines. This having been done, winter closed in upon us and prospecting ceased for a time but work is being pushed vigorously upon six different mines, and will continue all winter.

There are at present writing 104 locations on the records.

Formation and Class of Ores.

The mineral belt as far as prospected is 2½ miles wide, and 4 or 5 in length. The country rock or formation, is porphry, quartzite, and slate. Nothing of any great importance has yet been found in the slate, but the largest and best defined ledges follow the quartzite principally.

The ledges crop out boldly and in nearly every instance, where much work has been done, argentiferous galena and grey carbonatas have been exposed; assaying from $25 to $125 silver, and lead enough for practical and profitable working—some of the ore carrying as high as 80 per cent. lead. Smelters are greatly needed for the reduction of these ores. There is wood and water convenient, and every furnace facilities requisite for cheap and profitable works. The ore in this camp is self-fluxing, and the expense of fluxing material will be dispensed with rendering smelting cheap and profitable. I have never seen a mining district possessing so many rare advantages as does Columbia.

The Washington,

On Liberal Hill, is being worked with good results. The lodge is nearly five feet in width, the foot-wall pitching to the south on an incline of 40 degrees. The mine is easily worked, being decomposed oxide of lead—soft carbonates—and intermixed with small bunches of galena assaying all the way from 48 to 75 per cent. lead, and from $30 to $86 in silver. This mine will be sunk to a depth of 100 feet in the discovery shaft this winter, which will pretty thoroughly prospect the mine.

The Gold Eagle

Mine on Liberty Hill is being worked vigorously and will commence shipping ore to Ophir City this month. The ledge is three feet wide, pitching to the west, and is well defined by two smooth walls. The ore is of carbonate and galena improving in quality and quantity as the work progresses.

Chimney Corner

Mine, situated on Montezuma Hill, is down twenty-five feet on an incline, dipping to the south, showing good ore from the surface to the bottom of incline, and a ledge two feet and a half wide, improving as it goes down. We have experienced but very little winter yet, and do not anticipate much snow. The miners are all comfortably situated in good log and rock houses, and some of them being 49ers, who manage to pass a pleasant and profitable winter, and will show up a district next spring second to none in Utah.

Miner.

Toole, Utah, Dec. 20, 1871.

Volunteer "Squibs."

Public Benefactors.—Under this head an appreciative correspondent referring to the stiff-bound monthly and quarterly editions of the Press, placed for free reading on the ferries, steamers, sleeping cars, in depots, etc., throughout this coast, writes as follows:—"It has been my good fortune to travel much in California and Oregon, and generally by public conveyance, stopping often at the traveler's home (the hotel), and no one thing has impressed itself so favorably upon my attention, as a source of pastime and pleasure, as well as having a saving influence from smoking, drinking and gambling, as good, selected, short articles of varied kinds of reading matter. Men become restless and uneasy very quick when the mind is unoccupied, and without thought or intention of doing wrong, fall into various vices to "kill time."

As diamonds are valuable from their superlative brilliancy, so your bound quarterlies become valuable from being generally the only fresh and really valuable reading matter given to the traveling public. While they ornament the tables of the steamers and hotels, their pages are ladened with descriptions of mountains of treasure, valleys of marrow, and markets filled with fruit and fattened upon the dew drops of Heaven. They make us anxious to save time and save money, and aid in spreading your valuable papers before the public. Yours is an expensive and a noble work, and a generous public will not fail to reward you well for your efforts to furnish the Pacific Coast with two such valuable journals as the Scientific and Pacific Rural Press.

E. P. H.

The twelve principal private picture galleries in New York are computed as being worth over $1,000,000.

Hybrid Animals.

It is interesting to note how facts crowd in on us of a nature so curious that a few years ago they would not have received the slightest credence, but which are now placed beyond all dispute. It is not so very long since that hybrids were considered absolutely sterile. The mule was taken as a type of all this class. Now it is pretty certain that, if not the only exception in sterility, it is nearly so, and even mules have been known to produce offspring. In other animals mules are getting a varied existence. Recently, at the Academy of Natural Sciences of Philadelphia, a bird was exhibited which was a hybrid between a Brahma hen and a Guinea fowl. It was a very unique and pretty bird, pure white, with more of the graceful in its outline than either of its parents. The *American Naturalist*, always careful of its facts, not long ago gave some authentic details of hybrids between the common house cat and the raccoon of the Southern States. All these undoubted cases prepare us for admitting the following from the *Poultry Bulletin*, as being within the bounds of probability. In this Mr. E. H. Rogers, of Tuscaloosa, Ala., sends a description of an interesting hybrid produced by mating a turkey cock to a common hen.

He writes: "I have twenty-one fowls, the result of this union. At hatching, they resembled the chickens in their form and their chirping, though somewhat larger. After feathering, they assumed the color of the turkey, and the tails, instead of being like that of the maternal parent, were square, resembling that of the turkey. The bill resembles that of a chicken and a turkey. Some of them have combs very prominent at hatching, resembling much those of the common cock, though turned a little to one side. The others have no combs at all on that part of the head where the comb grows. There is a smooth place at the upper end of which is a little projection resembling that of the turkey gobbler. They are now about three months old; they have changed hut little, and are as tall as common hens. I expect to show them in different States this year at the Fairs, and I am in hopes you will see them. I send you a feather from the wing of a three months' old fowl, that you may see its character for yourself."

The greatest interest to poultry-raisers is to know whether these hybrids can be perpetuated. We have already said that progeny from hybrids is getting to be the rule rather than the exception. It was at one time supposed that the buffalo and domestic cow produced together a sterile progeny, but this is now known not to be true.

Almost all persons who believe in the sterility of hybrids try no further after producing them; and we offer these suggestions to encourage those who have been fortunate in producing them to continue on in their experiments.—*Philadelphia Press.*

The World's Fair of 1873.

Americans should remember that Vienna is to have a world's fair in 1873. At the Paris exhibition of 1867 nearly everything sent from this country took a prize, and there is no reason why the same thing should not be repeated at Vienna in 1873. The exhibition will undoubtedly be the largest that has ever yet been seen. The park set apart for the exhibition contains four times as many square yards as has ever been similarly occupied, and the principal building alone will have a length of 4,650 feet. The committee having the matter in charge wish to have full display of the raw materials and manufactured articles of each nation, with statistical information in reference to the amount produced and the trade therein.

Special efforts will be made to have the art collections as complete as possible, and it is proposed to have a loan collection from all the German museums, similar to the celebrated one at Kensington. Another speciality will be a collection of articles used by different nations in their domestic affairs, kitchen utensils, furniture, dress, ornamental objects, in fact everything used about a house. As the Austrian nation has never had an exhibition of this character, they will undoubtedly work hard to make it a success. The opportunity ought not to be neglected by the manufacturers of this country.—*N. Y. Post.*

Cyclones.—Mr. Meldrum gives reasons for believing that the East India cyclones are produced by the meeting of the northern and southern trade winds.

MECHANICAL PROGRESS.

Steel for Locomotive Boilers.

The Railway Master Mechanic's Associaciation, at New York, recently sent ont a series of questions to the various master mechanics of the country, requesting answers. Eleven questions, in all, were sent out, the first of which was:—"Do steel boiler plates, as now manufactnred, have the proper degree of harduess, or should they be softer and more ductile?"

The answers to this query were, on the whole, unfavorable to the use of steel; the great objection being that when nsed in the form of fire-box sheets, such sheets are liable to crack. If they are to be flanged, much care must subsequently he taken in annealing them.

To the 2d question:—"Do you advise the substitution of steel plates for iron in the ontside shells of locomotive boilers?"

Very few favored the use of steel, because when it is so soft as to be suitable for such purposee it ie so little stronger than iron that the platee eannot safely be made thinner; and as eteel eosts twiee as much as iron there would be lose incurred in nsing it. Steel in tuhe sheets, however, appears to stand very well and to give good satisfaction. Steel rivets are never nsed.

The 8th query was as follows:—If maunfacturere will eupply material of the required size, would you advise making tho eylindrical part of the boiler in one piece, extending from the smoke-box to throat sheets?"

In answer to this, all the replies, with a very few exceptions were in favor of making the barrel of the hoiler of a single sheet, provided sound material of the neeessary size conld be furnished.

9th. "Have you used eteel flues; if so do you prefer them to copper or iron." No one appears to approve of the use of eteel hoiler tuhee. They are condemned for the reason that they will not eaulk as well as iron.

The above are the chief points of interest sought for. Thirty-three answers were received from the master mechanics of as many of the principal railroads of the country.

MINERAL COTTON.—At the last meeting of the Franklin Institute, says the *Journal of the Franklin Institute*, Mr. Coleman Sellers exhihited a sample of a material which is now for the first time to be mannfactured and applied to useful purposes in the arts.

The produet possesses a general resemblance to cotton, for which it may doubtless in certain eases be eubstituted with advantage, but on eloser examination seeme more like epun glass, which in reality it is. It is formed by allowing a jet of steam to escape through a etream of liquid elag, by which it is blown into the finest threads, sometimes two or three feet in length. These threads, though somewhat elastic, readily break up into much smaller ones, and, the color of the suhstanco being white, the appearance of a compacted mass of it makes the name under which it has been deecribed a very appropriate one. The admirable non-conducting property of the material for heat, as well as that of the great quantity of air which it retains in its interetices, would eeem to fit it very well for a non-conducting casing to eteamboilers and pipes, an application for which it is at present being tested.

ANTIFICIAL SAUSAGE SKINS.—During the recent war in Europe, so great was the demand for sausage ekins that reoourse was had to a snbstitute. The Berlin pea eausage factory for somc time coneumed daily a hundred thousand skins; hut soon the supply hegan to run short; parchment paper was suggested as a substitute. The difficulty in the use of this material was to paste the edges of the paper containing the eausage together, ordinary paste being uselese for this purpose. Dr. E. Jacobeen, however, prepared a paste which kept the edgee firmly united after several hours boiling, and of which 5,000 pounds were used for pasting sausages.

Sevoral layers of parchment paper united with this paste closely reeemble parchment in appearance and strength, and the material thus produced would be very valuable for many purposes, such as bookbinding and the like. Parchment paper may be firmly pasted to linen cloth with the eame paste, and the article thus prodneed is a water-tight paper-linen, very well adapted for packing purposes. The eomposition of the paste is unfortunately not disclosed,—*Manufacturer and Builder.*

Mechanical Puddling a Success.

The Iron and Steel Institute of Great Britaiu recently dispatched a special commission to this country to report upon Danks' puddling machine, which has for some time been in successful operation in the iron districts of Pennsylvania. The commission were so well pleased with the working of the machinery that they sent the following cable tolegram: "Danks' furnace successful. Construct furnaces for 10 ewt., squeeze or hammer single ball. Economy and quality satisfactory." This announcement will he received with considerable interest by the iron masters in this country.

The inventor of this deviee, in a paper recently read before the Iron and Steel Institute, claimed for it the following advantages: A great saving in the cost of labor, and also in the consumption of eoal, varying according to the size of the furnace; a superior and more regular quality of puddled iron from a given quality of pig; a yield of puddled iron much in excess of the charge of pig metal, instead of the usual loss, the extra yield heing ohtained by the reduetion of the rieh fettling used in tho machine; eight to ten heats, whether of from 5 to 10 ewt., are made in a day of ten hours wheu suitable metal is used; the refining process is very complete, the whole of the phosphorus and silica, and the sulphur to a large extent, being removed by the ehemical action of the lining mixture; the very heavy and exhaustive labor of puddling ie performed hy eteam power, therehy enabling one skilled man to attend to the working of a large quantity of iron; the hringing to nature and halling of the iron is eompleted hy the rotary action without the use of rabbling, except when the heat has to he divided into smaller balls; and the capaeity may he euited for heats of any weight from 5 ewt. upwards. The cost of the furnace, weight of product considered, is about the eame as that of the usual hand-puddling furnaces. We understand that Mr. Danks will charge as royalty 50 eents per ton.

A DOMESTIC STEAM ENGINE.—It is gratifying to observe that a more than usual amount of inventive talent is being directed to facilitating household and other light work about the shop and farm. We notice in this direction that a small domestic steam motor, has recently heen brought out hy a distinguished mechanical engineer of Paris. These motore are constructed to vary in capaeity from one to four-fifteenths of a horse-power. It is intended to drive a sewing machine, churn, lathe, small eaw, pump, ventilator, and in fact any and all machines now driven by hand or foot power. The engine is heated hy a gas jet, the hoiler beiug vertieal and of peculiar and most perfect construction for utilizing the largest amount of heat. It can he set anywhere in a room, where it can he connected with a gas-hurner. The boiler is large, so as not to require heing fed oftener than once in four hours, even when in constant use, and still holds only four gallons.

By a peculiar arrangement the speed of the machine ie made to enlarge or contract the volume of the flame, and thereby regulate the production of steam to the amouut of work done. When tho machine ie at rest, the flame ie so reduced as to merely koep the eteam at a low pressure. The same device also aets as a safety valve. Explosion would he next to impossiblo. The engine and boiler weigh only 200 pounds, is 33 inches high, and costs in Paris hut $100.

AN IMPROVED LAMP.—We notice tho following recent lamp patent which muet be a great assistanee in the awkward duty of lamp filling: The improvement embraces a guido arranged in the body of the lamp adjacent to the filling-hole, and adapted to guide a float within the lamp. Also, a bright cap on the float, so mounted in the lamp as to be conspicuously seen in looking down into the filling-hole, and to warn when the filling is nearly completed. Also, a perforated cylinder in tho hollow stock or shaft of the lamp, so arranged as to receive air freely below, and to discharge it gently into the space around, to be thence conducted upward through an annular space to the burner.

CUTTING THREADS BY PRESSURE.—Of late threads have been raised by forging instead of cutting. The red hot end of the holts is placed hetween dies, with a female screw thread cnt into them. The upper die bcing pressed down on the iron, the threads are instantly formed, and are much tougher than the old one.

SCIENTIFIC PROGRESS.

Encke's Comet.

This comet, a very insignificant object in itself, has elicited much interest among astronomers from the short duration of its orhit, its near approach to the suu—nearer than Mercury—and the apparent uniform retardation of its period. We made somewhat lengthy mention, last week, of its connectiou with the theory of a resisting medium in space, and hut lately alluded to the telegraphic report that Dr. Huggins, the English astronomer, had succeeded in obtaining the spectrum of the comet. A few days since we received an advance sheet from the forthcoming January number of the Bostou *Journal of Chemistry*, from which we learu that Professor Young, of Dartmouth College, had also obtained a spectrum which he has figured in the proof-sheet hefore us, and which we have here reproduced.

The comet itself as seen through a teleseope, is a rounded mass of nebulous matter, ahout 5′ in diameter, with no definite outline, and without any distinct nucleus. It ie considerably brighter in the center; but so extremely attenuated that a star even of the ninth magnitude may be seen through it, almost as distinetly ae when no obstruction ie intervened.

The spectrum, the bands of which, three in numher, herewith shown, are apparently identical with those in the epectrum of the vapor of earhon. The middle hand, near "*b*," it will he noticed is much brighter than the other two, and is the most positive of the three. It appears that Prof. Young was more successful than Huggins in fixing the position of the two outside bands.

The speetroseope, to say nothing of observation, indieates that the material of the comet is gaseous, and gaseous only; for

there is no trace of any continuous spectrnm such as must result from the presence of eolid or liquid dust, in a state of however fine division. Prof. Young obtained his epectrum observations on the 1st, 2d and 5th of Decemher. The observations of Dr. Huggine were made at intervals from the 8th to the 17th of Novemher. The Doctor says he could not discover with certainty any trace of polarization, and asserts that incontestahly there is no polarized light in that of the comet itself.

We were under the impression that this was the first spectrum obtained of a comet; but we are now reminded that Huggins ohtained one of Comet II, 1868, which corresponds exactly with the one here shown of Encke's comet.

Dr. Huggins calls attention to the fact that the longer axis of the comet was directed almost exactly towards the eun, and that its head and nucleus were turned away from that luminary. This, he remarked, appears to be the rule with nearly all the smaller class of comets. They carry their tails before them, and not until their smaller fanshaped appendages have heen well warmed by the eun's rays, do they hegin to ehoot out large tails in the other direction.

It ie an interesting fact that the eometary matter appears to be thue directed *towards* the sun, and that it has not as yet fulfilled, in appearance at least, any of the conditions requisite for tho maintenance of the theory that comets draw their sustaining matter from the eun.

Tho aspect of the eomet, accordiug to a drawing made hy Mr. Carpenter of Greenwich, was that of "a somewhat shuttlecock-shaped nehulous haze, with two wings of much fainter light, extending on either side, giving a flattened appearance to the head of the comet." A drawing made hy Dr. Huggins agreed quite closely with the above. He thought that he had detected a minute but distinctly marked nucleus in the head of the "shnttlecock."

ELECTRICITY AS A DENTAL AGENT.—The use of electricity as an agent in aid of dental snrgery is a novel scientific applieation. Dr. Bonwill exhibited, at a late meeting of the Franklin Institute, an electro-magnet, which was conetructed to drive a plugging tool for filling teeth. By its agency the work of dentistry is said to be greatly leesened, and the time of an operation considerably shortened.

DEPOSITING ALUMINUM ON METALS.—J. Baynes Thompson, of White Hall, Eng., writes to the editor of the *Chemical News* that for more than two years he has heen depositing alnminnm daily on iron, steel, and other metals, and driving it into their surfaces at a heat of about 500° Fahr., in the same way as he does silver and nickel. He also says that he can do the same thing with aluminum bronze, of variest tints from the palest lemou to the richest gold color. Some years ago, Dore of Birmingham, England, also claimed to be able to coat eopper, brass, and German silver with alnminum by means of electrolysis. As there is no reason to douht the veracity of these gentlemen, it would appear to be a fact that aluminum ean be deposited hy electro-galvanic action the same as nickel, copper, and other metals. We should be glad to be furnished with the details of the process.

GOLD IN THE EOZOIC OF WISCONSIN.—Prof. Roland D. Irving, of the University of Wisconsin, reports the discovery of gold in the Eozoic of Wisconsin. He has fonnd small quantities in the quartz veins of Clark county, a few miles to the northward of the junction of the Potsdam Sandstone with the great etretch of Eozoic rocks, which underlie the northern half of the State. The prevailing rocks in this section, are chloritic and talcose schists, interseeted hy numerous veins of quartz. Associated with the gold were small quantities of magnetic iron in ecalee, pyrite and mispickel, as neual, scattered through a harren lookiug, tough white quartz, presenting none of the reddish or rotten appearanee eommon to eurface gold ores of any value. He ohtained, by assay, a yield of 20 cents per 2,000 lhs.

NEW PRODUCTS FROM THE OXIDATION OF CARBON.—A most important investigation from Prof. Schultze hae just been announced, upon the produets obtained in the direct oxidation of carbon with permanganic acid in alkaline solution. Besides oxalic and other acide, which were thus obtained in considerable quantity, the savant just named has succeeded in ohtaining one which he called provisionally "anthraconic" acid, but which he at the time suepected, and suhsequently, with the aid of Dr. Carstanjen and Baeyer, proved to be identieal with mellithic acid. The importance of this splendid discovery to theoretical science will be duly appreciated by the laborers in the field of organic ehemistry, and at the meeting of the scientific association at which it was announced, it was received with enthusiaem; while as the pioneer research in a field now opened for fnture fruitful discovery, its value to applied chemistry ean hardly be over-estimated.

The mellithie acid was obtained from various forms of earhon (amongst which was the graphite), and yielded, on distillation with soda-lime, benzol, and this, npon nitration and suheequent reduction gave analine.

PENDULUM EXPERIMENTS.—A series of careful experiments for determining the gravity of the Earth are about to he made at the Mont Cenis Tunnel. They will he made first in a lateral chamber ahout the centre of the tunnel, and will be afterwards repeated at the corresponding vertical point on the mountain, the difference of level being about 1,600 metres. In addition to these ohservations they propose to determine the earth'e magnetism and the temperature of the strata to which they can ohtain aceess. By preliminary oheervatione they have ascertained that the movement of the traine will not to any serioue extent interfere with the precision of the observations. The different points of observation will be connected with telegraph wires for the purpose of chronographic regietration.

ELECTRIOAL INDUCTION.—P. Blaserma, having experimented upon the velocity of electrical indnction, estimated the rate of propagation in air at 550 metres, and in gum lac at not more than 330 metres per second. The latter velocity is about equivalent to that of sound in air. Dr. Helmnotz, euspecting that the results were affected by indnction within the apparatue employed, has recently reported some experiments which demonstrate a velocity of more than 195 milee per second, or more than 600 times as great as Blaserma's esti mate.

MINING SUMMARY.

THE following information is condensed mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

GLOBE.—Monitor *Miner*, Dec. 23: This week the shaft has been re-timbersd the balancs of the way down to the old level and 5 ft. more in depth made. The black ore increases and indications are very flattering.

CALAVERAS COUNTY.

NUGGET.—Calaveras *Chronicle*, Dec. 23: We havo heen shown a nugget of pure gold weighing $85, found in the Jesus Maria creek.

DRIVEN OUT BY WATER.—The props. of the Corral Flat mine have been compelled to abandou it for the pressnt on accouut of the quantity of water.

GWIN MINE.—No rock is being taken out at present, it beiug found necessary to hail constantly to prevent the mine from filling.

INYO COUNTY.

ECLIPSE MILL AND MINE.—Inyo *Independent*, Dec. 16: The Co. is just beginning to get the new mill and things connected with the mine generally, in working order.

The mine presents the most encouraging aspect. For months past an immense hody of ore, gold and argentiferous galena has been uncovered in amount without further developments to insure an abundant supply for an indefinite numher of years. The tramroad is completed to a point within 2,500 yards of the lower dump. A large force are engaged and in a few days will have it finished, so that the teams now employed iu carrying the ore from the dump to the cars can he dispensed with, thereby effecting a saving of $1.75 on the transportation of each ton of ore, besides the extra handling. Measures are in course of execution to procure a light locomotive for use on the tramroad, which was constructed with that object in view. Fourteen cars and 4 horses are now engaged in transporting the ore, at the rate of 48 tons per day. The amount does not equal the capacity of the mill, so that it will have to be shut down occasionally for want of ore. Thirty stamps of the usual style are sst up and running, and 20 more to be in place. In addition to many other contsmplated improvements the long mill race is to be lined with growing willows to protect its banks and thereby increase its capacity. The steam hoisting works will, during next week, be put in place at the mine, and then as soon as the dump and tramroad connections are completed there will he no troubls in delivering ore enough to keep 100 stamps constantly in motion. Fifty additional stamps will be put in the mill as soon as the arrangements for delivering a sufficient quantity of ore are completed. A smeltiug furnace is in course of erection, and will soon be in runniug order.

NEVADA COUNTY.

TOWN TALK MINE.—Grass Valley *Union*, Dec. 24: The Town Talk gravel mine, working about a mile east from Grass Valley, had a clean up yesterday. A two weeks run gave $2,000 worth of gold dust.

NORTH BLOOMFIELD MINE.—The claims of the Co. are in the northern part of Nevada county. They own a gravel hed on the Bloomfield Ridge, known to he rich, and it only awaits development to he profitable. A tunnel about a mile long is to be run, and has heen commenced.

YOU BET.—National *Gazette*, Dec. 28: Mr. Stone the Supt. of the English Co.'s claima at You Bet informa us, that the late rains have filled all the ditches, and that they have 3 sets of claims running under full head.

BALTIC MINE.—Grass Valley *Republican*, Dec. 28: The owners have made arrangements to commence work immediately.

BLUE TENT.—The Sailor Flat Co., at Blue Tent, have heen at work hydraulicing in their claims for over a week. They use 450 inchea of water. The Enterprise Co., started up yesterday and used 400 inches. The Killam Co. E. Bond, Supt. will commence operations on their claims to-day. They will use 750 inches of water and employ about 15 men.

LITTLE YORK.—Goodspeed & Carney, at Hunta Hill, are running their 8 stamp quartz mill night and day, crushing about 50 tons of cement each 24 hours. They run their mill by water power, and employ 19 men in their mill and mine. Their cement paya well and with great evenness. A. G. Turner, in the Eastern cement claims, at Hunt's Hill, is also doing well. He is running his 8 stamp water mill in the daytime, and is making arraugements to crush night and day, when he will employ from 18 to 20 men. W. Duryea, at Buckeye Hill, is working 4 sets of hydraulic claims, and averages 3 pipes to each claim. At Quaker Hill, Jacobs & Sargent are running 6 ssts of hydraulic claims and altogetber 2,500 inches of water, and employ 30 men. At Little York, the English Co. that purchased ditch property and mining ground of E. Williams, last summer have an ahuudance of watsr, and are working their miue on an extensive scale. The season in Little York township opens favorahly, and the gold yield promises to he larger than it has heen since 1862.

LENGE OF ANTIMONY.— A ledge of what is supposed to bs sulphurets of antimony has heen discovered about 10 miles from Grass Valley. The ledge is ahout 3 ft. wide, in a hard syenite rock. An assay of some of the best looking pieces of rock yielded 75 per cent. of pure antimony. It also showed silver at the rate of $30 ton, and gold at $18 a ton. Steps will he taken to develop the mine immediately, and ascertain its value.

Nevada.

COPE DISTRICT.

LUCIN.—Elko *Independent*, Dec. 23d: The smelting works of Buel & Co. started up again on Monday, and were turning out at last accounts a tou of bullion every 2 hours.

EUREKA DISTRICT.

PHŒNIX RUN.—Eureka *Sentinel*, Dec. 29th: The Phœnix Smelting works commenced producing hullion at one o'clock A. M. Dcc. 21st; and at 2 o'clook P. M. about 20 tons had been run into bars.

UNCLE SAM.—A rich strike was made in the Uucle Sam mine Dec. 25d. The ore is represented as a very high order of gray carhonate, and the indications are that the ledge will develop into unusual size aud permanency.

STEAM UP.—The Cons. got up steam yesterday to dry the furnaces. The works will resume operation in earnest on or about the 5th of Jan.

NEW MILL.—In the southern part of town J. P. Jones & Co. have in process of erection a 5-stamp mill. The building is 25 by 40 ft., and in the main building thsre is a carpenter shop, assay office, with assay furnace attached, and in the rear the mill machinery is heing put up. It is intended to have 5 stamps, 3 pans, aud one large settler, driven by a small engine.

PINTO M. Co.—Located in Pinto Dist., on the survey known as the Dutchman's Ranch, ahout 7 miles from Eureka, is the mill of this Co. It contains 20 stamps, with a Stetefeldt furnace of the latest improved pattern, aud is capable of crushing and roasting 30 tons of ors per day. There are now 200 tons of ore on the dumps of the various mines of the Co., and the mill is well supplied with a sufficiency for running purposes. Work is steadily progressing, aud new and richer bodies of ore have been developed. The famous Basye property, adjoining the well known Geddes & Bertrand series; has lately passed into the hands of this Co., and the supply of ores will be ample for an indefinite length of time.

ELY DISTRICT.

BULLION.—Pioche *Record*, Dec. 24: W. F. & Co. shipped since Dec. 17th, for Meadow Valley Co. 19 bars consigned to New York, valued at $21,875.23; 11 bars from Raymond & Ely, consigned to N. Y., valued at $32,979.52; 7 bars from Meadow Valley M. Co., to N. Y., valued at $7,853.21.

NEWTON BOOTH.—This claim is on Panaca Flat, some 400 ft. northwest of the Panaca shaft. The upper portion of a ledge was run through at ahout 110 ft. deep. The shaft is down about 130 ft. A ledge the full size of the shaft has been struck. The ore shows chlorides of silver and some galena.

RAYMOND & ELY.—Owing to the burning of a hoiler sheet and the wearing out of some of the pans at the 20-stamp mill, the receipts of the Co. have fallen off; the last shipment being $33,000 (only $5,500 a day). The mill was stopped for 48 hours, on Monday, but has started up again. The mine is improving daily, the lower level showing over 240 ft. of ore in length, of good quality. The new 30-atamp mill will be atarted before the 15th of Jan.

PROSPECTING CLAIMS.—The Excelsior West Ext. of the Alps, Pacific Tunnel, No. 4, Caroline, Pioche, Champion, Silver Chief, Chief of the Hill, Gen. Moltke, Ivanhoe, Chapman and other claims are being atesdily worked. Some of the claims show good ore and justify further developments.

NEW STRIKE.—The Newark, on the Black Ledge. about 350 ft. east of the Lightner shaft, have struck fine ore at the depth of 125 ft.

GOOD SHOWING.—Recent assays from the ledge struck in the Newton Booth. show remarkably well for the futurc of the claim. Out of half a dozen samples taken from different portions of the ledge, the highest assay was $574.93, and the general average of the lot was $262.

THE Alps is hoisting the usual amount of ore per day. The character of ths ore in the east drift is improving rapidly. The galena has nearly disappeared at the depth where work is being carried on, rich chloride and horn silver, having taken the place of the hase metals.

PEAVINE MINE.—This claim is on the Peavine Mt. commmencing 1,500 ft. west of the Bowery mine and contained 1,000 ft. of mining ground. The ledge is traceable on the surface the entire claim. Three hundred ft. west of the east end of the claim a shaft has been sunk, following the ledge 50 ft. deep. At the 30-ft. level a drift was run west 18 ft., showing one foot of ore in the face of the drift. Throughout the entire works the ledge is well defined. The foot-wall is solid and has a fine selvage, showing it to be a true fissure vein. Forty tons of ore on the dump are as beautiful in appearance as it is in chlorides of silver, and contains some magnificent specimens of antimonial silver. The top rock is mostly argentiferous galena, and gives place to quartz containing large quantities of chlorides of silver. The average assays of the ore show it to contain $160 psr ton.

HUMBOLDT.

BULLION —Unionville *Silver State*, Dec. 30: Amount shipped from the Arizona mine, since our last issue, was $7,767.

DUN GLEN.—Sprague& Co.'s new quartz mill started up on ore from the Lang Syne mine, on Tuesday and is a decided success.

REESE RIVER.

GOOD YIELD.—Reese River *Reveille*, Dec. 27: Groves aud hrother have had another crushing from their mine. There were 3 lots. The first class ore (1½ tons) worked up to $903.54 per ton. The second class, cousisting of 11¼ tons, returned $215.58 per ton and the third class 9 tons—gave $62.44 per ton.

MOREY ORE.—Two lots of ore from Mr. Ogden's mine, Morey dist., have been worked at the Manhattan mill. One lot, of 3¾ tons, returned $369.00 per ton. The other worked lot, 2¼ tons, yielded $382.90 per ton.

SUMMIT CANON.—A lot of ore from G. Hall's mine at Summit Canñon amounting to 13¼ tons, recsntly worked at the Manhattan Mill, returned $160 20 per ton.

BELMONT ORE. —The Manhattan Co. have worked 11 tons of ore from the Arizona mine, at Belmont. It yielded $279 50 per ton.

THE Manhattan mill Co. run through 15 tons from their mine, the Oregon, this week.

One and a half tons returned $1,375 47 per ton, and 13½ ton yielded $436 65 psr ton.

LONE STAR.—This property is being worked by its owner, aud is turning out a large qnantity of splendid ore. For several months, a constant stream of splendid rock has been coming out of the mine and it still looks as good as ever.

MONITOR. The property of the Co. consists of hetween 1,500 and 1,600 ft., comprising the Monitor and Independencs locations. A tunnel taps the ledge at a distance of 250 ft. from the surface showing a well defined ledge from 3 to 15 ft. in width with well defined walls on either side. The ledge has been prospected a distance of 400 ft. in length hy drifts and winzes and to the depth of 50 ft. helow the tunnel, exposing a well defined ledge the entire distance, averaging in thickness as ahove stated; nearly all the rock being good milling ore, assaying from $50 to as high as $4,000 per ton.

One hundred and sixty tons of ore worked at the Manhattan mill within the the last 4 moutha yielded over $71,000, an average of $444,44 per ton.

WASHOE.

BULLION.—Virgiuia *Enterprise*, Dec. 29: A lot of 8 hars of hullion, worth $190,000, was yesterday shipped. For the past two days the shipments have been 162 bars, worth $365,000.

SHIPMENT FOR THE MONTH ANN THE YEAR. The bullion shipment for the month of Dec. from Wells, Fargo & Co.'s was 522 bars, 39,808 ℔s. valued at $981,188.96. The total bullion shipmeut for 1871 was 6,612 bars, 195,000 ℔s. (97¼ tons), and worth $10,921,412.06. The shipments from the Gold Hill office of Wella, Fargo & Co. are not included in the above; including the hullion sent from Gold Hill the total is $12,500,000. The shipment from this place for this year exceeds that of 1866 by $3,400,000,

SHUT DOWN.—The Kentuck mine is shut down for the present. There is no getting ore to the mills and no getting it crushed once it has reached there.

OPHIR SHAFT.—The new Ophir shaft was yesterday down 1,246 ft., leaving 54 ft. to go hefore starting the maiu drift for the lead. Before this drift is started a sump will he constructed and the pump put in place ready for action in case a largc deposit of water shall be struck in the drift.

SUTRO TUNNEL.—The Sutro Tunnel Co. have attacked their grsat adit at all points, with everywhere a strong force of workmcn. The main tunnel is in 2,550 ft., and is again in pretty hard rock. Shaft No. 1 is down 12 ft.. iu ground that works well; Shaft No. 2 is down 30 ft., in a species of conglomerate (trachyte); Shaft No. 3 is down 20 ft., ground all hard, blasting rock, No. 4 is down 18 ft.; ground hard. They are going ahead in good earnest with their work. Once they get the 4 shafts down to the tunnel level, they will be able to work in the tunnel itself at 9 different points.

CALEDONIA SHAFT.—The new Caledonia shaft is down 460 ft. The rock continues of a favorable character.

ITEMS.—Gold Hill *News*, Dec. 30: The Belcher still continues showing better and better as further developed. At the 1,100-ft. level the south drift is in 284 ft., the face showing good ore, assaying $100 per ton on the average. The southeast crosscut from it is in 30 ft., and the face shows a mixture of quartz and porphyry. The south winze is down 11 ft., with good ore at the bottom. The winze 80 ft. south of the north line is up 112 ft., and the face of it shows good ore. The north winze is down 80 ft., with its bottom in good ore. On the first floor the vein is stoped out 155 ft. south from the north line, and the breasts are still in good ore. The second, third, fourth and fifth floors are all looking finely. Good ore in all directions. At ths 900-ft. level the east cross-cut from the south drift is in 67 ft., and its face still shows good ore. Last week 700 tons of ore were taken from the Hale and Norcross mins, and 1,000 tons from the Savage mine, the latter assaying $27.20 per ton. The dump of both mines are full, therefore but little ore is being taken out. There is some talk of the Savage suspending operations for a while until ore can be again transported to the mills. There is plenty of good ore developed in the mine, but it is not expedient to take it out at present.

WHITE PINE.

BULLION.—White Pine *News*, Dec. 23: W. F. & Co. shipped to-day to London, for Eberhardt & Aurora M. Co., (limited) 7 bars of bullion.

SINCE last report, the Eberhardt & Aurora Co.'s mines have improved. In the South drift, running from the Lady's chamber, an immense hody of ore is in sight, and the size of the ore-body increases daily. A strike was made in the Iceberg—ore of the South Aurora Co.'s mines—of a highsr grade of ore than usually taken out. Work in the Original Hidden Treasure and South Aurora tunncls is steadily going ahead, to cut the mineral below ths workings.

NORTH AURORA.—The usual force of men are employed in the Risdale chamber breaking down ore and hoisting to the surface, for shipment hy tramway. There is already a large amount of ore on the dumps from the Risdale chamher. In the Lady's chamber the amount of ore in aight is immense. The south drift from the Lady's chamher shows the finest hody of ore ever developed in the State. There is a qnarter of a million of dollars in sight in the Lady's chamher and south drift aince the mine was last reported on; and there is no limit to the ore-body as yet—or, in other words, there is no wall either east or weat. It is expected that the Ward Beecher will connect with the Lady'a chamher in a few daya.

EMERHARDT.—The ore in the Keystone shaft has improved since last week in the grade and quantity. Work will uot be resumed in the open cut until the weather is favorable. Working the usual force of men.

EAST SHEBOYGAN.—Since last mentioned, connections have heen made from the different workings, and a force of men commenced atoping out in the original tunnel. The ore taken out during the winter will be piled on the dumps to he worked by the Company's mill, which is proposed to be erected in the spring.

SOUTH EX. OF HIDDEN TREASURE.—The drift running North from the Anchor incline is progressing rapidly, and the indi-

cations are favorable. The appearance in the main shaft (situated on the North end of the ground) is better than reported last week.

ICEBERG.—A strike of rich ore was made in the mine the past week. Heretofore the grade of the ore has been of a fair milling quality, but the great improvement in the quality of the ore since we last visited the mine astonishes us.

GREAT WESTERN.—Work is suspended for the winter. Since fall the amount of shaft work done is 150 ft. and the levels run will foot up 67 ft. There is a large body of ledge matter in sight, but the average assay will not go over $10 per ton. Operations will commence early in the spring, and we are of the opinion that a good body of ore will be opened out.

SLOW DROP SHAFT.—Fair headway is made sinking, and no change to report in the appearance of the rock. The foreman of the works is sanguine of opening out a large body of ore after the shaft is down to the proper depth.

NOONDAY.—The ore in the breast grades the same as to quality as reported last. The thickness of the ore-body has increased. The amount of ore hoisted daily is about three tons. The usual force of men at work.

WARD BEECHER.—The shaft in the east end of the mine is going down in ore of average milling grade. The object in view is to connect with the drift running east from the Lady's chamber.

ENGAN.—The parties working the mine are taking out ore that will mill better than the last lot crushed, and feel satisfied of opening out a still higher grade of ore in a few days.

SILVER WAVE.—Work progresses in the Lyford, Perkins, Chamberlain and No. 4 shafts as usual. The contractors are making good headway.

SOUTH AURORA.—Tunneling and shafting goes ahead as usual. The contractors are making good headway.

GEN LEE.—The Supt. informs us that work will be resumed in a few weeks by contract.

OUTSIDE DISTRICTS.—PIERMONT.—The mill shut down for repairs, but will start up again in a few days. Since we last made a note of the Piermont Co.'s mines the ore has improved in grade, and the ledge has increased in width. The ore-body is between 7 and 8 ft. wide, and there is a breast opened 150 ft. long. The whole underground force will be at work stoping out when the mill starts up.

SCHELL CREEK MINES.—The mill of the Ruby M. & M. Co. will start up on ore from the Cow & Calf, one of the best mines in the Schell Creek Range, and afterward will commence on ore from the Silver Bluff, lately leased by the Co. As far as heard from, the mines throughout the range are looking well. The McMahon shows the usual fine body of ore, and is represented to be second to no mine in the Dist.

SAN JUAN DEL RIO.—Work was suspended for a few days, on account of the stormy weather, but operations commenced again this week, and a seam of rich chloride ore was developed. The general appearance of the mine has improved since last reported. The Supt. informs us that he will commence shipping to mill immediately after the holidays.

PIOCHE.—The Panaca mine, belonging to the Raymond & Ely Co., is showing an extensive body of ore. The Pioché, Alps and American Flag mines come up to the expectations of the managers.

MILLS.—INTERNATIONAL.—Running on Company rock.

MANHATTAN.—Running on tailings; will shut down for repairs in a few days.

STANDFORD.—Running on tailings.

BIG SMOKY.—Running on Hidden Treasure custom rock.

SWANSEA.—Running on East Sheboyan ore.

British Columbia.

CARIBOO.—British *Colonist*, Dec. 21: On Williams Creek mining operations have been retarded by the severe weather, on account of which work has been suspended in the principal claims. The Ballarat has commenced washing underground, and the Cariboo Co. are preparing to do likewise. On French Creek the Ambrose Co. has found good prospects on the high rock. The Black Bull Co. are engaged in getting their steam engine to the claim. On Jack of Clubs Creek, the Two Sisters Co. had got into the channel and obtained excellent prospects. The First Chance Co., on the same creek continue to get average pay.

During Nov. gold to the value of $75,-415 was assayed at the Government Assay Office.

OMINECA.—The Gold Commissioner's report, dated Oct. 23d, says: "It is difficult to ascertain the amount of gold taken from the Omineca mines during the present season, but the returns that have been furnished to me by the foreman of the principal Co. show a yield of $300,000, and to this may be added not less than $100,000 more, taken away in the hands of which there is no return, making in all $400,000."

PAINE CLAIM.—*Standard*, Dec. 20: The Paine claim on Germanson creek produced to 3 hands this season $19,000 gold dust, and there was but little expense connected therewith. Besides this, specimens of nearly pure silver, copper and platinum have been taken out of this claim.

Idaho.

SHIPPED.—Owyhee *Avalanche*, Dec. 23: W. F. & Co. shipped from here yesterday 4 bars of bullion, valued at $8,069.50.

Nick Zapp and others have located 3,000 ft. square of placer mining ground between the Oro Fino mine and Cape Horn. Good prospects have been obtained and it is thought that the ground will pay well.

MINING RECORN.—The North Discovery of the Oro Fino is yielding a large amount of ore. It is reported that a very rich strike has just been made in that mine.

The South Oro Fino, is yielding from 25 to 30 tons of ore per day, which is being crushed at the Elmore mill. This mine is so well opened that about a ton of ore to the man is being daily taken out, at a cost to exceed $5 per ton. There are about 400 tons ahead of the mill.

During the past week a rich strike has been made in the 11th level of the Elmore 130 ft. north of the slip in the mine. Fifty or sixty dollar ore with a 2 ft. voin.

The Golden Chariot is yielding fine looking ore from both the 5th and 8th levels. Additional hands have been put to work.

The Minnesota is looking splendidly. The last contract for 100 ft. of shaft is completed which makes it 230 ft. deep. And now, 3 drifts are let to run from the main shaft—one north and two south: As soon as these drifts are in far enough; stoping will commence. There are already out at the mine over 100 tons of ore that will yield at least $40 or 50 per ton, and will be milled about the last of this month.

The Mahogany shaft is going down for the 5th level. About the first of next month the shaft will be down far enough to be out of the way of cutting the ledge at the 4th level, which will then be done.

The South Chariot is yielding fine ore from the 4th level lately struck by Pete Nick, who is running the drift. It is $35 or $40 ore, with a large ledge. The ore from the drift will he crushed during the coming week.

The War Eagle continues to yield a fine quality of ore.

GOLD SHIPMENT.—Idaho *World*, Dec. 21: During Nov. the bank of DuRoll & Co., shipped below, gold bars of the aggregate value of $100,892.17.

Montana.

QUARTZ.—Helena *Herald*, Dec. 21: Work on the gold quartz ledge "Red Bluff," below Sterling, in the Hot Springs Dist. is being vigorously prosecuted by J. Lounds who is obtaining good results. The ore, which is of a superior quality, is being worked in aarstras. The quartz yield is said to abundant, and the profit quite satisfactory.

SILVER STAR.—Deer Lodge *Independent*, Dec. 23: Porter, Harper & Ellis have bought the Iron Rod lode and mill, and intend starting it up immediately. The Green Campbell mill is shut down for the present, the Co. being engaged in putting a shaft in the mine for the purpose of erecting hoisting works. Tripp & Ainsly's mill is frozen up. Porter & Meagher's new mill has made one run from the Nugget lode, which proved successful. Quartz interests generally are looking well in Silver Star and Iron Rod dists.

PANNING OUT.—Helena *Gazette*, Dec. 25: The Pittsburg mill has been crushing on the Jaw Bone lode, in the vicinity of St. Louis with good success producing $1,200 from 50 tons of rock.

Utah.

BULLION.—S. L. *Tribune*, Dec. 27: W. F. & Co., received, Dec. 19 seven bars of bullion 786 lbs valued at $7,853.53, from Meadow Valley Co., consigned to New York. On the 26 they received from same place and Co., 6 bars, worth $6,638, also consigned to New York.

INAHO MINE.—This mine, discovered and developed near Corinne promises well.

LITTLE COTTONWOOD.—Cor. same: Among the most promising of the Little Cottonwood mines are the Last Chance and Hiawatha, which have consolidated, and are about 300 feet in a westerly direction from the Montezuma and about 1,500 ft. from the celebrated Emma mine. The Hiawatha was discovered in June 1870, by J. Despain; who with others, located 3,000 ft. thereon, but afterward sold out to the present owners who have since continued the discovery shaft to the depth of 125 ft. exposing a well defined vein of ore, of an average thickness of about 20 inches. Samples taken from the bottom of this shaft and assayed gave $282.76 silver per ton and 50 per cent. metallic lead; but the general average assay of ores from this shaft, of which about 40 tons are on the dump, although carrying about 50 per cent of lead, contains only 50 ozs. of silver to the ton. The course of the Hiawatha is nearly north and south, while that of the Last Chance is northeast and southwest, and possesses all the features of a true fissure running diagonally to formation, or country rock.

It is opened at 3 points by inclined shafts—one 90, one 45, and one 20 ft.—showing a continued vein of high grade ore for a distance of more than 200 ft. in length, and of an average thickness of about 2½ ft. 2,121 lbs. taken at the depth of 60 ft. sampled and assayed, gave 29 per cent. lead, and $308 in silver per ton. 15,-000 lbs. were sold at $52 per ton.

San Francisco Mining Stock Market.

THURSDAY EVE., Jan. 4, 1872.

Mining stocks were in active demand during the week. The sales at the Stock Board for the week ending December 27th were $1,780,000.

There was no meeting of the Board on Saturday or Monday.

The stockholders of the Daney Mining Company have unanimously voted to increase their capital stock from 2,000 shares of $60 each, to 24,000 shares of $100 each. As soon as the necessary papers can be prepared, holders will be presented with the new issue at the rate of three shares for one.

During the ensuing week, $50,000 is expected to be received from the Raymond & Ely mine. On the 29th December, $22,000 was shipped from the Chollar-Potosi mine. Thus far on December account, $101,700 has been received from the Meadow Valley mine. Only 78 tons ore were taken from the Hale & Norcross mine last week, and 450 tons from Savage mins, the latter assaying $31.26 per ton. During the past week, 133 tons ore were raised from the North Star (Grass Valley) mine. The quantity reduced was 208 tons, leaving 120 tons on the dumps. The Superintendent expects to "be able to make mouthly shipments large enough to make up for the time stockholders have been without divideuds."

B. F. Sherwood, William Sharou, and R. F. Morrow have been elected Trustees of the Central Mining Co.

The Board commenced operations in September, 1862. The annual sales compiled by the *Commercial Herald* are as follow:

1864	$25,832,715	1868	$115,943,119
1865	40,205,820	1869	69,989,731
1866	32,825,894	1870	51,186,450
1867	66,274,577	1871	127,191,631

The sales for the past year have been actually $20,000,000 in excess of the amount for the first three years. The nearest approach to the activity which has prevailed during the year just closed was in 1868. The monthly sales of the Board for the two noted years compare as follows:

	1868	1871.
January	$8,688,834	$7,686,934
February	9,716,596	7,256,645
March	11,471,830	12,758,146
April	9,770,363	9,770,363
May	10,162,336	12,511,546
June	9,078,063	13,470,665
July	8,474 988	9,744,269
August	11,612,901	10,536,471
September	10,578,561	11,197,375
October	10,519,442	14,762,764
November	6,148,601	9,104,458
Decembor	7,097,393	8,391,423
Totals	$115,943,119	$127,191,631

The months of August, September and October, in each year, were remarkably active.

Comparative Prices—Extremes, Advance and Decline.—S. F. Stock and Ex. Board.

	Dec. 28,	*Highest.*	*Lowest.*	Jan. 4.	*Adv.*	*Dec.*
Alpha	$—	14⅜	13½	—	—	—
Belcher	450	490	435	475	25	—
Buckeye	—	4¼	3¾	3¾	—	—
Chollar-Potosi	33½	38	33½	38	4⅜	—
Caledonia	14½	18⅜	13⅜	18⅜	3¾	—
Cons. Virginia	16	18	15	18	2	—
Crown Point	415	470	410	470	55	—
Raney	7	7	7	—	—	—
Eureka Cons	24⅞	26¾	22½	26⅜	1⅜	—
Gould & Curry	114½	116	106	107	—	7½
Golden Chariot	29	29½	26	26¾	—	2½
Hale & Norcross	134	136⅜	130	136⅜	2½	—
Imperial	—	42	41	42	—	—
Ida Elmore	15½	20	16½	17½	—	2
Kentuck	150	150	146½	150	—	—
Meadow Valley	24	27	19¾	21	—	3
Ophir	32½	39½	31½	39½	7½	—
Orig. Hid. Treas.	8	9	7⅞	8¾	¾	—
Overman	30	47	29¼	39½	9½	—
Pioche	10⅞	11	8½	—	—	—
Raymond & Ely	92	100	78	88	6	—
Savage	46	48¾	46	48¾	2¾	—
Sierra Nevada	—	33	33	—	—	—
Wash. & Creole	5⅜	5¾	5½	5½	—	⅛
Yellow Jacket	—	61	60	61	—	—
St. Patrick	40	40	40	—	—	—
Seg. Belcher	35½	50	33	45	4½	—

Latest Prices—Bid and Asked.

	BID.	ASKED.		BID.	ASKED.
Alpha Cons	—	—	Ida Elmore	17	17⅛
Amador	—	—	Imperial	40	42
Belcher	470	475	Kentuck	149	150
Chollar-Potosi	37½	38	Meadow Valley	20	20½
Crown Point	460	460	Ophir	38½	39
Caney	—	—	Orig. Hid. Treas	8¾	9
Eureka Cons	26	26	Overman	36	37
Eureka	22	22½	Savage	48½	48
Golden Chariot	26	26½	Raymond & Ely	85	85
Gould & Curry	107	107	Sierra Nevada	—	61¾
Hale & Norcross	136	136½	Yellow Jacket	60½	—

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

ASSESSMENTS.

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT	DAY DELINQUENT.	DAY OF SALE.
Alhambra Hill M. Co., Nev., Dec. 9, 50c.	Jan. 13	Feb. 5*
Cherokee Flat, Butte Co., Jan. 3, $2.50	Feb. 6	Feb. 23
Con. Vlr., Nev., Nov. 9, $1.50	Dec. 13	Jan. 6
Daney, Lyon Co., Nev., Nov. 27, $1	Dec. 30	Jan. 18
Eagle Quicksilver, Cal., Oct. 30, $40	Jan. 6	Jan. 8*
El Dorado M. Co., Cal., Dec. 7, 25c	Jan. 16	Feb. 6
Ely Consolidated, Nev., Nov. 27, 50c	Jan. 8	Jan. 30
Golden Chariot, Idaho, Nov. 15, $3	Dec. 23	Jan. 15
General Lee S. M. Co., W. P., Dec. 5, 10c.	Jan. 10	Jan. 30
Hale & Norcross, Nev., Dec. 14, $5	Jan. 18	Feb. 7
Ida Ellmore, Idaho. Dec. 30 $3.00	Jan. 31	March 4
Jackson M. Co., Eureka, Dec. 8, 25c	Jan. 10	Jan. 29
Kincaid Flat M. Co., Dec. 11 $2.50	Jan. 17	Feb. 7*
Knickerbocker M. Co., Storey Co., N., Dec. 4–50c	Jan 7, 26	
Lillian Hall M. Co., Ely Dist., Nov. 18, 50c.	Dec. 27,	Jan. 23
Magnolia, Eureka Dist., Nov. 27, 25c	Dec. 29	Jan. 19
Mahogany M. Co., Idaho, Nov. 11, $2	Dec. 19	Jan. 10
Mammoth, White Pine, Dec. 13, 10c	Jan. 18	Feb. 8
Meadow Valley, Ely Dist., Nov. 27, 50c	Jan. 9	Jan. 31
Mina Rica M. Co., Cal., Nov. 15, 20c	Dec. 18	Jan. 8*
Monitor & Magnet, N. T. Dec. 4, 25c	Jan. 23	Feb. 17
Nevada Con. Borax Co., Nov. 29, 5 cts.	Jan. 10	Jan. 29*
Ophir S. M. Co., Nev., Dec. 20, $2	Jan. 24	Feb. 14
Orig. Hid. Treasure, W. P., Nov. 24, $1.50	Jan 3	Jan 25
Overman, Nev., Nov. 20, $4	Dec. 25	Jan. 23
Overmau, Nev., Nov. 25, $2	Dec. 29	Jan. 16
Peter Walter, Pla er Co. Cal., Nov. 14, 75c,	Dec. 20	Jan. 9
Phœnix, Lander Co., Nev., Nov. 21, 50c.	Dec. 27,	Jan. 16
Ploche W. Ex. Ely Dist., Nov. 23, $1.50	Jan. 4	Jan. 27
Pocabontae O. M. Co., Cal., Nov. 29, $5	Jan. 6	Jan. 30*
Quail Hill M. and W. Co., Dec. 19, $5.	Jan. 23	Feb. 13*
Silver Wave, White Pine, Dec. 19, $3	Jan. 25	Feb. 23*
Spring Mount Co., Ely Dist, Nov. 27, 50c.	Jan. 7	Jan. 29
Starlight O. and S. M. Co., Nov. 1, 25c	Dec 11	Jan. 2*
South Chariot M. Co. Owyhee Co. Id., Nov. 7, $1	Dec. 18,	Jan. 8
Succor, M. M. Co., G. H., Jan. 3, $1.50	Feb 6	Feb. 27
Tecumseh G. S. & C. Co., Dec. 5, $3	Jan. 9	Jan. 30*
Tallnlah M. Co., Humboldt Co. Nev., Nov 29–$1,	Jan 3, 30	
Union G. M. Co., Cal., Jan. 4, $1,00	Feb. 5	Feb. 26*
Washington & Creole, Nev., Nov. 27, 50c	Jan. 5	Feb. 1

MEETINGS TO BE HELD.

Amador M. Co	Annual Meeting, Jan. 15
Cons. Virginia	Annual Meeting, Jan. 11
Ely Consolidated	Annual Meeting, Jan. 4
Emerald Hill	Annual Meeting, Jan. 9
Gold Hill Quartz M. & M. Co	Annual Meeting Jan. 15
Meadow Valley, East Ex. Co	Annual Meeting, Jan. 26
Pioche, West Extension Co	Annual Meeting, Jan. 23
Raymond & Ely	Annual Meeting, Jan. 16
Redington Quicksilver M. Co	Annual Meeting Jan. 9
San Juan, Del., Rio. M. Co	Annual Meeting, Jan. 8
San Juan Del Rio M. Co	Annual Meeting, Jan. 8
Sierra Nevada S. M. Co	Annual Meeting, Jan. 8
Ward Beecher	Annual Meetiug, Jan. 8

LATEST DIVIDENDS—(Within Three Months).

Chollar Potosi, $1	Payable Dec. 11
Eureka Cons., $1	Payable Oct. 20
Eureka Gold M. Co., $1	Payable Jan. 6
Meadow Valley, $1.50	Payable Dec. 15
Raymond & Ely, $5	Payable Dec. 18
Succor Mill and M. Co., 50c	Payable Oct. 16
Yule Oravel M. Co., 50c	Payable Dec. 5

*Advertised in this journal.

San Francisco Metal Market.

[Corrected weekly by Hooker & Co., 117 and 119 Cal. street.]

PRICES FOR INVOICES

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

THURSDAY, JANUARY 4th, 1871

IRON.—Duty: Pig, $7 ₱ ton; Railroad, 60c ₱ 100 lbs; Bar, 1¼@1½c ₱ lb; Sheet, polished, 3c ₱ lb; common, 1½@1¾c ₱ lb; Plate, 1½c ₱ lb; Pipe, 1½c ₱ lb; Galvanized, 2½c ₱ lb.			
Scotch and English Pig Iron, ₱ ton	$52 50	@	55 00
White Pig, ₱ ton	45 00	@	— —
Refined Bar, bad assortment, ₱ lb	— 04	@	— 05
Refined Bar, good assortment, ₱ lb	— 05	@	— 06
Boiler, No. 1 to 4	— 05	@	— —
Plate, No. 5 to 9	— —	@	— 05
Sheet, No. 10 to 13	— 05½	@	— —
Sheet, No. 14 to 20	— 06	@	— —
Sheet, No. 24 to 27	— 06	@	— —
Horse Shoe	7 50		
Nail Rod	9		
Norway Iron	7½		
Rolled Iron	5		
Other Irons for Blacksmiths, Miners, etc.	5	@	6
COPPER.—Duty: Sheathing, 3½c ₱ lb; Pig and Bar, 2½c ₱ lb.			
Sheathing, ₱ lb	— 24	@	— 26
Sheathing, Yellow	— 24	@	— 25
Sheathing, Old Yellow	— 11	@	— 11½
Composition Nails	— 24		— —
Composition Bolts	— 24		— —
TIN PLATES.—Duty: 25 ₱ cent. ad valorem.			
Plates, Charcoal, IX ₱ box	12 00		— —
Plates, I C Charcoal	10 00		10 50
Roofing Plates	11 00		— —
Banca Tin, Slabs, ₱ lb	— —		— 45
Straits, English Cast, ₱ lb	— 16		— 17
Drill	16		17
Flat Bar	17		20
Plough Points	3 75		— —
Russia (for mould boards)	12½		
QUICKSILVER.—₱ lb	— —		— 85
LEAD.—Pig, ₱ lb	— 05½		— 06½
Sheet	— 08		— 8½
Pipe	— 9		— 10
Bar	— 08		— 09
ZINC.—Sheets, ₱ lb	— 10		— 10½
BORAX.—Refined	— 25		— 30
Borax, crude	— 5		— —

Leather Market Report.

[Corrected weekly by Dolliver & Bro., No. 109 Post st.]

SAN FRANCISCO, Thursday, January 4.

SOLE LEATHER.—The demand is still equal to the supply, and prices still continue firm.

City Tanned Leather, ₱ lb			26@29
Santa Cruz Leather, ₱ lb			26@29
Country Leather, ₱ lb			25@28

The market is well supplied with French stocks, and prices have a downward tendency. Heavy California skins are firm, with an upward tendency.

Jodot, 8 Kil., per doz	$80 00@		
Jodot, 11 to 19 Kil., per doz	76 00@	85 00	
Jodot, second choice, 11 to 15 Kil. ₱ doz	60 00@	80 00	
Lemoine, 16 to 19 Kil, ₱ doz	95 00@		
Levin, 12 and 13 Kil., per doz	68 00@	70 00	
Cornellian, 16 Kil., per doz	72 00@		
Cornellian, 12 to 14 Kil., per doz	65 00@	70 00	
Ogerau Calf, ₱ doz	54 00@		
Simon, 18 Kil. ₱ doz	65 00		
Simon, 20 Kil. ₱ doz	68 00		
Simon, 24 Kil. ₱ doz	72 00		
Robert Calf, 7 and 8 Kil	35 00@	40 00	
French Kips, ₱ lb	1 00@	1 30	
California Kip, ₱ doz	65 00 to	80 00	
French Sheep, all colors, ₱ doz	15 00		
Eastern Calf for Backs, ₱ lb	1 15@	1 25	
Sheep Roans for Topping, all colors, ₱ doz	8 00@	13 00	
Sheep Roans for Linings, ₱ doz	5 50@	10 50	
California Russett Sheep Linings	1 75@	5 50	
Best Jodot Calf Boot Legs, ₱ pair	5 25		
Good French Calf Boot Legs, ₱ pair	4 50@	5 00	
French Calf Boot Legs, ₱ pair	4 00		
Harness Leather, ₱ lb	30@	37½	
Fair Bridle Leather, ₱ doz	48 00@	72 00	
Skirting Leather, ₱ lb	34@	37½	
Welt Leather, ₱ doz	30 00@	50 00	
Buff Leather, ₱ foot	17@	21	
Wax Side Leather, ₱ foot	18@	29	

THE HOG CROP of Ohio for 1871 is estimated at 1,008,571 hogs—an increase of forty per cent. over that of 1870.

The Sponge.

EDITORS PRESS:—Will you give through the columns of your valuable journsl some information about the preparation and bleaching of the eponge, snd oblige many of your resders bssides T. MEILINOS.

Ssn Francisco, Dec. 1871.

The recent discovery of sponge on the coast of Sants Barbars hss sttracted considerable attention to the possibility of adding the production of thst article to the numerous snd varied industries of Californis. There is a great rsnge in the form and relative fineness and softnese of the spongs, varying in the lstter psrticulsr all the way from the velvety and almost white sponges employed in the toilet, to those of so stiff and compsct texturs, as to crumhle essily when dry, their harshness rendering them entirely useless in the arts. The differsnt varieties are sometimes known as sheep-wool, velvet, glove, yellow, hard hesd and graes. Those found on the coast nesr Ssn Buenaventura, according to the *Signal*, are of very fine quality, and although cast up upon beach, bear every evidence of having their origin in that immediate vicinity. Some sponges live in very deep water, others in shsllow, and they greatly incresse in size and number from cold to warm lstitudes.

The eponges of commcrce are mostly ohtained from the Mediterranesn snd the Bshamas. At the port of Nassau about 30,000 pounds are gathered snnnally. The French and Austrian Governments have begun to raiss the sponge artificially, and the expsriment hss been pronounced not only successful but very profitable. The sponge may be se easily transplanted as the oyster. It ie propagated naturally by little hairy germs, carried out of the hody of the psrsnt by currente, which, after floating about awhile, much like the oyster, finally atsch themselves to a rock or some other convenient substancs and then commence their permsnent growth. If a young and vigorous eponge ie taken from its originsl location and transplauted—its roots being properly secured—it will continue to increase in growth, and also throw off germe for new individuals. The pores of the sponge are its mouths, through which it receives ite nourishment—its roots are merely the mesns of retsining it in place, not for receiving nourishment.

The sponge is considsred the connecting link between auimsl and vegetabls life. A jsllylike substsnce fills the pores of the living eponge, which msy he considsred its *animal* euhstsnce, while the fibrous materisl which remains after thst is removed—and which constitutes ths sponge of commercs—coustitntes its *vegetable* suhstance.

In the larger and cosrser varieties the animal matter is very ahundsnt, and of a sickish, disagreeable odor, and eoon enters into putrefaction when removed from the rocks and bronght to the eurface. Such sponges are buried in dry sand until ths animsl mstter hss hecome thoroughly pntrefied, when they are plsced in iron csges and suhjected to the action of the tides. The cslcareous matter, which is also more or less abundant in sll the varieties, is dissolved out by immersion of the sponge in very diluts hydrochloric acid. They are first thue soaked, then drisd and heaten until all esrthy mattere hsve been removed.

To bleach eponges, the finest ars selected, and aftsr the above treatment, thoroughly washed in clear water and then submitted to another bath (this time warm) of diluts hydrochloric acid, in which 6 per cent. of hyposulphate of sods has bsen diseolved. After remaining in this hath from 24 to 48 hours, the sponge, if of a fine variety, will be as whits as snow or "sheep-wool"—the uame hy which it is known.

Sponges ars found as far north as Great Britain, on ths shore of which, it is said, not less than 24 species have been noticed. The climate of the southern part of this State is prohahly as well adapted to the growth of this article ae are the French and Austrian shores of the Mediterrsnean. Experiments in their cultivation here would undoubtedly meet with much success and profit.

SENSATION IN HORSES.—The fact that horses and other animals with broken limhs do not appear to lose their appetites, have led some scientific men to raise the question whether these creatures suffer as much under the circumstances as men do; for a man could not sit quietly down to dinner just after hreaking his leg.

The Beet Sugarie at Sacramento.

We condense the following facts with regard to the Sacramento Beet Sugarie from the Saucelito *Herald:*

The success of this sugarie has more than ordinary interest, because the process is essentially diffsrent from that at the Alvarado. The two processes are in rivalry. The Gsrmans at Alvarado insist that their system is superior; while the manages at Sacramento, also Germans, proclaim their "Rohsrt, Diffusion process" cheaper hy thirty per cent. in cost of lahor and in cost of construction, and richer in yield of sugar.

The advocates of the Alvarado process, long in general use, say the sugaries of Germany which had heen changed to the Diffusion system, are changing hack again; while Sacramento has advices of opposite import. It is impossihle to convey an intelligent description of Robert's process without diagrams. But we may say that, while beets are *rasped* at Alvarado, and the juice extracted by centrifugals; at Sacramento the heets are *cut in thin slices* and macerated in cold water, dispensing with the use of centrifugals. It is claimed that the juice is thus more perfectly extracted, and requires less chemistry in pnrification. Certainly it saves much power and costly attendance, and it is equally certain that, by either process, sugar making in California is a success.

The *Herald* suggests that the Chamher of Commerce of this city invite Mr. Wadsworth, of Sacrameuto to give a puhlic lecture, with diagrams illustratiug both processes, and adds that while couuties and cities are giving aid to railways it should he remembered that beet sugaries also merit consideration. They return twenty-five per cent. yearly profit; they utilize 1,000 acres of land each; each gives employment to at least 125 hands, directly; and no population is more esteemed in Europe than that of sugar towns.

It may he added that the sugarie at Alvarado has inaugurated a system which ensures constant occupation. When the stock of beets are worked up, the mill is converted into a refinery of cheap imported sugars, which is also very profitahle.

The sugarie at Sacramento intends to prolong the season of sugar making hy planting melons. They yield sugar equal to heets, and the crop will add three months earlier milling. Besides, we can grow melons on soil not adapted to beets; and the melon eyrup is excellent for tahle use, while beet syrup is fit only for distillation.

AN IMPORTANT DISCOVERY IN TANNING.—It appears, from investigation, that Western Texas has, in inexhaustihle quantity two of the hest tanning materials known to the world. The wood as well as the hark of the mesquite. a species of timher that ahounds in great quantity, is found to be rich in tannic acid—nearly as rich as live oak. A remarkahle and importaut quality of the tan of the mesquite, however, is that instead of heginning on the surface, it strikes through and through, inciein‌g into the hide, revealing the fact that the process of tanning goes on in the centre equal with the surface.

The experiments made are said to have demonstrated that the wood of the mesquite is fully equal to black-jack, which stands among the richest harks we use although the live oak is much richer than either. A letter from Texas on the suhject says the discovery will have a very important effect in the supply of our country and the world with the necessary article of leather, the demand for which is constantly on the increase. The interest in this discovery and its value increases from the fact of the rapid exhaustion of the materials for tanning in our country, and in many other parts of the world.

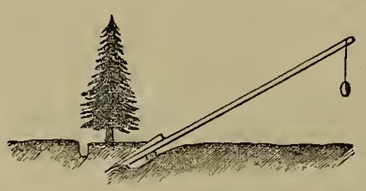
UTILIZING LEAVES.—Most of our readers are familiar with the late discovery by Mr. E. T. Bugbee, of Vermont, of the new use of leaves as a substitute for bark in tsnning. He finds that leaves and bark, in equal proportions, make better, more flexible, and smoother leather, than hark alone, while the work is done in less than half the time.

Some of the French economists are utilizing leaves in a different way; which, if the alleged discovery of Mr. Bugbee is as represented, is rather a waste than otherwise. It is said that the authorities of Paris are gathering up the leavee which fall from the trees in the parks of that city, pressing them, by machinery, into hard masses, and distributiug them among the poor for fuel.

Transplanting Large Trees.

The transplanting of large trees, which it is now well understood can he made a success hy proper care in moving with them a large mass of earth, would he much oftener practiced were it not for the great difficulty and inconvenience attendant upon their removal. A correspondent of a late numher of the *Country Gentleman*, however, has communicated to that paper a very convenient device, hy which the lahor of such work is greatly simplified. The trees on which he experimented were arhorvitæs, some fifteen feet high, trees which it is well known are extremely difficult to transplant with success. The weight of earth which he removed with the trses was as much as three men could lift.

The suhjoined diagram conveys a very distinct idea of the manner in which they were taken up. A cut should he made en-



tirely ronnd the tree, and two or more levers might he used, according as the size of the tree might require. After the lever is placed it should be raised up as high as possihle to insert the block or fulcrum, and the wedge upon top should be driven to its place after the fulcrum is adjusted. The wedge should be made quite hroad, and driven well under the roots. If properly adjusted and proportioned to the size of the tree, the latter will be easily raised.

The Air-Tight Stove.

The most economical and healthful stove which can be employed for heating rooms is the "air tight," and wood is decidedly the hest kind of fuel to be employed. In employing such etoves, however, care should he taken that a small vent he left opsn for the escape of gases up the flue, so long as the wood continues to *blaze*. Green and even dry wood, when first lighted, throws off large quantities of eteam and gases, incomhustihle in an ordinary "air tight," which must be allowed to pass off, else the gases will either gradually escape into the room, to the great detriment of health, or they will collect in the stove until sufficient heat is generated to fire them, when an explosion will come, attended with unpleasant if not disastrous consequences.

Moreover, so long as the wood continues to hlaze, whatever the quautity put in, the stove never throws out so mnch heat as it does after the wood has ceased to hurn with a large flame, and the dampers of the stove can he safely closed. In a sick chamber, especially, the dampers should never he closed so long as a small blue flame is observed burning over the hright embers.

Lighting the Fire in a Stove.

Many persous have often noticed the extreme difficulty encountered in lighting the fire in a stove especially in a still, damp morning. The stove at first won't draw, even vigorous "blowing" will not euffice; and then when it does start, it is with a sort of an explosion or outward rush of air which fills the room with smoke and gas, ofteutimes puffing the unpleasant fumes into the face of the operator.

This trouhle is caused by the difficulty encountered in overcomiug the inertia of the long column of air in the pipe or chimney, hy the small volnmn of air that can he forced up through the interstices of the wood and coal, at the hottom of which the fire is kindled. All this may be remedied hy simply putting a few shavings or hits of dry paper on the top of the wood or coal, and first lighting that, it immediately hursts into a hlaze, hecause the air has perfectly free access to it from all sides, the heated air forces its way into the chimney and establishes there an upward current. The match can then he applied to the kindling *under* tho fuel which will readily light and, if dry, hurst into a hrisk blaze.

BOY HUNTERS.—Two hrothers of Yreka, aged 16 and 17 years respectively, have, this season, killed seven hears, two of them grizzlies, a large numher of deer, and found thirty-seven hee trees, and attended school during term time.

The Movements of Insects.

In the sultry noontide, seated under the shadowy grapevine, I often admire the husy hlack ants marching up and down or pausing to milk their aphide cows that feast sumptuously on the delicate, juicy young tendrils of the vine. Then, as the day declines, I love to rest on the hillside and gaze on the myriad of ineects floating in cloud-like masses over the valley, and reflecting the light of the sun now fast sinking in the west. Almost simultaneously with their swarming, the evening birds dart suddeuly from secret recesses, and devour with wide extended jaws and unsuspended flight their hountiful evening meal. Why can I never see these hirds in the act of coming? Verily, the work of the fifth day of creation seems daily repeated, and "fowl fly above the earth in the open firmament of heaven."

The groups of gay insects that sported in the sunshine, their heads turned windward as though enjoying the draught of the warm summer hreeze or the aerial food thus wafted to them unsought, disappear with the setting of the sun. Then the sphinxes and the night heetles turn out in force, and the large hawkmoths hover round the phoix of the garden, and silently oxercise that "right to life, liberty and the pursuit of happiness," which the cricket, the katydid and their fellow musicians noisily assert.

The men of this generation rejoice in their conquests over time and space, in their iron horses and palatial cars. "The horrid things that crawl" and fly have no voice intelligihle to man, or they might advance just claims to the possession and practice of every kuown variety of locomotion in a degree of perfection that proud man, with all the aid of mechanism, can only rudely intimate. As larva, pupa or imago, the insect moves under the earth, upon the earth, ahove the earth—under the water, through the water, on the surface of the water—on tree and herh and grass—on insect, bird and heast—in living tissues and in the dead—psrhaps in the else all consuming fire.—*Lippincott's Magazine.*

BOILER INCRUSTATION.—From a recent discussion and interchange of views upon the snhject of the incrustation of hoilsrs, hy many of the master mechanics of the railroads through the conntry, it was very generally asserted says the *American Manufacturer*, that the hest method of keeping hoilers clean is to wash them out once a weck—not hlow them off, as the heat required for this purpose hardens the paste deposit and forms the scale, whereas if hoilers were washed out after cooling, with water in them, this paste can he almost entirely removed. The testimony of some parties who practice this plan seems to show that boilers can he so nsed for many years without being troubled with scale. It was found that many parties practice the removal and renewal of tuhes, in locomotive boilers, quite frequently to remedy the scale difficulty, and that the hlow-off effected little else hut the removal of mud. The washing process recommended, seems like a rational and practical one.

ANCIENT MUSIC.—The Egyptian flute was only a cow's horn with three or four holes iu it, and their harp or lyre had only thrse strings, the Grecian lyre had only seven strings, and was very small, heing held in one hand; the Jewish trumpets that made the walls of Jericho fall down wers only rams' horns; their flute was the sams as the Egyptian; they had no other instrumental music but by percussion, of which the greatest hoast made was the psaltsry, a small triangular harp or lyre with wire strings, and struck with an iron needle or stick; their sachut was something like a hagpipe; the timhrel was a tamhorine, and the dulcimer was a horizontal harp, with wire strings, and struck with a stick like the psaltery. They had no written music; had scarcely a vowel in their language; and yet (accordiug to Josephus) had two hundred thousand musicians playing at the dedication of the temple of Solomon. Mozart would have died in such a concert in the greatest agonies.

THE FIRST CHINESE PATENT.—A Chinaman of Canton, China, named Lee Ping, and another of San Francisco, named Pon Jih, doing business together in the latter city, have made application to the Patent Office for a patent on a trade mark for their tea. This is the first application from the "Heathen Chinee" to the Patent Office.

THERE are 78 railroads in Germany owning 19,145 miles of road.

Useful Information.

The Gloss on Silk.

The method of giving an artificial gloss to the woven pieces of silk was invented in 1663. The discovery of the method was purely accidental. Octavia Mey, a merchant of Lyons, being one day deep in meditation, mechanically put a small bunch of silk threads into his mouth and began to chew them. On taking them out again in his hand he was struck by the peculiar lustre they had acquired, and was not a little astonished to find that this lustre continued to adhere to the threads even after they had become dry. He at once saw that in this fact there was a secret worth unravelling, and being a man of ingenuity, he applied himself to the study of the question. The result of his experiments was the "glossing method."

The manner of imparting the artificial gloss has, like all other details of the weaving art, undergone certain changes in the course of years. At present, it is done in this wise: Two rollers revolving on their axes are set up a few feet from the ground, and at about ten yards, in a straight line, from each other. Round the first of these rollers is wound the piece of silk, of 20, 40, or 100 yards in length, as the case may be. Ten yards of the silk are then unwound, and fixed by means of a brass rod in a groove on the second roller, care being taken to stretch the silk between the two cylinders as tightly as possible. A workman with a thin blade of metal in his hand, daintily covers the uppermost side of the silk (that which will form the inside of the piece) with a coating of gum. On the floor under the outstretched silk is a small tramway, upon which runs a sort of tender filled with glowing coals. As fast as one man covers the silk with gum, another works the tender up and down, so as to dry the mucilage before it has had time to permeate the texture.

This is a very delicate operation; for if, on the one hand, the gum is allowed to run through the silk, or if, on the other, the coals are kept too long under one place, the piece is spoiled. In the first instance, it would be stained beyond all power of cleaning, and in the second, it would be burned. None but trusty workmen are confided with this task; and even with the most proved hands there is sometimes damage. When ten yards of the piece have been gummed and dried, they are rolled around the second cylinder and ten more are unwound. This is repeated to the end. But the silk, with its coating of dry gum, is then stiff to the touch and crackles like cream-laid note-paper when folded. To make it soft and pliant again, it is rolled anew, some six or seven times, under two different cylinders, one of which has been warmed by the introduction of hot coals inside, and this is sufficient to give it that bright new look which we all so much admire in fresh silk.

Spiders' Silk.—Speaking of the silk produced by a certain species of spider, Dr. Wilder says: "If you can picture to yourself a mass of pure yellow gold, which not only reflects the light as from a smooth and polished surface, but which has all the depth and softness of liquid amber, you may realize in some degree the wonderful appearance of a sheet of spider's silk as seen in the sunshine; and even in the shade its lustre is greater than that of gold. But to compare the silk to gold is to tell only one-half the story; for the same spider yields silver as well, so that you may draw from its body a thread of silver, or both threads together; their union giving silk of a light yellow color."

A Chinese Wind-Barrow.—One of the strangest sights in China is their wind wheel barrow; it is drawn by a donkey, and when the wind is fair a sail is set. The wheel turns in the middle of a wooden frame, sustained by iron bars. Upon the frame are hung all kinds of utensils. The donkey is generally mounted by the paterfamilas, the son and heir is at the stern assisting all he can, while the mother and younger ones ride on the vehicle.

The Brain.—It is said that the brain of an idiot contains about one per cent. of phosphoric matter, that of persons of sound intellect, 2½ per cent., while that of the maniac contains 3½ per cent. If this be so, it would seem that in a maniac the brain appropriates an undue proportion of phosphoric matter from the rest of the system, whereby its functions are materially impaired.

Scientific Amusement.

The *Pall Mall Gazette* conveys to its readers two delightful little experiments in vivisection. We reproduce them, as tending to afford both amusement and occupation for leisure moments:

No. 1.—Insert in the back of a rat the end of its own tail, having first pared it raw with a bistoury; it will heal and take root. As soon as the graft is complete, amputate the tail about one third of an inch from the old root. The rat's tail will thenceforward grow the reverse way and out of the back. During the first three months the rat will evince very feeble signs of feeling when the tail is pinched. At the end of six or nine months, the sensitiveness of the part will have much increased, but the animal will not yet be able to guess where it is pinched. After a year, he will, however, be completely up to the trick, and will turn to bite the pinchers.

No. 2.—If you amputate the paw of a young rat, partially skin it, and introduce it through the skin of another rat's side, it will engraft, take nutriment, grow and acquire all the ordinary parts of its structure, as if it had remained with its former proprietor.

The latter experiment is decidedly ingenious, reflecting great credit on the inventor for his originality. Possibly, the rats may object.

Ancient and Modern Workers in Wool.—Under this caption the "Bulletin of the National Association of Woolen Manufactures" for April, copies the letter of our correspondent, Mrs. B., of Minneiska, Minnesota (telling how she worked up with a knitting machine some 250 pounds of wool, and pronounced it not only "a recreation," but profitable withal), with the following handsome preface:

We have often vainly sought for a worthy parallel for the ancient Romen matron whose tomb in the Eternal City bears the epitaph commemorative of her domestic virtues; which were to "stay at home," and "work up wool."

Domum mansit,
Lanam fecit.

We find the parallel at last in the Minnesota lady, who penned the following article for the *Western Rural*. But if there is a parallel, there is a contrast. Who,—that compares the Roman woman peinfully toiling with her distaff all day for a feeble product, with the American matron, by aid of modern invention, running off in mere sport her 1,500 stitchee a minute, and turning out at odd moments a product which meets most of her family expenses, — can say that the material science of modern times has done nothing for domestic happiness.

Dust Everywhere.—There is dust on the sea, on land, in the valley and on the mountain-top; there is dust always and everywhere; the atmosphere is full of it; it penetrates the noisome dungeon, and visits the deepest, darkest caves of the earth, no palace door can shut it out, no drawer so secret as to escape its presence; every breath of wind dashes it upon the open eye, and yet that eye is not blinded, because there is a fountain of the blandest fluid in nature incessantly emptying itself under the eyelid, which spreads it over the surface of the ball at every winking, and washes every atom of dust away. But this liquid, so well adapted to the eye itself, has some acidity, which, under certain circumstances, becomes so decided as to be scalding to the skin, and would rot away the eyelide were it not that all along the edges of them there are little oil manufactories, which spread over their surface a coating as impervious to the liquids necessary for keeping the eyeballs washed clean as the best varnish is impervious to water.

Gold Pen Points. — Gold pens are dipped with iridium, making what are commonly known as "diamond points." The iridium for this purpose is found in small grains in platinum, slightly alloyed with the latter metal. In this form it is exceedingly hard, and well adapted to the purpose of the gold pen maker. The gold for pens is alloyed with silver to about sixteen carats fineness, rolled into thin strips, from which the blanks are struck. The under side of the point is notched by a small circular saw, to receive the iridium point which is selected by the aid of a microscope. A flux of borax and a blow-pipe secures it to its place, and the point is then ground on a copper wheel with emery.

Good Health.

SALIVATION.

[Written for the Press.]

Selivation is literally an unnatural flow of saliva or spittle. As the seliva is secreted by the parotid, submaxillary and sublingual glands, salivation is the result of unusual irritation of those glands, caused by the presence of some poisonous substance introduced into the system. It is the first symptom of the action of the peculiar poison; but unfortunately not the only one, and is only the introduction to more serious consequences as will be shown hereafter.

Several drugs are capable of producing salivation; yet it is my purpose to speak of but one in this article, which stands preeminently in the front rank.

Mercury

Has been used as a medicine since the 15th century, and owing to its uniform and certain effects upon the glandular system, it has been called the "great alterative."

Its action, however, is not confined to the glandular system, for all the tissues, even the bones are affected, and in time destroyed by it.

The condition produced by mercuriel poisoning is technically call *hydrargyrosis*.

How it is Introduced.

To produce its effects upon the organism, it is not, by any means, necessary to pass it into the stomach, for the skin and mucous membranes are capable of absorbing it, and often do so, sufficiently to produce its most violent and destructive constitutional effects. By experience this fact is too well known by those whose business requires them to handle it frequently or almost constantly—miners for example. Heat will evaporate it rapidly; but like water it will evaporate at a low temperature, even when undisturbed. Place a quantity of it in an open vessel in a house, and it will vaporize sufficiently to salivate the inmates of the house. Amalgam left exposed to the action of the atmosphere and moderate warmth, will do the same thing, only in a less degree. Agitation favors its evaporation, as is well known by those who work around quartz mills.

Inhaling the fumes which sometimes are carelessly allowed to escape from a retort, and working with the hands in contact with the metal are the quickest and most common ways in which the poison is introduced into the system, by accident.

Its Effects.

The first noticeable effect of mercury is upon the salivary glands (salivation); then follows soreness and ulceration of the gums and inside of the mouth. If this is extreme, the teeth loosen and fell out, or else decay rapidly. It then attacks the throat, producing fearful ulceration, and sometimes mortification and destruction of the soft parts. Accompanying these conditions there is a very offensive odor of the breath. Its destructive effects frequently extend to the stomach and bowels, producing inflammation and ulceration, with, sometimes, fearful hemorrhage (bleeding).

Its effect upon the blood is to decompose it, make it thin and dark-colored, and in a great measure deprive it of the power to coagulate when exposed to the air.

Hemorrhages may occur from the nose, the throat, the lungs, or the stomach or bowels; or the blood may ooze out of the blood vessels into the cellular tissues in spots under the skin.

Its effects upon the bones are, first, *periostitis*, or inflammation of the covering membranes; and secondly, *caries*, literally, rottenness of the bones.

Its effects upon the skin are to produce perspiration, and also to produce eruptions and ulcerations. With the lax and soft condition of the skin and constant perspiration, there is great liability to take cold; while, at the same time, all mercurial affections are greatly aggravated by taking cold.

Mercury also produces *ozena*, ulceration of the nose; *iritis*, inflammation of the iris of the eye; neuralgia (nerve pain); rheumatism, gout; falling off of the hair, trembling of the limbs, and even paralysis,

It produces swelling and induration of the liver, testicles, mesenteric, parotid, cervical, axillary and inguinal glands.

The above are only a part of the poisonous effects of mercury; but enough has been enumerated to show clearly its terribly destructive tendency, and its positively destructive effects whenever introduced into the organism by whatever means soever.

Shun the Danger.

The terribly destructive effects of mercury upon the body, as already shown, have had the effect to lessen its use very materially as a medicine, and as a knowledge of the action of medicines increases, it is believed that the time is not distant when it will be looked upon as a criminal act for a physician to salivate his patients, ever so little.

My words of warning, however, are addressed particularly to miners, mill-men, and all others who use mercury largely in their business.

If the adage, "An ounce of

Prevention

Is better than a pound of cure," ever had any force in any case, it does most emphatically in this; for it is a hundred fold easier to keep it out of the system, than to get it out after it has found a lodgment there. To accomplish this the following precautions cannot be too closely observed.

1st. Neither mercury nor amalgam should be kept in the house, and especially in the sleeping apartments, without being bottled and closely corked.

2d. Persons working at quartz-mills, or those employed in retorting or handling mercury in any way, where fumes from the mercury are liable to arise, should avoid them by keeping on the windward side as much as possible.

3d. Clothing, worn through the day, should never be worn at night, nor should it be allowed to remain in the sleeping apartment at night.

4th. The strictest cleanliness should be observed. A thorough bath once a week, at least, is almost indispensable. The clothing worn at work should also be thoroughly cleansed at least once a week. It should also be hung out and exposed to the action of the wind and rays of the sun quite frequently. By so doing the particles of mercury which have found lodgment there, will be liberated and driven off.

5th. The mercury should never be allowed to come in contact with the hands or any other part of the body, for wherever it does, some of it is almost sure to be absorbed.

6th. Fumes of mercury should never be allowed to escape from the retort, but should be condensed with particular care.

Cure.

Unfortunately in hydrargyrosis as in almost all other affections, no single remedy can be relied upon as a specific in all cases; but it has to be treated as the condition indicates. I will, however, enumerate some of the most important remedies for that purpose:

For violent bone pains, ulcere of the mucous membrane, and congestive symptoms, nitric acid.

For periostitis, phosphoric acid.

For caries and necrasis, asafœtida and phosphorus.

For ozena, aurum muriaticum.

For mercurial rheumatism and gout, glandular enlargemens, cutaneous eruptions, tubercles and ulcere, indurations of the liver, parotid, cervical, axillary and inguinal glands, iodine and iodide of potassium.

For ptyalism, chlorate of potassa, and creosote.

Other most excellent remedies, frequently used in the treatment of hydrargyrosie are sarsaparilla, conium, sulphuret of lime, sulphur, sulphate of zinc, galvanic electricity and cinchona; but it would be impossible to give their special indications in an article of this kind, as the affections arising from the same are so varied, and so often associated and complicated with the scrofulous, syphilitic and sycotic dyscrasias.

My advice to all is, first, avoid by all means the absorption of the poison; second, if the poison has already been absorbed get rid of it as soon as possible.

E. J. Fraser, M. D.
No. 102 Stockton street.

Extreme Old Age.—A farmer lately died in East Prussia who is said to have attained his 130th year. Down to the time of his death he was in the enjoyment of the best possible health. He was six feet one inch in hight and served as bodyguard under Frederick the Great. His son, who lives on his father's property, is 109 years old. He takes long walks every day, can read without spectacles, and is an excellent companion. The nephew of the old man is employed on the East Prussian Railway, and, though he is 72 years of age, he is able punctually to perform his duties.

Scientific Press.

W. B. EWER.....SENIOR EDITOR.

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San Francisco:

Saturday Morning, Jan. 6, 1872.

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With 1872

Commences volume XXIV of the SCIENTIFIC PRESS. Its life of nearly 12 years, we verily believe, has saved more to the PACIFIO States, aud imported more profitable and practical knowledge to personal readers than any other journal in this new and still developing field. We wish to increase our usefulness. We want more subscribers added to our already large list. The publication of such a first-class paper is expensive. We shall make the PRESS worthy of double its present circulation this year.

Every old subscriber who can feel the value to himself and the community of a journal that seeks its patronage through articles iustructive, elevating, and interesting, and without trash or sensation, we earnestly solicit to renew his own subscription and to speak a good word for the PRESS to others. The commencement of a new year and volume is a good time to

SEND US YOUR SUBSCRIPTIONS.

Mining Accidents.

On Dec. 26, a mass of rock in the 600 ft. level, east of the Idaho mine, at Grass Valley, caved upon Tobias Mitchell, breaking his right thigh and otherwise seriously injuring him.

On Dec. 23, a miner named Dennis Hays was badly hurt in the North Star mine, Grass Valley, by being caught in the shaft by an ascending car.

On Dec. 23, both the car and cage in the Hale & Norcross mine, at Virginia, fell a distance of 1,300 ft., severely injuring a miner named Wm. McCleery.

Harry Howarth, a miuer employed in Moser's claim at Mokelumne Hill, was badly bruised a few days since hy a rock falling upou him.

HOME MANUFACTURE.—An iron rope, weighing 9,500 lhs. has just heen completed at Hallidie's Wire Rope Works, in this city. It is five inches wide, one-half inch thick, and 2,000 ft. (nearly half a mile) long. One hundred and fifty miles of 15½ guage wire was used in its construction. It is the first rope manufactured entirely of California-made wire, and the largest ever turned out in America. It will be immediately shipped to Virginia City, Nevada, for use in the Empire-Imperal shaft of the Imperial Mining Company. This Californiu Wire Rope Company are the ouly mauufacturers of flat iron rope in the United States. They have now on the way from Europe, improved machinery for making what is termed flexible wire rope. It will run 13 bobbins, and lay up a rope of 144 wires, with 19 wires in the straud.

The State Geological Survey.—No. 1.

An Important Question.

Prominent among the questions which the present Legislature will be called upon to decide, is that of the further continuance or the discontinuance of our State Geological Survey.

This work was commenced in 1861, and continued without intermission until the close of 1867. It was then discontinued for two years, owing to the fact that the Legislature of 1867-8 made no appropriation for it. But it was again taken up by the Legislature of 1869-70, and has been carried on during the last two years under the appropriation of $2,000 per month, then made for its continuance.

It thus appears that the work of the Geological Survey has extended through a period of about nine years; and the questions very naturally arise, what is the character of this work; what have been its results in the past; what are they likely to be in the future; and what is their practical value to the State at large?

If, as some believe, the Geological Survey is doing nothing and producing nothing but elaborate pictures of extinct shell fish and minutely scientific descriptions of hugs, then we may well be excused for believing that "the play is not worth what it costs." But if, on the other haud, it shall appear that it is in reality an earnest investigation hy able hrains and skillful hands of the material resources of the State, and especially of her mineral wealth, as well as of the history of the formation of her mountain ranges, the cutting out of her tremendous cañons, the growth and extinction of her immense volcanoes on a scale of grandeur far exceeding anything the continent now shows, the extent of her mines of coal and quicksilver, the distribution of the gold in her rocks and veins, the character, extent and origin of her vast masses of auriferous gravel, the formatiou of her broad and fertile valleys, the capacities of her soil, the laws which govern her kaleidoscopic climates, in a word, the whole physical structure of her frame;—if the money hitherto devoted to this work by the State has heen wisely and economically expended in the gathering of reliable information upon subjects such as these, and if the Chief of the Snrvey is husily employed in sifting and classifying the mass of information so ohtained, deducing order from what has hitherto heen chaos, gradually solving the difficult problems of our peculiarly complex geology, and presenting as rapidly as possible in systematic and intelligible shape, the results of all this work in his reports and maps, for the benefit of the people at large, and for their guidance in important practical questions of agricultural and mining industry,—then the matter assumes an altogether different shape, and the question is rather, can a State like California afford to stop a work like this before it be completed?

We have recently been investigating with considerable care the work of the Geological Survey and the present status of its affairs, and propose to give to our readers the results of our investigation.

The General Character of the Work.

Before entering into details, however, we will give a short sketch of the general character of the work, its purpose and its aims. And in doing this, we shall make the freest use of an article which appears in the January number of the *Overland Monthly* from the pen of a writer who is evidently well acquainted with the suhject, and knows of what he spcaks.

The object of the Geological Survey may be best made intelligible by stating that it is taking au inventory of the "natural resonrces" of the State, and hy the term "natural resources" is meant the innumerable good things which she has inherited from mother Nature,—her soil, valleys, mountains, plains, rivers, lakes, the treasures of mineral and metallic wealth which lie beneath her surface, the oreatures which live upon her soil and in her waters, the plants which grow within her borders, these all need to be cataiogued just as a merchant ueeds to have his stock of goods inventoried, or a farmer the boundaries and the quality of his fields determined.

That the Legislature which in 1860 set this survey on foot took this comprehensive view of the subject is clear euough; for the Act authorizing the work calls for "an accurate and complete geological survey of the State, with proper maps thereof, and a full and scientific description of its rocks, fossils, soils and minerals, and of its botanical and zoölogical productions." This was the language of the original Act, and it has not only never been repealed, but it has been confirmed again and again by successive Legislatures. Such therefore is the work which it has been the duty of the State Geological Survey to accomplish, so far as the means which have been placed at its command would permit.

Topography.

It seems hardly necessary to point out the desirability of a geographical basis for the geological work, or the impossibility of any accurate delineation or intelligible description of the geological features of a country without a correspondingly accurate knowledge of the situation, extent and outlines of its mountain ranges, their altitudes above the sea, the courses of its streams, the location and extent of its valleys; in a word, of just such features as those which are shown upon good topographical maps. Geological determinations, in fact, unless made available and permanent by being recorded upon suitable maps, are of little value, and of hardly any accouut for practical use. To be available, the informatiou must be accurately located. As well might one attempt to paint a picture on the air, or put a roof on a house before the walls were built, as to convey geological information without a map on which it can he embodied.

Physical Geography.

Closely allied to the topography proper, is the physical geography of the State, or tho study of the geographical facts from a generalized point of view; for iustance, as related to the climate, and thus as bearing directly ou the agricultural and sauitary condition of the people. Consider for a moment how important even one class of simple facts in this department may become. We refer to the determination of hights above the sea-level, by which the relative differences of elevation are determined and the form of the surface made out. This kind of information is of the greatest practical value in its bearings on all questions of drainago, irrigation, road building and the like. There is hardly any great branch of industry in the State which may not he in some degree benefitted hy this part of the work.

Geology.

It is popularly supposed that the geological part of the Survey moans merely "prospectiug" the ground for the purpose of making new discoveries of valuable deposits of ores or minerals. This is by no means the case. There are prospectors enough already in the field. It would be difficult to find a gulch in California iuto which some indomitable individual had not already penetrated; neither would it be easy to find any kind of worthless rock, which had not been supposed by some one to be of value. The object of the Geological Survey is something very different from mere prospecting. It is, rather, to examine everything which has been already discovered, and from the accumulation of such observations to combino the experience and knowledge of all, so that general results may be obtained which shall be of great value as tending to put a stop to wasteful expenditure and misdirected explorations; while iucidentally of course a large amount of information is gained which is of essential service in properly guiding the active exploration and development of our mines. The Geological Survey makes no pretensions to the kind of knowledge that is claimed by the charlatans of the "diviniug rod" and the "goldometer."

It is folly to suppose that the geologist should always be able to tell beforehand precisely where a shaft must be sunk or a tunnel driven to strike rich pay. No man can see through fathoms of solid rock. No good geologist or mining engineer ever pretends to do it. But he ought to be able after a careful examination of the ground to understand and weigh the *probabilities* of the case with a sounder and better founded judgment than a man of less experience and information can do. And with reference to the mines it is precisely those facts of observation and practical experience combined with a proper knowledge of the character and distribution of rocks and ores upon which the judgment of a reliable mining engineer is always based, that it is the province of the Geological Survey to gather, and systematize, and publish to the people for their better guidance in the ever-hazardous work of mining enterprise.

Having thus briefly touched upon a few of the most salient points iu the broad field which a geological survey of a State like California should cover, we propose in our next issue to give some definite account of what the survey has actually heen doing, and then to enquire in how far it has met or has failed to meet the requirements of the original Act which ordered it, and the legitimate expectations of the people.

Our Borax Deposits.

Within the past two years large deposits of the Borate of lime and the Borate of Soda have been discovered at various poiuts in the State of Nevada, the most extensive being those of the Columbus and the Fish Lake Valleys, situated in the southern part of Esmeralda county. At Rhode's Marsh, 15 miles north of Columbus, the quantity is also represented to be quite large. The other localities where this material has been found in considerable abundance, though not always sufficiently concentrated to render it readily available, are near the Hot Springs on the Central Pacific Railroad, a short distance northeast of Wadsworth; at Sand Springs, on the old overlaud stage route, 12 miles east of Carson Lake; at Double Springs, 10 miles east of Burgess' old, now Campbell's station, on Walker River, as well as on the large alkali plain, 30 miles still further east; at Teal's Salt Marsh, 10 miles west of Columbus; in Death Valley and about the siuks of the Amargosa and the Mohave.

In some of these localities the Borate of both lime and soda are met with, while in others but one of these suhstauces is found. There is, for example, but little of the latter at the Hot Springs, while at Saud Springs, Teal's Marsh and Double Springs, the deposit consists chiefly of the Borate of lime. At Rhode's Marsh and in Columbus and Fish Lake Valleys, the two substances occur intermixed and in great ahundance. So little soda is there in the Hot Spring deposits that parties experimenting in the manufacture at Wadsworth, with raw material from that locality, are ohliged to seek the requisite amount of soda elsewhere, obtaining it for the present from a small pond in the vicinity of Ragtown, 30 miles distant.

Owing to this and other ohstacles these parties have not yet met with much success, but little merchantable borax having thus far been turned out from these works at Wadsworth. At Ragtown, J. V. Lewis is producing some 200 pounds of refined horax daily. He procures the crude suhstance from Sand Springs, 25 miles distant, being unable to carry on the refining process at a nearer point for want of wood and water. He is said to make a good article, though operating on a small scale, and laboring under some disadvantages.

These two are the only points in the State of Nevada at which the manufacture of borax or even the concentration of the crude article has yet been attempted. A considerable amount, not less; perhaps, than sixty or seventy tons of the Borates, has been shipped to this city, where it was subsequently worked and disposed of through local dealers, whose customers gave it a preference over the imported article, it having been found of greater purity and strength than the best English borax.

There seems now no question but we have the native product in great quantities on this coast; a late careful examination made in the interest of the Nevada Consolidated Borax Company estahlishing the fact that they have several hundred thousand tons of the Borates within the limits of their survey in the Columbus and Fish Lake Valleys. This company have, however, without any doubt, not only the most extensive, but in every respect the most valuable deposits to be found on this coast, or perhaps, elsewhere in the world. The quantity covered hy their claim is ample to meet all the requirements of

commerce, the substance here existing under the most favorable conditions, save only the cost of transportation to market. These beds are 150 miles from Wadsworth, the nearest point on the Central Pacific railroad, the intermediate country being sandy, hilly and barren, rendering the road a hard one to freight across.

This company, however, having ample means, propose to obviate this trouble by the construction of an improved wagon road, and possibly of a railroad at an early day. Meantime, they will erect works and proceed to concentrate the Borates on the ground, preparatory to their shipment to market. The members of this company are mostly residents of Sacramento, and, besides being men of large means, have an excellent standing in the business community, and who having embarked earnestly in this enterprise, will be likely to make it an early and an entire success.

While the Borates exist so plentifully at a few points in the State of Nevada, it is, nevertheless, the case, that their distribution is by no means so general as was at one time supposed; it having transpired through numerous tests lately made of material obtained from different localities, and supposed to be rich in boracic acid, that it contained but little, and in many instances not even a trace of that substance. In consequence of this determination thousands of acres of land that had been taken up in that State, the locators having mistaken the carbonate of soda and the chloride of sodium for the Borate of soda, will have to be abandoned.

But while the supposed Borate fields of Nevada are thus likely to suffer curtailment, rumors come to hand of important discoveries of this material having been made in Del Norte county;—a quantity rich in this valuable salt having lately been brought to this city, said to represent a large deposit existing in that quarter of the State. How much there may be in fact, or what would be the cost of hauling to a shipping point, we have not been able to ascertain, though there is reason to believe that the quantity reported, has, as is usual with the first announcement of mineral discoveries, been somewhat exaggerated.

The Rainfall.

The late storm has been one of the most remarkable which has occurred since the advent of the Americans on this coast. For over two weeks, with slight interruptions, it rained more or less of the time, day and night, until the 2d instant. Now, however, the storm seems to have fairly passed away, and at this present writing the sky is beautifully clear and pleasant.

The amount of rain which has fallen has also been remarkable—probably the largest amount which has been recorded in so short a time since 1849—and when added to that which had previously fallen during the season, makes the largest total on record up to December 31st. It may also be added, as another remarkable fact, that no great storm, with an equal rainfall, has done so little damage, or, so far as present appearances show, been productive of such a vast amount of good to the State at large.

The temperature has been exceedingly favorable for both grass and grain—the thermometer in this city marking the high average of 53° for the month of December. The rain has also been general—all over the State—and has fallen so moderately, that the thirsty earth has been able to drink it up to a much greater extent than usual.

It is with unfeigned pleasure, that, in the light of these facts, we look forward to the ensuing year as one of unparalleled productiveness and prosperity. Everybody looks smiling and happy, and the customary salutation of the season, as passed around on Monday last, was no unmeaning word; but was uttered with the almost certainty that we all should indeed be happy.

The miners are also rejoicing in view of the abundance of water for mining purposes. The Territorial *Enterprise* says that even though no more rain or snow should fall for the winter, water would be abundant in that vicinity for a year or two to come—a good store of water being laid up in the hills, all of which are great natural reservoirs.

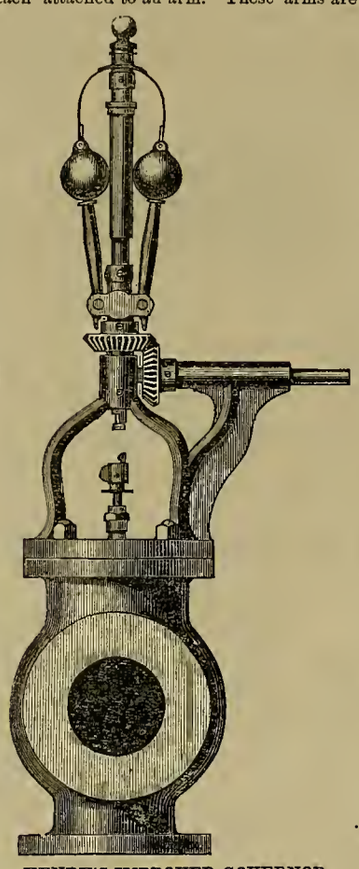
The fall in this city to January 1st has been 20.29 inches. The highest previously noted was in '51 and '52, when 19.31 fell. The fall at other localities is reported as follows:

Sacramento	to Dec.	31	12.42
Stockton	"	31	10.80
San Andreas	"	23	10.89
Turlock (Stanislaus Co.)	"	31	8.52
Los Angeles	"	30	8.21
Shasta	"	26	30.25
Nevada	"	29	36.00

Hendy's Improved Lamont Governor.

A great necessity in any establishment using steam power is a good governor to the engine. The great difficulty with governors has been that they were not sensitive enough to changes of load on engine to prevent too much speed. Beside being very sensitive, a governor should possess the property of being able to stop the engine in case the governor belt breaks or slips its pulley, or any accident happens which would stop the govern from working properly. When this happens the engine frequently "runs away with itself," so to speak, as was the case a short time since with one in Stockton, in which, by some disarrangement the governor, stopped and the fly wheel, by reason of increased speed, broke, a portion going through the roof, and the machinery was damaged to the extent of some $3,000.

By referring to the accompanying cut it will be seen that there are two balls, each attached to an arm. These arms are



HENDY'S IMPROVED GOVERNOR.

pivoted to short cross pieces which are secured so that the revolution of the spindle turns the whole. The arms extend below their fulcrum so that there is no tendency for them to spread too far for the proper opening of the valve, for the lower ends will strike the sleeve and arrest their separation. A hollow pipe passes up through the cross piece and extends into a sort of sleeve which has its upper end closed, and the rod is fastened to the upper end of the sleeve, which is attached to the valve. A spring is curved into an elliptic yoke or any other convenient from and its ends firmly secured to the halls. The central portion of the spring stands considerably higher than the ends, and at this point it is secured to the top of the sleeve or the valve stem.

The operation is as follows: When the engine begins to move the governor rotates and the balls are separated by centrifugal force. This increases the tension or strain on the spring by partially straightening it. Any decrease of speed allows the force of the spring to overcome the centrifugal force, and the balls are drawn nearer together, the valve being correspondingly affected.

There is a small button formed on the lower end of the rod as shown in the cut, that, when it is connected to the catch, raises and lowers the valve by the expansion or contraction of the halls. When the halls come close together by the governor stopping, the catch is drawn up against the sleeve which disconnects it from the upper part of rod allowing the valve to drop, which shuts off the steam. By reversing the catch or turning it half way round it may be attached to the stem so that in shutting down with the throttle valve it will not disconnect.

At the lower end of the rod is a screw working in the valve, which, by turning the catch round will increase or diminish the speed of the engine as desired, without the necessity of stopping the governor. As will be seen from this description, if the governor belt breaks, the balls immediately close, the catch is unfastened, the valve drops and the engine is stopped. Over 200 of these governors have been sold by Mr. J. Hendy, from whom further information may be had by addressing him at 32 Fremont street, in this city.

United States Signal Service.

There being considerable interest at present concerning the Signal Service Corps, some slight sketch of their extended system of meteorological reports, which is so invaluable to agriculture and navigation and the people generally, may be interesting. A short time since the War Department issued a circular for the purpose of giving the public at large some general idea of the workings and object of the Signal Service Corps. The circular is entitled "The Practical Uses of Meteorological Reports and Weather Maps;" and our information is principally derived from its pages.

In pursuance of the duty imposed upon the Secretary of War by the law providing for the announcement by telegraph and signal of the approach and force of storms, and under his direction the office of the Chief Signal Officer of the Army, at the War Department, causes meteorological observations and reports to be made daily and nightly at 62 stations. The Office Division of Telegrams and Reports, for the benefit of commerce, is organized for the preparation, receipt and use of these reports.

At every station three observations are taken daily, at the same moment of actual (not local) time for all stations, by the Observer Sergeants of the Signal Service. The reports are immediately telegraphed to the office of the Chief Signal Officer at Washington.

Use of the Telegraph.

By a carefully arranged system of telegraphic operations, copies of the full reports of all stations thus transmitted to Washington, or of portions of them, are sent at the same time to many of the Signal Service stations in principal cities and towns. At each station so receiving a tabular report, one or more bulletins are published. The observations are made synchronously at the different stations at the exact hours, 7:35 A. M., 4:35 P. M. and 11:35 P. M., Washington time.

Reports.

The full reports from all stations are telegraphed to and received at Washington, translated from cipher and published in the form of bulletins of reports by the hours of 9 A. M., 6 P. M. and 1 A. M. respectively (Washington time). The bulletins wherever published, at Washington or elsewhere, exhibit the following particulars, viz: Hight of barometer; change since last report; thermometer; change in last 24 hours; relative humidity, in per cent.; direction of wind; velocity of wind, in miles per hour; pressure of wind, in pounds per square foot; force of wind, reduced to Beaufort's scale; amount of cloud; rainfall since last report, in inches and hundredths, and state of weather.

Weather Maps and Bulletins.

At the more prominent stations and those in large cities, Weather Maps are posted conspicuously every morning, showing, by means of variable symbols, the morning reports of the different stations. The midnight report is gratuitously furnished to morning newspapers that are published in a city where a station of observation may be, and the morning report is also delivered to the afternoon papers in time for publication.

In addition to these bulletins, a table of Synopses and Probabilities is prepared at the office of the Chief Signal Officer and issued thrice daily, at 1 A. M., 10 A. M. and 7 P. M. A weather map is also issued, showing the condition of the weather in all places which are in communication with the Corps. We shall give to the readers of the PRESS a *fac simile* of one of these maps in a future issue, so that they may be able to judge of their efficiency and completeness.

Instruments Used.

The observations taken three times a day by the observers at their respective stations and telegraphed to Washington, are made by the use of the following instruments: the thermometer for ascertaining the temperature of the atmosphere; the barometer for the weight; the hygrometer for the humidity or amount of moisture; the pluviometer or rain gauge for the amount of rain which has fallen; and the anemometer to tell the velocity of the wind. All these observations are taken simultaneously, and a result is easily reached and predictions made from deductions drawn from the data thus collected at one point.

Utility of the System.

As we remarked in a former issue, the verification of the prediction of the Signal Service Corps by our last storm has caused more general attention to be drawn to its benefits on this coast, although the system has been thoroughly inaugurated throughout the East, and is now in good working order. The maps and bulletins are consulted by merchants, ship owners, farmers, and in fact, by all who are enlightened enough to appreciate them, and have almost become as necessary as town clocks. When the entire system has become thoroughly organized in our part of the country it will be of great advantage to all classes who may be at all interested in meteorological changes.

The science of meteorology is still, so to speak, in its infancy and it cannot therefore be expected that the exactness of more favored sciences can be attained, and until more data and generalizations are procured, the public should make due allowance for any discrepancies which occur between weather prognostics and the weather following. The Chief Signal officer of the army has just issued from his office a small pamphlet, entitled "Cautionary Signals" which fully describes the signals to be employed by his corps of observer sergeants at the various stations and points throughout the country and he says that "aware of the immense difficulty of attaining unerring and uniform accuracy in the display of signals, and anxious to aid the citizens as much as possible in forming a correct estimate of coming changes, great pains are taken to state clearly that wherever a signal is hoisted it is simply *cautionary*, and is only designed to forewarn of probable danger. Disastrous and extensive storms rarely fail to give premonition to every one who carefully observes the daily rise and fall of mercury in the barometer. The cautionary signal, combined with weather reports from which it is deduced, cannot fail to convey to all who are really concerned to know the future weather a necessary warning of the danger that is probably approaching."

Signals.

The signal is a square red flag, with a square center of black for denoting danger by day, and a red lantern to denote danger by night. The official text says that this observance of the cautionary signal calls for frequent examination of local barometers and other instruments, by those interested, and the study of local signs of the weather, as clouds, etc. By this means those who are expert may often be confirmed as to the need of the precaution to which the cautionary signal calls attention or may determine that the danger is overestimated or past.

We will give in a future issue some details in regard to laws already known respecting storms, and will continue to furnish weekly for the benefit of those who are interested in meteorological science, the result of the daily observations of the Signal Service Corps for those particular localities which will be of interest to persons on this coast. Of course these figures will come to our subscribers too late for them to make any satisfactory predictions, but they will be of value as recording the various changes, rainfall, etc., of stations mentioned.

Domestic Economy.

Hard Beds.

The preference for hard beds as being more healthy than soft ones, is worthy only of those who have settled down into a Diogenes-in-the-tub life. It is true a tired person will sleep soundly on a hard bed, and habit may make such a bed acceptable; but whoever has felt the almost human kindliness and warmth of a soft hair mattress, cannot go back to husks and straw without a pang. Let us look at the matter physiologically. The spinal column is composed of 24 pieces of bone fastened together by cartilage, with a little cushion of highly elastic cartilage nicely fitted in between each to prevent friction and permit perfect freedom of movement. The spine is not straight but curves in, as every body knows, at the small of the back and curves out again. In a perfect bed every part of this vertebral column will be supported, but in a hard, unyielding surface this is not possible. One portion of the body rests firmly on the bed beneath it, while another in a line with it receives no support. Sleep on such a bed will not restore the wearied frame nearly so well as repose on an elastic couch where every part of the body is equally supported. We do not recommend softness but *elasticity*.

Feathers, except in very cold weather, are unwholesome, because they retain an excess of warmth about the body, and also because they absorb the insensible perspiration thrown off by the pores, and permit the body to re-absorb the excrementitious matter. A bed of soft, fresh straw, evenly distributed and covered with a thin cotton or woolen mattress, may be a good resting place, and furnish sweet sleep. But how can man or woman rise refreshed from a couch of straw or a shuck mattress which has been in nightly use without renewal for a series of years? Yet there are portions of this very land of plenty where travelers are put to sleep upon just such beds as this.

Every man in grazing districts may own a dozen or two coarse woolen sheep. These and their increase will in a short time give him wool mattresses than which none are more pleasant, more wholesome, or durable. The tag-locks washed and carded should be hoarded by every farmer's wife for this purpose. In cities and villages, and in the more populous parts of our country, those who can afford good sleeping places generally have them. The degree of refinement and cultivation, as well as wealth one has attained, may be easily read by one glance at their sleeping apartment.

How to Cook a Beefsteak.—A beefsteak is always best broiled; but the following method is recommended by a lady writer, when broiling is not convenient:

The frying pan being wiped dry, place it upon the stove and let it become hot. In the meantime the steak—if it chance to be a sirloin so much the better—pepper and salt it, then lay it on the hot, dry pan, which instantly cover as tight as possible. When the raw flesh touches the heated pan, of course it seethes and adheres to it, but in few seconds it be comes loosened and juicy. Every half minute turn the steak; but be careful to keep it as much as possible under cover. When nearly done lay a small piece of butter upon it, and if you want much gravy add a tablespoonful of strong coffee. This makes the most delicious, delicately broiled steak, full of juice, yet retaining the healthy, beef flavor that any John Bull could require. The same method may be applied to mutton chops, or ham, only they require more cooking to prevent them from being rare. An excellent gravy may be made by adding a little cream, thickened by a pinch of flour, into which, when off the fire and partially cool, stir the yolk of an egg well beaten.

Importance of Cookery.—The preparation and cooking of food should receive its proper share of attention, if the greatest amount of benefit is to be derived from its introduction in the system. Blot, the professor of this art, says that green vegetables, such as cabbage, spinach, etc., should be put in boiling water, but dry vegetables, as beans and peas should be put in cold water to cook, after having been previously soaked in lukewarm water. In the case of potatoes, the eyes or germs are to be cut out, and the skin rubbed or scraped off, then steamed or roasted. He thinks that fish, although containing twenty per cent. of nutritious matter, ought to be partaken of at least twice a week, as it contains more phosphorus than any other food, and serves to supply the waste of that substance in the system, and particularly of the brain.

Prevention of Dampness.

Dampness in walls is often a great annoyance to housekeepers, and in moist climates good precautions should be taken to keep it out of the walls and buildings. It may be prevented from rising in brick or stone walls by a thorough application of asphaltum to the upper portion of the foundation, or to several of the lower tiers of bricks. Asphaltum thoroughly applied to the outside of brick work will also prevent the ingress of dampness. The walls may be painted over the asphaltum, if desired.

Another method is also recommended by by a leading scientific paper as follows:—Three-quarters of a pound of mottled soap are to be dissolved with one gallon of boiling water, and the hot solution spread steadily with a flat brush over the outer surface of the brickwork, taking care that it does not lather; this is to be allowed to dry for twenty-four hours, when a solution formed of a quarter of a pound of alum dissolved in two gallons of water is to be applied in a similar manner over the coating of soap. The operation should be performed in dry, settled weather. The soap and alum mutually decompose each other, and form an insoluble varnish which the rain is unable to penetrate, and this cause of dampness is thus effectually removed.

Alum is also a valuable prevention of mildew. Cloths or other fabrics dipped into strong alum water, are proof against mildew, no matter how much they may afterwards be exposed to damps or other causes favoring the growth of this disagreeable fungus.

About a year ago, says a correspondent of the *Journal of Chemistry*, I was filling up a large scrap-book, and in the course of my work used, in connection with a goodly amount of paste, a small quantity that had alum in it. A spell of wet weather coming on before my book was dry, caused it to mildew badly throughout, except where the alum paste had been used; there, no trace of mildew was to be seen. Upon observing this, I began trying various experiments with alum as a mildew preventive, all of which succeeded, though put to the most severe tests. I therefore feel that I have, by the merest accident, made a valuable discovery, and as such I take pleasure in offering it to the public.

The Roast Turkey.—Here is the New England method: Select a fine, plump, yellow-skinned turkey, weighing from ten to twelve pounds. Examine it thoroughly to see that all the pin feathers are taken out; hold it over a blaze to singe any fine hairs that may remain; wash it thoroughly inside and out, and rub it over with salt. Take the gizzard, heart and liver, put them into cold water, and let them boil until tender. When done, chop them very fine. Take stale bread, or the large Boston crackers, and grate or chop them. Add salt, pepper, and some sweet herb, if liked, to the bread crumbs; after which beat up two eggs with which to moisten the crumbs; add and mix thoroughly with this the chopped "inwards," not forgetting to put in salt and butter. Fill the inside of the turkey with the dressing, taking care that the neck and crop is made to look plump, and sew the openings, drawing the skin tightly together. Then rub a little butter over your turkey, and lay it upon the grate of your meat pan. Cover the bottom of the pan well with boiling water. After a half hour baste the turkey by pouring over it the gravy that has begun to form in the pan. Repeat the basting once in about fifteen minutes. In an oven of average temperature a 12-pound turkey will require at least three hours; but every oven has its own way of baking, and the cook must be governed by it.—*Hearth and Home.*

The Roast Goose is to be prepared in the same manner as the turkey. The dressing should be made of mashed potatoes, seasoned with salt, pepper and sage, or onions, if according to the taste of the family. Make giblet sauce by boiling the "inwards" until very tender, chopping them fine, and adding them to a gravy made by using the liquor in which they were boiled, thickened with flour, and to which has been added one ounce of butter, and pepper and salt to suit the taste.—*Hearth and Home.*

Mechanical Hints.

The Use of Screws.—Mechanics generally drive screws into wood without any precaution. But in cabinet and all other fine work, especially, it would be well to use certain precautions which are given as follows in the *Manufacturer and Builder*:—When the wood is very hard, it may ease the labor of getting the screw home when you grease it; and when you expect that the screw will some time have to be taken out, it is well to grease or oil it, to prevent it rusting. Also when the object is exposed to dampness, screws should be protected in this way. When the wood is very soft, or when some strain may cause the screws to work loose, warm them, dip them in melted glue, and also put a few drops of glue in the hole. The latter is useful when in repairing an article it is found that the holes are rather large. If you cannot get other screws large enough to fill the hole, use a wooden plug inserted with glue, and make a new hole in the plug or next to it. If the objects are exposed to dampness, apply powdered resin, the only precaution being to heat the screw sufficiently to melt the resin. If you want the screws to stick so fast that they can not be got out without breaking, put some vinegar or other suitable acid in the hole, which will rust them in.

Colored Cements.—A writer in *Comptes Rendus* states that colored cements which harden rapidly may be made as follows: He takes a solution of silicate of soda (sp. gr., 1,298) and adds to it, while stirring, first pulverized and previously washed, lixiviated chalk, so as to form a thick mass like butter, to which are added, for coloring purposes, the following substances: Finely pulverized sulphuret of antimony for black, iron filings for gray, zinc dust for whitish gray, carbonate of copper for bright green, oxide of chromium for deep green, cobalt blue for blue, red lead for orange, vermillion for bright red, and carmine for a violet blue. This cement hardens within from six to eight hours, and may afterward be polished, becoming like marble.

Alloy of Copper and Cast Iron.—The alloy of equal parts of copper and cast iron, introduced by Soret, is not as well known as it deserves to be. It has the appearance of zinc, is much harder than copper, and tougher than cast iron. In casting it does not adhere to the forms; it does not rust in the air; and it may be used successfully for many parts of machinery, statues, etc. After casting, it may be easily electroplated, or the copper may be exposed by dissolving the iron from the surface with a suitable acid.

The Way to Succeed.

Fortune, success, position are never gained but by piously, determinedly, bravely striking, growing, living to a thing till it is fairly accomplished. In short, you must carry a thing through if you want to be anybody or anything, no matter if it does cost you the pleasure, the society and the thousand pearly gratifications of life. No matter for these. Stick to the thing and carry it through. Believe you were made for the matter, and that no one else can do it. Put forth your whole energies. Be awake, electrify yourself, and go forth to the task. Only once learn to carry through a thing in all its completeness and proportion, and you will become a hero. You will think better of yourself, others will think better of you. The world in its very heart admires the stern and determined doer. It sees in him its best sight, its brightest object, its richest treasure. Drive right along, then, in whatever you undertake, and consider yourself amply sufficient for the deed. You will be successful.

Building Character.—There is a structure which everybody is building, young and old, each one for himself. It is called *character*, and in every act of life is a stone. If day by day we be careful to build our lives with pure, noble, upright deeds, at the end will stand a fair temple, honored by God and man. But, as one leak will sink a ship, and one flaw break a chain, so one mean, dishonorable, untruthful act or word will forever leave its impress and work its influence on our character. Then let the several deeds unite to form a day and one by one the days grow into noble years, and the years, as they slowly pass will raise at last a beautiful edifice, enduring forever to our praise.

We should never throw out against a man broken hints and dark inuendoes, which would leave the hearers to suspect anything and everything that ill-nature can suggest.

The California Powder Works

No. 314 CALIFORNIA STREET,

SAN FRANCISCO.

Manufacturers and have constantly on hand

SPORTING,

MINING,

And BLASTING

POWDER,

Of SUPERIOR QUALITY, FRESH FROM THE MILLS. It being constantly received and transported into the interior, is delivered to the consumer within a few days of the time of its manufacture, and is in every way superior to any other Powder in Market.

We have been awarded successively

Three Gold Medals

By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others.

We also call attention to our

HERCULES POWDER,

Which combines all the force of other strong explosive now in use, and the lifting force of the BEST BLASTING POWDER, thus making it vastly superior to any other compound now in use.

A circular containing a full description of this Powder can be obtained on application to our Office.

16v20-3m JOHN F. LOHSE, Secretary.

A Delightful Hiss.—There is the hiss of ridicule, the hiss of scorn, the hiss of snakes in the grass; but the most delightful hiss is that of

Tarrant's Effervescent Seltzer Aperient

In the sparkling goblet, giving assurance to the invalid that his thirst will be deliciously assuaged; that his stomach will be refreshed and purified; that if he is feverish, his body will be cooled by healthful evaporation; that if he is constipated, the difficulty will pass away without a pang, and that if the condition of his general health is impaired, it will be speedily restored. Of course, he will take care to procure none but the genuine.

SOLD BY ALL DRUGGISTS.

AMBLER'S BLOWPIPE FURNACE,

For Roasting Rebellious Ores.

This new roasting furnace is the CHEAPEST AND BEST yet offered to the public. By furnishing an ample supply of oxygen to the ore while roasting, thorough oxydization of the sulphurets is secured at a small cost.

It is Adapted to All Kinds of Ores.

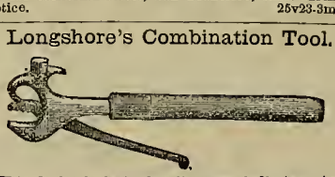
A description and illustration of this Furnace was given in the Scientific Press of November 25th.

For terms, circular, and further information, address the agent of the inventor,

MONROE THOMSON,

At 444 California street, San Francisco, until further notice. 25v23-3m

Longshore's Combination Tool.



This device is just what its name indicates. As a Kitchen Tool it is indispensable. It will fit and lift with perfect safety, any Stove Lid, Frying Pan, Pie Pan, Pot, Kettle, or any other vessel or dish used about a stove. It is a complete tool for stretching carpets, driving tacks, pulling tacks, &c., &c. It answers the double purpose of hammer and pincers, and is also a good Nut Cracker. It is made of the best malleable iron, and the Hammer, Pincers and tack puller, are all hardened so as to stand the roughest usage. An Agent is wanted in every town on the Pacific Coast to sell this valuable little implement. Retail price fifty cents.

WIESTER & CO.,

17 New Montgomery street (Grand Hotel), San Francisco.

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MANUFACTURER OF TOOLS

—FOR—

Molding, Turning, Carving, Etc.

Mortise Chisels, Blind Chisels, Crotchet Chisels, and also all kinds of Screws for Stair Work and Sash Joints on hand and made to order.

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A. J. SMITH,

PLUMBER,

—AND—

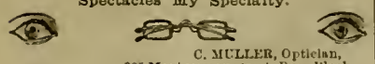
Manufacturer of Pumps and Water Closets,

No. 220 Fremont street, opposite Fulton and Ætna Iron Works, San Francisco, Cal. 18v23-3m

Business Cards.

J. ROSS BROWNE,
Office, No. 415 Montgomery Block,
San Francisco, Cal.

Spectacles My Specialty.



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JOHN ROACH, Optician,
Has removed from 522 Montgomery street to
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East of Montgomery,
Surveying Instruments made, repaired and adjusted
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BANK OF SAVINGS,
No. 225 Sansome Street.
Interest paid on Deposits. Money Loaned on Real Estate.
H. DUTTON, President.
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N. P. LANGLAND,
Stair Builder, Wood Turner, and
SCROLL SAWYER,
No. 485 Brannan Street.....SAN FRANCISCO.
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BARTLING & KIMBALL,
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Manilla Rope of all sizes. Also, Bale Rope and Whale Line constantly on hand. Tarred Manilla Mining Ropes of any size and length manufactured to order.
TUBBS & CO., Agents,
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STEEL PENS.
Sold by all Dealers throughout the World.

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SEAL ENGRAVER,
AND LETTER CUTTER,
Brass and Steel Stamps and Dies, 608 Sacramento street, San Fraacisco. Orders by express promptly attended to.

INTERNATIONAL HOTEL,
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Meerschaum Pipe Manufacturer,

No. 341 KEARNY STREET,
Between Bush and Pine streets, San Francisco.
The first and only Manufactory on the Pacific Coast. MEERSCHAUMS MOUNTED WITH SILVER. Meerschaum Pipes Boiled and Repaired. Amber Mouth-pieces Fitted.

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OF SAN FRANCISCO.
Capital, One Million Dollars.
LEVI STEVENS.....President.
B. N. VAN BRUNT.....Cashier.
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GRAND, SQUARE AND UPRIGHT.
Pianos to Let.

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PROPRIETORS OF THE
GLOBE IRON WORKS,
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Hydraulic
ENGINEERS,
Patentees
AND
Manufacturers
OF THE

Per cent. of Power guaranteed equal to any Overshot Wheel.
American Turbine Water Wheel,
MILL GEARING AND SHAFTING
Of all Descriptions, and General Mill Furnishing.
Water Powers Estimated and Plans Furnished.
A. L. STOUT, W. M. MILLS, J. TEMPLE.
Send for Descriptive Circular. 22v23-3m-sa

Peteler Portable Railroad Co.,
OFFICE, 42 BROADWAY, NEW YORK.
TO CONTRACTORS, MINERS, ETC.

By this invention, one man, with one horse and five cars, does the work of ten men, ten horses and ten carts.
Highly Approved by all who Use Them.
CARS AND TRACKS FOR SALE OR TO LET
Samples at the office. Illustrated Circulars free.
State and County Rights for Sale.
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New and Superior Chromos.
The Changed Cross, size 22 by 28.
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ALL REAL GEMS OF ART.
Sold by Leading Dealers throughout the United States, and Wholesale by the Publishers.
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804 Market Street,
PHILADELPHIA.
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RUSS PATENT
MONITOR MOLDING MACHINE,
MADE BY
R. BALL & CO., Worcester, Mass.,
Manufacturers of the latest Improved WOOD-WORKING MACHINERY for Planing Mills, Car Shops, Agricultural Implements, Furniture, Sash, Blind, and Door Factories., etc., etc. Send for Illustrated Catalogue and Price List.
RICHARD BALL. E. P. HALSTEAD.
m4-eowly

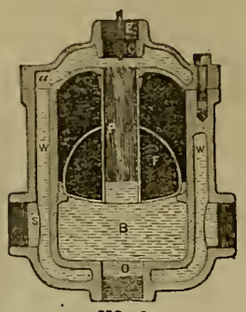
Situation as Chemist Wanted.

The undersigned, having completed the working course of Chemistry in La Fayette College, Easton, Pa., including Dry Assay of Ores and Blowpipe Analysis, desires a situation requiring a

Practical Knowledge of Chemistry.

By permission refers to Dr. Traill Green, Professor of Chemistry in La Fayette College.
B. CHAMBERS, JR.,
20v23-3m Chambersburg, Pa.

CRAIG & BREVOORT'S
Patent Condenser for Steam
PUMPS, &c.



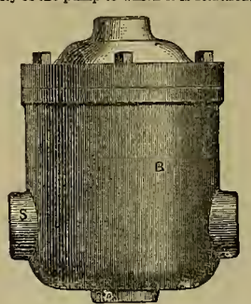
NO. 1.

The annexed engravings represent a Condensor intended to be attached to the ordinary steam pump, thereby bringing it within the class of low pressure, or more properly speaking, of condensing engines; the steam, when it has done its work in the cylinder, instead of being exhausted into the atmosphere, is conducted to the condenser, on its eutry into which, it meeta the water drawn by the pump, and is immodiately condensed.

The Cut No. 1 represents a vertical section of the Condenser, and No. 2 an elevation.

The flange D is bolted to the suction orifice of the pump, and the flange S to the pipe leading to the well, or whatever source of supply the pump may have; W is a water jacket surrounding the main chamber of the condenser, B, and with which the suction pipe, S, communicates, permitting a free circulation of water within the jacket and into the hollow cover or top through the serics of openings, one of which is shown at A, and from thence into the body of Condenser, B, through pipe P, carried hy float F; the pipe P also acts automatically as a valve to enlarge or contract the space through which the water enters it, hy which means the possibility of the condenser being at any time flooded is avoided. The pipe P, it will be observed, also acts as a guide to float F.

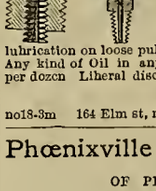
The valve, C, (shown in Cut No. 1), which is raised or lowered hy means of screwed stem—shown coming through elhow in Cut No. 2—is for the purpose of increasing or decreasing the flow of water according to the capacity of the pump to which it is attached.



NO. 2.

The exhaust pipe from steam cylinder is screwed into cover at E; the exhaust steam is thus thrown directly into contact with the water entering the condenser on its way to water cylinder of pump through D. A vacuum being of course immediately formed, acts on the exhaust side of the steam piston, aiding it in its work. If at any time it is desirable to run the pump without the condenser, it is only necessary to turn the three-way cock, which is placed in the exhaust pipe, into such a position as to cause the steam cylinder to exhaust into the atmosphere; when this is done the pump is perfectly free from the condenser, and acts as if it were not attached. This condenser is specially useful for pumps running in mines, or any other position where trouble is experienced in getting rid of the exhaust steam. Address H. L. BREVOORT,
6v23eow1y 128 Broadway, New York City

SELF-OILERS.
WATERS'
SELF-OILERS.



PATENTED October 21, 1862; July 6, 1867; July 23 and Sept. 22, 1868, and June 20, 1869.
Glass reservoir, with white metal coupling cast on.
Substantial brass stem, with graduating plug—V slot on one side, as shown in magnified cut—in the top.
The best and cheapest OILER in the market; perfect lubrication on loose pulleys and all kinds of bearings. Any kind of Oil in any kind of weather. Price, $4.50 per dozen Liberal discount to agents and to the trade.
WATERS & CO.,
no18-3m 164 Elm st, near Fourth, Cincinnati, Ohio.

Phœnixville Bridge Works
OF PENNSYLVANIA.
CLARKE, REEVES & CO.,
ENGINEERS AND BUILDERS.
NEW BRIDGES, VIADUCTS, ROOFS, ETC.
Would respectfully call the attention of the officers of Railway Companies, and Engineers having charge of New Bridge Constructions, to their new
Album of Designs,
showing various styles of New Railroad Bridges, Viaducts, etc., which they have either constructed or are prepared to construct. A copy will be mailed on application to our address, No. 410 Walnut Street, Philadelphia. ap8-1y

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3v23-1y

Travelers' Guide.

CENTRAL PACIFIC RAILROAD.

OVERLAND TRAINS.

Express Daily, via Oakland.	Express Daily, via Vallejo.	Dec. 6, 1871.	Express Daily, via Vallejo.	Express Daily, via Oakland
LEAVE	LEAVE.		ARRIVE.	ARRIVE.
7.00 A M	8.30 A M	....San Francisco....	7.30 P M	8.30 P M
7.35 A M	.....	....Oakland.....	.....	8.00 P M
7.50 A M	.....	....San Jose.....	.....	8.30 P M
8.35 A M	.....	....Niles.....	.....	7.05 P M
11.27 A M	.....	....Stockton.....	.....	4.22 P M
.....	10.30 A M	....Vallejo	5.37 P M	.....
.....	12.50 P M	....Davis.....	3.10 P M	.....
1.15 P M	2.00 P M	....Sacramento.....	2.30 P M	2.35 P M
ARRIVE.	5.15 P M	....Colfax.....	10.20 P M	LEAVE.
Read Down	12.45 A M	....Reno.....	2.10 A M	Read Up.
	9.10 A M	....Winnemucca....	4.15 P M	
	12.00 M	....Battle Mountain.	1.25 P M	
	4.40 P M	....Elko.....	8.45 A M	
	6.20 A M	....Ogden.....	5.20 P M	
	ARRIVE.		LEAVE.	

San Francisco and San Jose.

LEAVE.	LEAVE.		ARRIVE.	ARRIVE
.....	3.00 P M	....San Francisco...	10.40 A M	.....
7.10 P M	4.40 P M	....Niles.....	8.35 A M	5.30 P M
8.30 P M	5.30 P M	....San Jose.....	7. 0 A M	4.10 P M
ARRIVE.	ARRIVE.		LEAVE.	LEAVE.

San Francisco, Stockton and Modesto.

LEAVE.	LEAVE.		ARRIVE.	ARRIVE.
*4.00 P M	7.00 A M	....San Francisco..	8.30 P M	*12.40 P M
8.10 P M	11.05 A M	....Lathrop.....	4.45 P M	8.10 A M
9.20 P M	5.50 P M	....Modesto.....	.....	7.00 A M
8.30 P M	11.27 A M	....Stockton.....	4.22 P M	7.45 A M
ARRIVE.	ARRIVE.		LEAVE.	LEAVE.

Sacramento, Marysville and Tehama.

LEAVE.	LEAVE.		ARRIVE.	ARRIVE.
*8.45 A M	2.35 P M	....Sacramento	1.05 P M	*4.45 P M
10.25 A M	3.25 P M	....Junction.....	12.15 P M	3.25 P M
1.50 P M	5.15 P M	....Marysville.....	10.20 A M	12.00 P M
8.00 P M	8.35 P M	....Tehama.....	6.50 A M	5.30 A M
.....	9.30 P M	....Red Bluff.....	6.00 A M	.....
ARRIVE	ARRIVE.		LEAVE.	LEAVE.

OAKLAND BRANCH.—LEAVE SAN FRANCISCO, 7 00, 8 10, 9 2 , 10 10 aad 11 20 a. m., 12 00, 1 50, 3 00, 4 00, 5 15, 6 40, 8 00 9.20 aad *11 30 p. m. (9 20, 11 20 and 3 00 to Oakland only).
LEAVE BROOKLYN, *5 30, 6 40, 7 50, 9 00 and 11 00 a. m., 1 30, 2 40, 4 55, 6 10, 7.40 and 10 10 p. m.
LEAVE OAKLAND, *5 40, 6.50, 8 00, 9 10, 10 00, and 11 10 a. m., 12 00, 1 40, 2 50, 3 50, 5 05, 6 20, 7.50 aad 10 20 p. m.
ALAMEDA BRANCH.—LEAVE SAN FRANCISCO, 7 20, 9 00, and 11 15 a. m., 1 30, 4 00, 5 30 and 7 00 p. m. (7 20, 11 15 and 5 30 to Fruit Vale only).
LEAVE HAYWARDS, *4 30, 7 00 and 10 45 a. m., and 3 30 p. m.
LEAVE FRUIT VALE, *5 25, 7 35, 9 00 aad 11 20 a. m., 1 30, 4 05 and 5 30 p. m.

CALIFORNIA PACIFIC RAILROAD.

Leave S. Fran.	Leave Vallejo.	Arrive at Calistoga.	Arrivo Marys'le.	Arrivo Sacra'to.
8.30 A M	10.30 A M	*1.30 P M	4.00 P M	1.30 P M
*4. 0 P M	5.45 P M	8.15 P M	10.25 P M	8.40 P M
*8.30 A M	10.35 A M	1.00 P M	5.15 P M	.....
Leave Sacra'to.	Leave Marys'le.	Leave Calistoga.	Arrive Vallejo.	Arrive S. Fran.
*7.30 A M	6.00 A M	7.50 A M	10.15 A M	12.15 P M
2 30 P M	*11.30 A M	*2.15 P M	5.30 P M	7.30 P M
.....	†10.45 A M	3.00 P M	5.20 P M	7.30 P M

Sacramento, Davis and Marysville.

Leave S. Fran.	Leave Sacra'to.	Leave Davis.	Arrive Wood'ld	Arrive Mar'ville
8.30 A M	*11.45 A M	12.50 P M	1.20 P M	4.00 P M
*4.00 P M	7.15 P M	8.05 P M	8.35 P M	10.35 P M
8. 30 A M	2.30 P M	*3. 10 P M	3.38 P M	5.15 P M
Leave Mar'ville	Leave Wood'ld.	Leave Davis.	Arrive Sacra'to	Arrive S. Fran.
*6.00 A M	7.35 A M	8.15 A M	9.00 A M	12.15 P M
*11.30 A M	2.30 P M	3.10 P M	4.00 P M	7.30 P M
†10.45 A M	12.30 P M	3.10 P M	1.30 P M	7.30 P M

SAN FRANCISCO & N. PACIFIC R. R.

Leave	*2.00 P M	....San Francisco..	*11 00 A M	Arrive
.....	4.35 P M	....Donahue.....	8.45 A M	.....
.....	5.00 P M	....Petaluma.....	8.20 A M	.....
.....	6.00 P M	....Santa Rosa.....	7.30 A M	.....
Arrive.	6.45 P M	....Healdsburg	6.45 A M	Leave.

CAL. P. R. R. CO.'S STEAMERS.

Leave.	Leave.		Arrive.	Arrive.
*4.00 P M	*4.00 P M	....San Francisco. ..	*10.00 P M	*8.00 P M
6.00 P M	6.00 P M	....Benicia.....	8.00 P M	6.00 P M
.....	2.00 A M	....Stockton.....	2.00 P M	.....
2.00 A M	.....	....Sacramento	.....	12.00 M.
Arrive.	Arrive.		Leave.	Leave.

*Sundays excepted. †Sundays only.

T. H. GOODMAN, Gen'l Pass'gr and Ticket Agt.
A. N. TOWNE, Gen'l Supt.

UNION PACIFIC RAILROAD.

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AT CHEYENNE with the DENVER PACIFIC R. R., for Denver City and the Mining Districts of Colorado.
AT OMAHA, for Chicago, Eastern and other cities, with the Chicago and Northwestern; Chicago, Rock Island and Pacific; Burlington and Missouri River; St. Joseph and Council Bluffs Railroads; also, for St. Louis and all Southern cities.
EXPRESS TRAINS RUN DAILY.—The U. P. R. R. use the Westinghouse patent air brake; Miller's patent trossed platform and elastic car-coupler; and the most approved construction of cars for the comfort and safety of passengers.
PULLMAN'S MOST MAGNIFICENT PALACE SLEEPING CARS attached to express trains.
T. L. KIMBALL,
General Passenger Agent, Omaha.

LUBRICATING OIL,
THE BEST IN THE WORLD!
The attention of the public is called to GRUBER'S NEW PATENT LUBRICATING OIL.
For running Machinery of all kinds it has no equal.
It will not gum, and runs perfectly smooth, cool and clean.
This OIL offers special inducements to Farmers, Livery Stable Keepers, etc.
It will be found far Superior
To any other Oil or Grease now in use, for Carriage a Wagons, and all kinds of Farming Machinery.
Mill-men, Printers, and all others having occasion to use a Lubricator, will find a decided advantage in using this Oil—one gallon being equal to two of the best Oil in the market.
Perfect Satisfaction Guaranteed
OR MONEY REFUNDED.
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GRUBER LUBRICATING OIL CO.,
Corner Drumm and Market streets,.....SAN FRANCISCO
no25-3m-bp-sa

RAIN TABLE.

We publish below the monthly rainfall at Sacramento, from the year 1849, including 1871. The average rainfall at that point is about 20 inches, and it will be seen from the table that up to Jan. 1st, of this year, within 7¼ inches of this total had fallen. As the mean amount of rainfall for January is 3½ inches, and the maximum 15 inches, we may calculate with a degree of certainty of having more than the average quantity of rain this season.

We give this table that our readers may use it for reference, and will republish it with additions, at some future time.

RAIN TABLE FOR SACRAMENTO.—PREPARED BY DR. T. M. LOGAN.—FOR THE PRESS.

Arranged according to the seasons, showing the amount in inches of each month, during twenty-two years, and for each rainy season, including the present, to January 1st.

MONTHS.	1849	1850	1851	1852	1853	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863	1864	1865	1866	1867	1868	1869	1870	1871
January	4.500	0.650	0.580	3.000	3.250	2.670	4.919	1.375	2.444	4.801	2.310	2.310	15.096	1.783	1.077	4.776	7.609	3.440	5.085	4.700	1.371	1.876	
February	1.000	0.000	0.120	2.000	1.500	0.000	0.000	0.000	0.000	2.461	0.000	0.000	2.658	2.761	0.000	0.712	2.010	3.147	0.000	1.350	1.236	1.919	
March	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.214	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
April	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
May	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
June	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
July	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
August	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
September	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.063	0.000	0.008	0.004	0.080	0.000	0.005	0.000	0.000	0.000	
October	1.500	0.000	0.000	0.000	0.000	0.195	0.000	0.000	0.655	0.000	0.000	0.000	0.914	0.355	0.000	0.120	0.450	0.001	0.000	0.000	2.120	0.020	0.210
November	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
December	2.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.181	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Total for each year to Jan. 1st.	12.500	15.500	10.000	10.890	10.410	4.045	2.810	2.760	3.236	9.693	7.435	8.344	5.440	10.807	2.687	3.308	14.709	3.351	11.938	16.556	3.356	4.923	1.575
	sprkle	sprkle	1.000	3.000	3.250	sprkle	sprkle	sprkle	sprkle	sprkle	sprkle	sprkle	sprkle	sprkle	sprkle	sprkle	sprkle	sprkle	sprkle	sprkle	sprkle	sprkle	sprkle
			0.580	0.120	2.000	0.003	0.000	0.063	0.000	0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
			2.140	6.000	5.000	1.500	0.650	0.750	2.406	0.655	3.010	0.147	6.485	2.170	0.008	0.004	0.450	0.001	0.000	0.000	0.000	0.000	0.000
			7.070	13.410	1.640	0.003	0.000	0.000	2.406	0.195	0.000	0.147	1.834	4.282	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
						0.005	0.000	0.000	0.651	0.000	0.000	0.147	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
						1.510	0.650	0.750	3.236	0.850	3.010	0.294	8.319	6.452	0.008	0.004	0.450	0.001	0.000	0.000	0.000	0.000	0.000
						1.640	1.150	2.000	3.236	5.692	4.320	1.037	2.153	2.687	3.308	4.780	8.059	3.351	11.938	16.556	3.356	4.923	1.575
Total for each year to Jan. 1st.	12.500	15.500	10.000	10.890	10.410	4.045	2.810	2.760	3.236	9.693	7.435	8.344	5.440	10.807	2.687	3.308	14.709	3.351	11.938	16.556	3.356	4.923	1.575
	sprkle	sprkle	1.000	3.000	3.250	sprkle	sprkle	sprkle	sprkle	sprkle	sprkle	sprkle	sprkle	sprkle	sprkle	sprkle	sprkle	sprkle	sprkle	sprkle	sprkle	sprkle	sprkle
			0.580	0.120	2.000	0.003	0.000	0.063	0.000	0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
			2.140	6.000	5.000	1.500	0.650	0.750	2.406	0.655	3.010	0.147	6.485	2.170	0.008	0.004	0.450	0.001	0.000	0.000	0.000	0.000	0.000
			7.070	13.410	1.640	0.003	0.000	0.000	2.406	0.195	0.000	0.147	1.834	4.282	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
						0.005	0.000	0.000	0.651	0.000	0.000	0.147	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
						1.510	0.650	0.750	3.236	0.850	3.010	0.294	8.319	6.452	0.008	0.004	0.450	0.001	0.000	0.000	0.000	0.000	0.000
						1.640	1.150	2.000	3.236	5.692	4.320	1.037	2.153	2.687	3.308	4.780	8.059	3.351	11.938	16.556	3.356	4.923	1.575
Total for each year to Jan. 1st.	12.500	15.500	10.000	10.890	10.410	4.045	2.810	2.760	3.236	9.693	7.435	8.344	5.440	10.807	2.687	3.308	14.709	3.351	11.938	16.556	3.356	4.923	1.575
	sprkle	sprkle	1.000	3.000	3.250	sprkle	sprkle	sprkle	sprkle	sprkle	sprkle	sprkle	sprkle	sprkle	sprkle	sprkle	sprkle	sprkle	sprkle	sprkle	sprkle	sprkle	sprkle
			0.580	0.120	2.000	0.003	0.000	0.063	0.000	0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
			2.140	6.000	5.000	1.500	0.650	0.750	2.406	0.655	3.010	0.147	6.485	2.170	0.008	0.004	0.450	0.001	0.000	0.000	0.000	0.000	0.000
			7.070	13.410	1.640	0.003	0.000	0.000	2.406	0.195	0.000	0.147	1.834	4.282	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
						0.005	0.000	0.000	0.651	0.000	0.000	0.147	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
						1.510	0.650	0.750	3.236	0.850	3.010	0.294	8.319	6.452	0.008	0.004	0.450	0.001	0.000	0.000	0.000	0.000	0.000
						1.640	1.150	2.000	3.236	5.692	4.320	1.037	2.153	2.687	3.308	4.780	8.059	3.351	11.938	16.556	3.356	4.923	1.575
Total	36.000	4.710	17.580	36.300	20.060	18.620	13.770	10.433	18.991	16.051	22.620	16.548	35.543	11.079	7.868	22.512	17.924	25.305	32.769	16.644	8.630	6.094	

MINERS, READ YOUR MINING JOURNAL.—Mr. George Bower, Superintendant of the Bower mine, on the Mokelumne River, as we stated last week, was severely injured the week before, by the explosion of a cartridge which he had placed on a stove to dry. The doctor would have missed a fee and Supt. Bower saved an eye and several fingers, probably, if he had read au article on the proper way to dry these cartridges, in the SCIENTIFIC PRESS of Dec. 9th, 1871. We sympathize, however, with Mr. Bower, or any miner who is suffering from an accident, many of which are of course unavoidable. We advise all our friends in mining communities to read their paper and they will surely be able to glean some information which will be of either immediate or ultimate benefit to them in one way or another.

A MEETING of the Academy of Sciences was held on Tuesday evening, the proceedings of which we will give next week.

WE call the attention of miners generally, to an article on "Salivation," on the 7th page.

Daily Record,

By the U. S. Army Signal Service, for the week ending Wednesday, January 3, 1872.

Date and Place of Observation.	Height of Barometer.	Height of Thermometer.	Relative Humidity. Per Cent.	Direction of Wind.	Force of Wind reduced to Beaufort's Scale. Approximately.	Rainfall since last Report. Inches & Hs	State of Weather
San Francisco. Thursd'y.	29.79	58	88	S.	Fresh	1.05	Threat'g
Friday	29.74	56	87	S. E.	Fresh	.45	Cloudy
Saturday	30.02	54	93	S. W.	Gentle	.82	Cloudy
Sunday	30.00	53	73	S.	Fresh	.01	Cloudy
Monday	29.89	52	86	Calm		1.70	Cloudy
Tuesday	30.24	48	92	Calm		.01	Cloudy
Wed'day	30.28	47	92	E.	Gentle		Clear
San Diego. Thursd'y.	30.00	55	93	E.	Gentle	.02	Cloudy
Friday	30.08	56	93	S.	Fresh	.01	Threat'g
Saturday	30.16	54	93	E.	Gentle	.48	Threat'g
Sunday	30.18	47	92	N. E.	Gentle	.05	Fair
Monday	30.12		92	Calm			Cloudy
Tuesday	30.22	48	92	E.	Gentle	.05	Fair
Wed'day							
Virginia, Nev. Thursd'y.	27.82	31	89	W.	Fresh		Cloudy
Friday							
Saturday							
Sunday	29.01	11	39	N. E.	Light		Cloudy
Monday							
Tuesday	30.15	24	73	W.	Fresh	.04	Fair
Wed'day	29.75	21	86	N. E.	Gentle	.07	Cloudy
Orbinte. Thursd'y.	29.59	37	80	S. W.	Fresh	.47	Cloudy
Friday	29.49	39	81	S. W.	Fresh		Lt. Rain
Saturday	29.51	36	90	W.	Gentle	.55	Lt. Sn'w
Sunday	29.35	36	70	S. W.	Brisk	.04	Cloudy
Monday							
Tuesday	29.90	39	63	S. W.	Fresh		Cloudy
Wed'day	30.10	33	89	Calm		.15	Lt. Sn'w
Cheyenne, W.T. Thursd'y.	28.99	40	63	W.	Brisk		Cloudy
Friday	29.07	38	63	W.	Fresh		Fair
Saturday	28.97	32	69	W.	Brisk		Cloudy
Sunday	28.47	28		S. W.	Fresh		Clear
Monday							
Tuesday	29.90	27	67	W.	Brisk		Clear
Wed'day	29.87	26	48	N. W.	Brisk		Fair
Denver, Col. Thursd'y.	29.37	43	43	S.	Fresh		Fair
Friday							
Saturday	29.33	38	54	W.	Gentle	.01	Fair
Sunday	29.89	28	65	S.	Fresh		Clear
Monday							
Tuesday	29.96	35	54	N.	Light		Clear
Wed'day	29.89	21	74	Calm			Fair
Omaha, Neb. Thursd'y.	30.08	11		Calm			Clear
Friday	29.76	16	82	Calm			Hazy
Saturday	29.37	37	90	S.	Gentle		Cloudy
Sunday	30.29	4	74	N. W.	Brisk		Cloudy
Monday							
Tuesday	29.87	28	88	S.	Light		Cloudy
Wed'day	30.01	18	68	S.	Light		Clear
Davenport, I. Thursd'y.	30.48	10	79	S.	Fresh	.01	Lt. Sn'w
Friday	30.52	21	85	N. E.	Gentle		Cloudy
Saturday	29.81	40	73	S. E.	Gentle		Cloudy
Sunday	30.09	30	78	N. W	Gentle		Cloudy
Monday							
Tuesday	29.96	35	54	N.	Light		Clear
Wed'day	30.32	24	86	S. W.	Fresh		Fair

METEOROLOGICAL REPORTS.

SAN FRANCISCO.

The following is the meteorological report of the month as computed by Mr. Thomas Tennent of this city:

BAROMETER.—Mean hight at 9 A. M. 30.17; Mean hight at 12 M. 30.16; Mean hight at 3 P. M. 30.14; Mean hight at 6 P. M. 30.13; Greatest hight on the 4th at 9 A. M. 30.42; Least hight on the 21st at 12 M. 29.69.

THERMOMETER.—In the shade and free from reflected heat. Mean hight at 9 A. M. 54; Mean hight at 12 M. 57; Mean hight at 3 P. M. 58; Mean hight at 6 P. M. 56; Greatest hight on the 20th, at 3. P. M. 62; Least hight on the 11th at 9 A. M. 46.

SELF-REGISTERING THERMOMETER.—Mean hight during the night, 42; Greatest hight on the morning of the 19th, 64; Least hight on the morning of the 11th, 33.

RAIN GAUGE.—2d, 0.16 in.; 17th, 0.63 in.; 18th, 3.22 in.; 19th, 3.49 in.; 20th, 0.62 in.; 21st, 0.93 in.; 22d, 0.32 in.; 23d, 3.48 in.; 26th, 0.15 in.; 27th, 0.74 in.; 28th, 0.23 in.; 29th, 1.04 in.; 30th, 0.13 in.; 31st, 1.60 in. Total (during the great storm in December), 16.74 in 14 days. Total for the season, 20.60 in.

WINDS.—North, NE and NW on 12 days; South and SE on 17 days; West on 2 days.

WEATHER.—Cloudy on 18 days; variable on 8 days; clear on 5 days.

STOCKTON.

[Reported by G. A. SHURTLEFF, M. D., Superintendent State Insane Asylum.]

MONTHS.	1853	1854	1855	1856	1867	1868	1869	1870	1871
September					.03				
October		.31		.45	.62	.03	1.05	.15	.14
Novemher	.61	.01	.74	.63	2.16	.62	.83	.67	1.09
December	1.35	.23	2.42	2.99	6.48	3.45	1.55	1.35	11.49
Total to Jan. 1st.	1.96	.55	3.16	4.27	9.29	4.10	3.43	2.17	12.72

MONTHS.	1853	1854	1855	1856	1868	1869	1870	1871
January	.40	2.64	2.90	4.50	5.07	4.18	1.37	1.47
February	.82	8.94	2.74	1.02	2.28	3.17	2.31	.70
March	.02	3.60	2.20	1.26	3.51	2.49	.99	.30
April	2.70	3.24	3.29	1.16	1.56	1.59	.71	.78
May	1.25	.68	1.10	1.17		.82	.12	.45
June		1.00					.30	
July				.10				
August								
Total	8.99	25.04	1..78	12.37	21.74	16.35	9.23	6.87

NOTE.—1857 to 1866 inclusive, not taken.

The above has been sent us by solicitation, in order that the readers of the PRESS may compare the rainfall of Stockton with that of other points. It is reported to precisely 12 P. M., December 31st, 1871.

SACRAMENTO.

[By T. M. LOGAN, M. D., Secretary State Board of Health.

Dec. 25, 1871. Rainfall for the season to date..9.050 inches
" 31, " " " " .....3.371 "

Total for the season up to Jan 1, 1872.....12.421 inches.

REMARKS.—The average annual rainfall at Sacramento, is about twenty inches. It will be seen from the above statement that we have received within seven and one-half inches of this total, as the mean amount of rainfall for January is three and one-half inches, and the maximum for this month fifteen inches, we may calculate with a degree of certainty of having more than the average quantity of rain this season.

CENTERVILLE.

Amount of rainfall at Centerville from December 15th, 1871, to January 3d, 1872.

Aid to Inventors.

EDITORS PRESS:—The *Manufacturer and Builder* mentions a very useful institution now being organized in New York. San Francisco would, I believe, derive equal benefits from similar associations. It is designed to assist inventors, by giving them a place and the use of tools. There will be committees, to whom inventors may refer their ideas or their models. If the report be favorable, the Society will, in consideration of an interest in the patent rights, advance means to develop them. There will be lectnrers and artists skilled in drawing designs and making models; workshops and other apartments, with conveniences for the use of inventors.

The aim will be to enlist all mechanics in the scheme, and to hold regular exhibitions, having the character of Fairs.

This movement has its origin in the widespread dissatisfaction given by the awards of the last Fair of the American Institute.

There is, in the climate of California, something that stimulates invention; but, between high rents, dear money and expensive steam power, inventors find unusual obstacles to the exploitation of new conceptions. We know no institution which would be of more profit to the State, considering its cost, than an inventors' aid association; and I believe there would be little difficulty in getting up such an organization. D. R.

Real inventors are often poor and modest, and need cash assistance. Suoh men, however, know the merits of their inventions better than committeemen. If liberal and honest men in this city will devote sufficient money and time for the organization and perpetuation of such an association, we hope to see it established. Several small associations with a similar object, however, have been attempted here and failed. One, in 1869, was termed the S. F. Inventors' Association. We shall look with interest for and report any success this New York organization meets with.

SCRIBNER'S MONTHLY.—The January numher is a rare publication, and its numerous engravings are finely executed. The publishers apparently aim to raise the reputation of American magazines for beautifnl wood engravings, in which effort they are eminently successful. Printed on superior paper with artful impressions, pleasing and attractive delineations form pictures indelible in the memories of the most cultivated readers. Scribner's views of the Yellowstone, in volume second, and Yosemite in the present numher we have never seen excelled. No one will he disappointed who rcads this new and first class monthly. We append a snmmary of the table of eontents for January:

The Orphan's Christmas-Tree — Poem—Illustrated; The Wonders of the West—No. 1; The Big Trees and the Yosemite—Illustratcd; Song—Poem; A Christmas Carol—Poem—Illustrated; Stephen Skarridge's Christmas—Illustrated; A Christmas Symphony—Poem—Illnstrated; The Last Man of Mexican Camp; The two Mrs. Scndamores—Concluded; Christmas—Poem; Hunting Adventures in India—Illustrated; The Oak Tree's Christmas Gift; The Great Sea-Serpent; A Day of Scottish Games; Some Kinds of Spiritual Qnackery; Wilfrid Cnmhermede; Assault of Antinous upon Ulysses; At His Gates—Chapters I.-III—Illustrated; Topics of the Time; The Old Cahinet; Home and Society; Culture and Progress Abroad; Culture and Progress at Home; Etchings—Christmas in Ole Virginny.

Published by Chas. Scribner, 654 Broadway, $4 per annum. Bound volumes from its commencement, Jnly 1, 1870, can he obtained, and will he highly prized by those who desire an excellent magazine.

A Valuable Work.

The Explorers', Miners' and Metallurgists' Companion, by J. S. Phillips, M. E., recently published by DEWEY & CO., San Francisco, is a work which will commend itself to the public, not only for the completeness and clearness of the information it supplies, but for the practical assistance it affords to men not scientifically educated, to do their own assaying. It is a handsome volume of 640 pages with 81 engravings. The work is divided into five sections, treating severally of Geology and Mineralogy, Explorations, Assaying and Discriminations, Mining and Engineering, and Metallurgy. We know of no work on these subjects in the English language at once so comprehensive, practical and intelligible.—*Golden Era, Dec. 17th.*

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The Library of Reference, the Library, Reading Room and Chess Room are open from 8 A.M. until 10 P.M. every day, (except Sundays and Legal Holidays).

The Society possesses a Library of 18,000 volumes—the most valuable technical and scientific library on the Coast, embracing the transactions of the leading Scientific Societies of the United States and Europe, among which are the philosophical transactions of the Royal Society of Great Britain, complete), and the standard, scientific and technical works; and is in immediate receipt of all new standards publications.

The Reading Room is supplied with the current periodicals and newspapers of the day.

The Mechanics' Institute is open to all, and the Trustees will be pleased to have visitors and others inspect the Rooms.

Entrance Fee, $1.00. Quarterly Dues (in advance) $1.50. Life Membership, $50.

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STEAM POWER.

The second and third stories of the west half of the Mechanics' Mill, corner of Mission and Fremont streets, to let, with Steam Power. Frontage about 70 by 127 feet, but the rear half is only about 40 feet wide. To be let in whole or in part, to one or more tenants.

For further particulars apply to

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On Government, State and Railroad Lands, IN NEVADA.

Having surveyed a large portion of the public domain in Northern Nevada, I am prepared to select, locate and obtain title for parties desiring to secure such lands, in quantities to suit, and on the most favorable terms.

Address or apply to A. J. HATCH,
22v2-3msa U. S. Deputy Surveyor, Reno, Nev.

Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the Scientific Press we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

Alhambra Hill Mining Company—Location of works, Alhambra Hill, Pinto District, White Pine County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 9th day of December, 1871, an assessment (No. 1) of 50 cents per share was levied upon the capital stock of said company, payable in United States gold coin, on the 13th day of December, 1871, to Henry G. Langley, 612 Clay street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the 13th day of January, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 5th day of February, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. HENRY G. LANGLEY, Secretary.
Office, No. 612 Clay street, San Francisco, Cal. de16

Eagle Quicksilver Mining Company—Location of mines, Eagle Mining District, Santa Barbara County, California.

NOTICE.—There are delinquent upon the shares of the following named persons, on account of assessment levied on the 30th day of October, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. shares.	Amount.
Bush, A F.....unissued		1	$40 00
Hawley, E R.....unissued		1	40 00
Pioche, F L A.....unissued		2	80 00
Pearson, H H.....unissued		1	40 00
Sinclair, Peter.....unissued		1	40 00
Williams, Mrs Sarah unissued		1	40 00
Townsend, Jas B...unissued		2	80 00

And in accordance with law, and the articles of agreement of said company, and an order of the Board of Trustees thereof, made on the 30th day of October, 1871, the whole or such undivided part of each delinquent share in said mines as may be necessary to pay said assessment upon each, will be sold to the highest bidder at public auction, for cash, in United States gold coin, at the office of the company, Room 5, No. 302 Montgomery street, San Francisco, California, on Monday, the 8th day of January, 1872, at the hour of 2 o'clock, P. M. of said day, to pay the said delinquent assessment thereon, together with costs of advertising and expenses of sale.

WM. H WATSON, Secretary.
Office, Room 5, No. 302 Montgomery street, San Francisco, California. jan6-1t

Kincaid Flat Mining Company—Location of works, Tuolumne County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 11th day of December, 1871, an assessment of two dollars and fifty cents ($2.50) per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Sec'y, at his office, No. 220 Clay street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Wednesday, the 17th day of January, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the 7th day of February, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. R. H. CORNELL, Secretary.
Office, 220 Clay street, San Francisco. de16-4w

Nevada Consolidated Borax Company—Location of works, Columbus and Fish Lake Valleys, Esmeralda county, Nevada.

Notice is hereby given, that at a meeting of the Trustees of the above named company, held November, 29th, 1871, an assessment of five(5)cents per share was levied on the capital stock of said company, payable on and after the 30th day of November, 1871, in U. S. gold coin, to the Secretary, at the office of the company, No. 420 Montgomery street, San Francisco. Any stock upon which said assessment shall remain unpaid on Wednesday, January 10th, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold at public auction on Monday, January 29th, 1872, to pay the delinquent assessment, together with the costs of advertising and expenses of sale.

J. L. SANFORD, Secretary.
Office—Room 1, 3d story, No. 420 Montgomery street, San Francisco, California.
San Francisco, December 6th, 1871. d9-5t.

Pocahontas Gold Mining Company—Location of works, Mud Springs, El Dorado County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 29th day of November, 1871, an assessment of Five Dollars per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the company, Room No. 26, Hayward's Building, No. 419 California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on Saturday, the 6th day of January, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before will be sold on Tuesday, the 30th day of January, 1872, to pay the delinquent assessment thereon, together with costs of advertising and expenses of the sale. By order of the Board of Trustees. D. A. JENNINGS, Secretary.
Office, Room No. 26, Hayward's Building, 419 California street, San Francisco, Cal. de2-5w

Quail Hill Mining and Water Company—Location of works, Salt Springs Valley, Calaveras County, Cal.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 19th day of December, 1871, an assessment of Five Dollars per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, 409 California street (up stairs), San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 23d day of January, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 13th day of February, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. F. CRONISE, Secretary.
Office, 409 California street, San Francisco, Cal. d23-4w

Silver Wave Mining Company—Location of works, White Pine Mining District, White Pine county, Nevada.

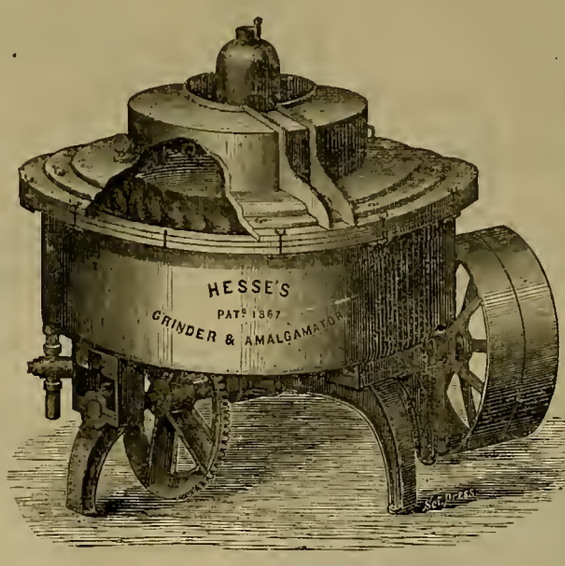
Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 9th day of December, 1871, an assessment of Three Dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the Company's office. Any stock upon which said assessment shall remain unpaid on Thursday, the 25th day of January, 1872, shall be deemed delinquent, and will be duly advertised for sale, at public auction, and unless payment shall be made before, will be sold on Friday, the 23d day of February, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. J.W. CLARK, Secretary
Office, 418 California St. San Francisco. De30-4w.

Tecumseh Gold, Silver and Copper Mining Company.—Location of works, Gopher District, Calaveras County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 5th day of December, 1871, an assessment of Three ($3) dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, F. J Herrmann, at the office of the company, No. 516 Kearny street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the 9th day of January, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 30th day of January, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

F. J. HERRMANN, Secretary.
Office 516 Kearny street d9td.

THE HESSE GRINDER AND AMALGAMATOR.



This machine is the most complete and desirable grinder and amalgamator now in use. Owners of Quartz Mills and Sulphuret Works will find it greatly to their interests to use this machine. The following are some of its many advantages, viz: The comparatively little power required to run it; the small wear of metal in comparison with other grinders; the large amount of work that may be accomplished in a given time, being about three times the amount usually performed in ordinary pans; the continuous working process, whereby the labor of handling the ore is avoided; the peculiar arrangements and action of the currents in the machine, whereby all the particles of ore are brought in contact with amalgamating surfaces, and are discharged as soon as ground to the required degree of fineness, thus saving an unnecessary waste of power and metal.

IN THE REDUCTION OF SULPHURET ORES,

this machine is especially valuable, the particles are ground exceedingly fine and uniformly sized, which greatly facilitates the concentration of the sulphurets, and leaves them in the best condition for roasting. The Hesse machines are successfully working in several important quartz mills and sulphuret works in this State. For further particulars send for Circular, or apply to

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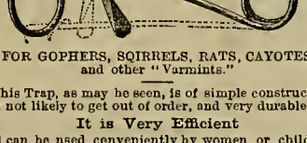
Omnibuses of Every Style.

This pioneer firm, who are now sending out their superior work, of the best approved modern construction, to various quarters of the globe, would call the especial attention of Railroad men and Builders in the Pacific States to their works, No. 47 East Twenty-seventh street, New York.

25v23-eow-12t JOHN STEPHENSON & CO.

Phelps' Patent Animal Trap,



FOR GOPHERS, SQIRRELS, RATS, COYOTES, and other "Varmints."

This Trap, as may be seen, is of simple construction and not likely to get out of order, and very durable.

It is Very Efficient

and can be used conveniently by women or children. THE CHEAPEST AND BEST YET INVENTED. Price 50 cents. By mail, prepaid (to places where express charges are high), $1. A liberal discount to clubs or dealers who buy by the dozen. Address the inventor and manufacturer, D. N. PHELPS,
al-1y-awhp San Leandro, Alameda County, Cal.

W. H. GORRILL, Pres't. F. MALOON, Sec'y.

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Smith's Cast Iron Pier, durable as stone, and adapted to resist rapid currents, put in at low rates.

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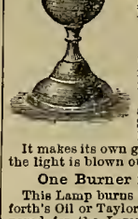
THE CALIFORNIA Safety Gas Lamp.



This New Gas Lamp takes the place of the Candle, the Coal Oil Lamp and Coal Gas, and costs only

One-Half Cent per Hour.

Any person who will take the trouble to examine this Lamp carefully, will see that it WILL NOT EXPLODE.

The flame is as white and brilliant as coal gas, and produces neither Smoke nor Smell. No CHIMNEY IS REQUIRED.

It makes its own gas as fast as it is required, and when the light is blown out the gas ceases to be generated.

One Burner is Equal to Six Candles.

This Lamp burns Refined Petroleum, Gasoline, Danforth's Oil or Taylor's Safety Fluid. Oil expressly prepared for the Lamp furnished by the undersigned in quantities to suit. WIESTER & CO.,
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To prevent INFRINGEMENTS, NOTICE IS HEREBY GIVEN, that BETTS'S NAME is ON EVERY CAPSULE he makes for the principal merchants in England and France, thus enabling vendor, purchaser, and consumer not only to identify the genuineness of the Capsule, but likewise the contents of the vessel to which it is applied. The Lord Chancellor, in his judgment, said that the Capsules are not used merely for the purpose of the ornament, but that they are serviceable in protecting the wine from injury, and insuring its genuineness.

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Union Gold Mining Company—Location of works, Howland Flat, Sierra county, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 4th day of January, 1872, an assessment of one dollar ($1) per share was levied upon the capital stock of said Company, payable immediately in United States gold coin, to the Secretary, at the office of the Company, Room No. 22, Merchants' Exchange, California street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the 5th day of February 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before will be sold on Monday the 26th day of February, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

ALFRED K. DURBROW, Secretary.
OFFICE—Room No. 22 Merchants' Exchange, California street, San Francisco, Cal. jn4-4w.

JOHN TAYLOR & CO.,

IMPORTERS OF AND DEALERS IN

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Chemical Apparatus and Chemicals,

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PHOTOGRAPHIC GOODS, ETC.,

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Having been engaged in furnishing these supplies since the first discovery of mines on the Pacific Coast.

WE ENUMERATE IN PART:

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Acid in carboys and bottles, commercially and chemically pure.
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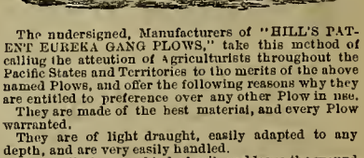
☞ Our Gold and Silver Tables, showing the value per ounce Troy at different degrees of fineness, and valuable tables for computation of assays in Grains and Grammes, will be sent upon application.

24v23-tf JOHN TAYLOR & CO.

HILL'S PATENT EUREKA GANG PLOW,



The undersigned, Manufacturers of "HILL'S PATENT EUREKA GANG PLOWS," take this method of calling the attention of Agriculturists throughout the Pacific States and Territories to the merits of the above named Plows, and offer the following reasons why they are entitled to preference over any other Plow in use.

They are made of the best material, and every Plow warranted.

They are of light draught, easily adapted to any depth, and are very easily handled.

They will plow any kind of soil, and leave the ground in perfect order.

FIRST PREMIUMS!

These Plows took the First Premium at the State Fair in Sacramento, in 1870; at the Northern District Fair in Marysville, 1870 and 1871; and at the Upper Sacramento Valley Fair, Chico, 1870 and 1871. At the Mechanics' Fair, held in San Francisco in 1871, a Silver Medal was awarded these Plows; and the State Agricultural Society, at the last Fair, offered a premium of $40 for the best Gang Plow. The committee was composed of practical farmers from the agricultural counties, who, after a fair test and thorough competition with the leading plows of the State, awarded the premium to the Eureka Gang Plow. From this it will be seen that these celebrated plows still maintain their reputation over all competitors. Patented Sept. 7, 1869.

Champion Deep-Tilling Stubble Plow,

which took the First Premium over all competitors at the State Fair, 1871. It turns a furrow 14 inches deep and 24 inches wide.

This Gang Plow combines durability with cheapness, being made entirely of iron by experienced workmen, of the best material. Over three hundred are now in use, and all have given entire satisfaction.

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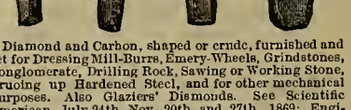
And also by most leading Agricultural Dealers in the State. All others are invited to apply at once for Circulars, prices, etc. 16v23-tf

DICKINSON'S

Patent Shaped Diamond Carbon-Points.

Fig. 1 *Fig. 2* *Fig. 3* *Fig. 4*



Diamond and Carbon, shaped or crude, furnished and set for Dressing Mill-Burrs, Emery-Wheels, Grindstones, Conglomerate, Drilling Rock, Sawing or Working Stone, Truoing up Hardened Steel, and for other mechanical purposes. Also Glaziers' Diamonds. See Scientific American, July 24th, Nov. 20th and 27th, 1869; Engineering and Mining Journal, Jan. 17th, 1871; Journal of the Franklin Institute, Philadelphia, June, 1870. For Circulars descriptive, and Prices, send stamp to

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STEAM ENGINES,
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AND MACHINERY MADE OF EVERY DESCRIPTION.

Improved Safety Store Hoists,

Fitted with Cutting's Patent Cams, unequaled for safety, convenience and cheapness. This Hoist can be built for about half the price of any other in use. To be seen at HAWLEY & CO.'S.

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Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames

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of every description, manufactured 24v16qr

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CO-OPERATIVE,

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Machinery and Castings of all kinds.

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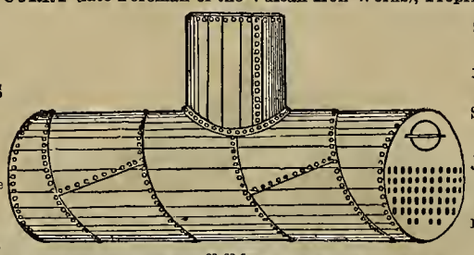
F. I. CURRY (late Foreman of the Vulcan Iron Works), Proprietor.

High and Low Pressure BOILERS of all descriptions.

SOLE Manufacturers of the CELEBRATED SPIRAL BOILER.



Sheet Iron Work to every DESCRIPTION done at the Shortest Notice.

All kinds of JOBBING and Repairing Promptly Attended to.

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Patentees and Builders of Mining and other Locomotives;

☞ Also, Patent Traction Engines for Suburban and NARROW GAUGE Roads, Furnaces, Quarries, Contractors, Etc. Now extensively introduced and indorsed by many of the Largest Coal Operations and Furnaces in Pennsylvania and elsewhere—and adapted for gauges of two feet and over, and weighing from four to nine tons.

Messrs. G. & L. were the PATENTEES AND BUILDERS of the FIRST COLLIERY LOCOMOTIVE introduced into the Mining District of Pennsylvania.

SEND FOR CIRCULAR AND PHOTOGRAPHS.

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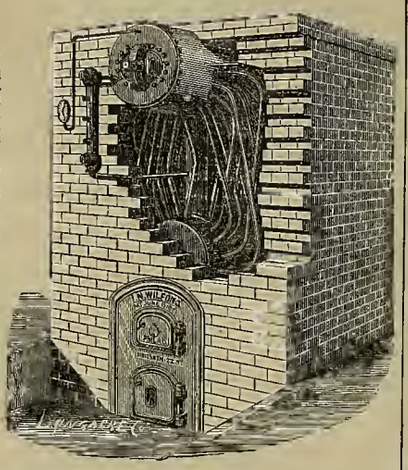
STEAM BOILER.

This cut represents an improvement on the old style of Cylinder Boiler, and combines all the following great advantages: Rapid circulation and generation of steam; economy in fuel; durability, safety, and simplicity of construction: requires but little attention; is easily repaired, and moderate at first cost.

We have now a number in successful operation, and respectfully refer to the following well known parties: Hastings & Co., Seventh and Cherry streets; Jos. Lea & Co., 128 Chestnut street; J. S Huber, Germantown; Holt & Bro., Sixth and Susquehanna avenue; Albion Print Works, Conshohocken, Pa.; S. H. Dickey, Oxford, Pa —all of which are giving ENTIRE SATISFACTION. Parties wishing to investigate the success of our new Boiler can do so by calling at any of the above named places, or to



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CAPITAL.....$1,000,000.

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Manufacturers of Steam Engines, Quartz and Flour Mill Machinery, Steam Boilers (Marine, Locomotive and Stationary), Marine Engines (High and Low Pressure). All kinds of light and heavy Castings at lowest prices. Cams and Tappets, with chilled faces, guaranteed 40 per cent. more durable than ordinary iron.

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C. E. McLANE.....Vice President.
JOSEPH MOORE.....Superintendent.
LEWIS R. MEAD.....Secretary.

24v17-qy

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STEAM ENGINES, BOILERS,

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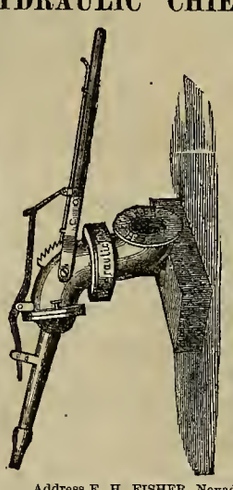

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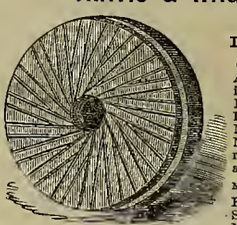

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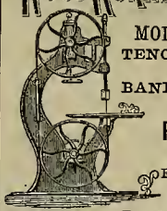

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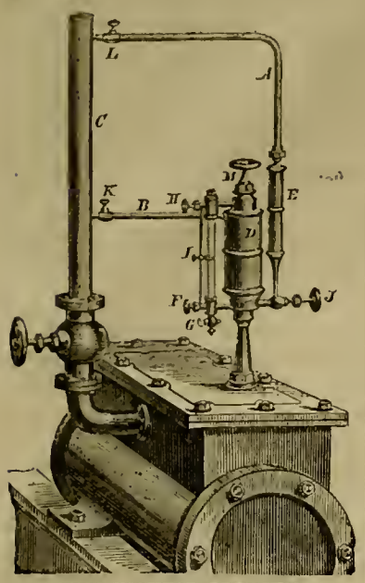

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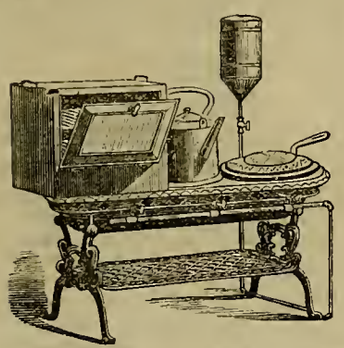

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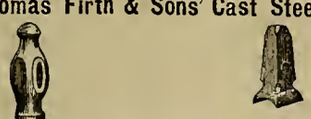

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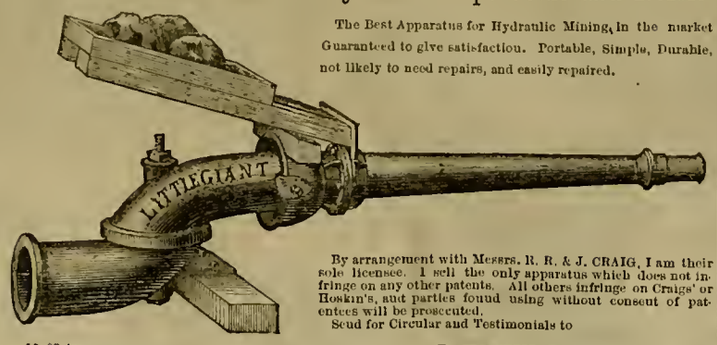

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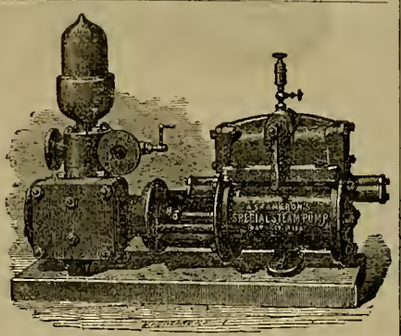

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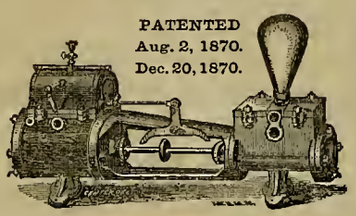
Dec. 20, 1870.



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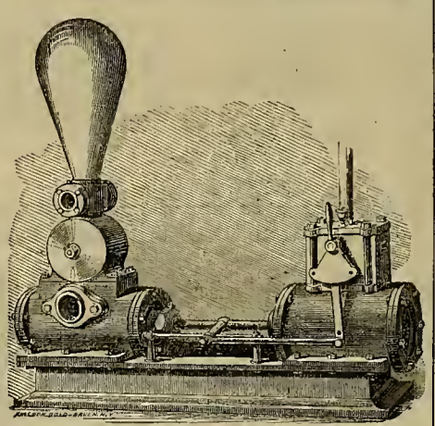

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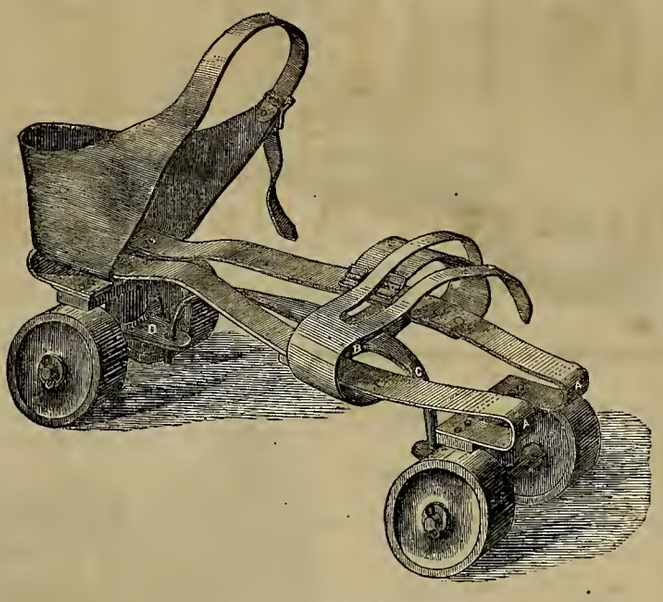

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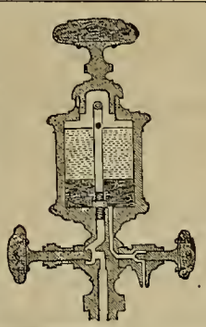

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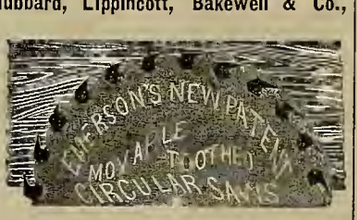

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Mining, Mechanic Arts and Inventions.

BY DEWEY & CO., Patent Solicitors.

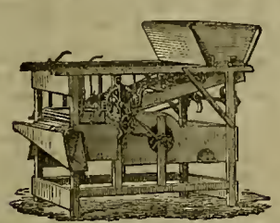
SAN FRANCISCO, SATURDAY, JANUARY 13, 1872.

VOLUME XXIV. Number 2.

Freeman's Grain Separator.

The accompanying illustration represents Freeman's improved grain separator, which belongs to a class of machinery in which our local mechanics excel Eastern manufacturers in producing for this Coast. It is intended for farmers and warehouse use, and will be found especially useful to the latter in cleaning seed grain. The grain is fed into the hopper and passes over a wire sieve to which is imparted a peculiar tossing motion and at the same time moves forward and back rapidly. It then drops on to the perforated zinc plates of which screens there are three, and while dropping through, a blast of air from the fan below, blows off the chaff and other impurities. These plates may be lowered by thumb-screws so as to stand at any desired incline. They have a lateral shaking motion so as to facilitate the passage of the grain through the holes.

The cheat and other deleterious substances drop through the sieve into the cheat box below and the cleaned grain into



Freeman's Grain Separator.

its proper receptacle. The different boxes have separate outlets and are so arranged that the contents may easily be sacked without the necessity of anything falling on the floor. The machine is run by hand and can be easily moved from place to place. It will be found especially useful in cleaning grain of the *Silene Gallica*, or French catch fly, a sort of pod which troubles the farmers in many parts of California.

The screen may be removed and attached to any threshing machine, doing away with the chaffing screen and performing the work at one operation. There are three sets of zinc plates and screens for different kinds of grains and they can be changed in a few moments without trouble. This improvement is the invention of a practical man and one who has had great experience with threshers. Right of use may be had by applying to W. H. Freeman, Tomales, Marin county, Cal., who will also give further information to those desiring it.

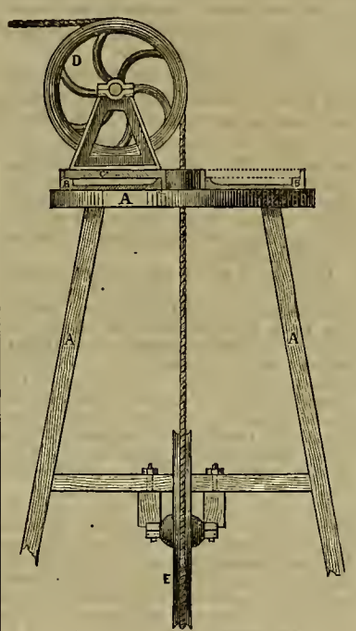
NEW DAM PROJECT.—Certain parties contemplate purchasing Bear Valley of its present owners, says the Grass Valley *Republican*, and constructing a dam 50 or 60 feet high at the lower end. Such a dam would overflow several hundred acres and furnish a large amount of water for mining purposes. Bear Valley is about 4,000 feet above sea level. Water from the valley could be taken to the mines at Dutch Flat, Little York, Quaker Hill, or even down the Washington Ridge to Omega, or Nevada City.

Hoisting Works of the Eberhardt & Aurora Co.

In the issue of the SCIENTIFIC PRESS of Dec. 23, 1871, we gave a discription of the mines of the Eberhardt & Aurora Co., in the illustration of which several shafts were shown, and promised at that time to give a view of the manner in which the hoisting was done so that only one engine was required for hoisting from the entire number of shafts. Our special correspondent, Mr. Murray, obtained for us at the time of his visit a sketch of the gear from which our engravings were made.

The arrangement consists of a pulley mounted upon a turn-table on a suitable frame, so that it can be turned upon a

Fig. I.



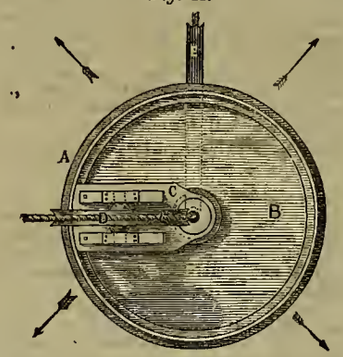
Hoisting Apparatus.

swivel to face in any desired direction. The rope passes round a drum which is revolved by the engine and passes under the pulley marked *E* in Fig..1.. *A*, *A*, *A*, is the frame work for supporting the turn-table and pulley, and is made stationary also; the rope passing under it and up through the centre of the turn-table over the pulley, *D*. *B* represents the turn-table upon which the pulley, *D*, is supported in a frame-work so as to be carried around by the revolution of the turn-table in order to face it in the desired direction. The plate or turn-table, *B*, is made of the best of iron and is three feet and one inch from rim to rim. The outside rim is half an inch thick and the groove is 1½ inches wide. The rope comes up through the center of the turn-table and passes over the pulley, as shown. *E* shows the manner in which the rope may come from the drum and passing up through the hole over the pulley, *D*, transmit the power in a direction at right angles. The arrows indicate the direction to the various shafts that can be operated by the hoisting gear.

A stationary frame with a pulley over which the rope passes is placed over each of the ore shafts; this is raised enough to bring the level of the rope on a line with the revolving pulley, *D*. When it is necessary to hoist from any particular shaft, the rope is detached from the bucket, the end taken to the proper shaft, passed over the pulley and the revolving pulley regulated so as to point in that direction, and it is ready for use. The contrivance is said to give general satisfaction and answer all the requirements.

In this mine there is a very large deposit of ore and several shafts are necessary in consequence; this ingenious arrangement has been contrived so as to re-

Fig. II.



remove the necessity of a hoisting engine at each shaft. The mountain on which the mines are situated is a very high one and there is a great scarcity of wood, what is used being carried up on mules' backs, making it expensive. The water used for the engine, which is of 20-horse power, is obtained from the White Pine Water Co., by whom it is forced to the top of the hill.

The Paul Process.

We have from time to time called the attention of the mining community to this radically new system for the working of ores. We say radically new, as while other modes gather the precious metals by wet amalgamation, this is by electro-galvanic dry amalgamation. Connected with this process is also a new plan of pulverization of the quartz, which is done by a self-feeding and self-discharging pulverizing barrel whereby quartz is made to reduce quartz, thus turning all wear and tear of pulverization to a profit, instead of a tax.

We are informed that the new six-ton mill recently erected at Dun Glen, Nev., by Messrs. Sprague & Co., and where this process and machinery is in practical operation has demonstrated the process to be all Mr. Paul has claimed for it. We have been shown some of the ore as first reduced and passed through a No. 10 wire cloth; also the pulverized ore, and the pulverized amalgamated ore containing 20 per cent. of mercury, without a particle being perceptible to the naked eye, so finely disseminated is it through the ore, and lastly, a bottle containing gold as amalgamated, which is infinitesimal in fineness, that we are satisfied cannot be collected by water in motion. We have also seen a bar of gold worth several hundred dollars, one of several already extracted, and which is estimated at .980 fine.

There is one thing in connection with this process which seems to be of peculiar value, and that is no base substances such as lead, zinc, antimony, copper or arsenic appear to enter into combination with the precious metal or vitiate the mercury. To use Mr. Paul's expression:—"They are placed in antagonism during the process of amalgamation, the mercury having an affinity only for the precious metal."

We are glad to know that Mr. Paul, after so many years of labor to develop this system, is likely to be amply rewarded, and the great interest of mining on this coast to be also substantially benefitted. We shall keep our readers posted on the process as substantial and reliable data presents itself.

Academy of Sciences.

The Academy of Sciences held their regular meeting on Tuesday evening, Jan. 2d; 24 members present. Professor Ehrenberg and Professor Darwin were elected honorary members. The President stated that according to the revised constitution the Trustees were empowered to propose annually the names of two ordinary members for life membership in consideration of important services rendered the Academy. The names of H. G. Bloomer and W. G. Hartford were proposed to be acted upon at the next meeting.

In accordance with the usual custom, President Blake read an interesting address, reviewing the condition of the Academy, speaking of its prospects, and commenting forcibly on the general advantage of the diffusion of scientific knowledge. He spoke of what science had done and what it will do, made some interesting remarks on science being necessary to health; the need of scientific teachers; the natural advantages of San Francisco for scientific study; the scientific education of women, and closed his address with some reference to the State Geological Survey.

Mr. H. G. Bloomer, the curator of the Museum, read his annual report, showing a growth of both the cabinet and library. Mr. H. G. Hanks also presented his report as curator of minerals, etc. The Treasurer, Mr. Elisha Brooks, showed by his annual report that the total receipts were $1,279.35; disbursements, $1,166.50; balance on hand, $112.85.

The result of the election of officers for the ensuing year, was as follows: President, Prof. George Davidson; Vice President, Dr. John Hewston; Recording Secretary, Dr. George Hewston; Corresponding Secretary, Henry G. Hanks; Treasurer, Elisha Brooks; Director of Museum, H. G. Bloomer; Librarian, C. M. Ellinwood; Trustees: Dr. C. M. Hitchcock, Dr. James Blake, Gen. John Hewston and Gen. David Colton.

CORRESPONDENCE.

Mill and Mining in Plumas Co.

EDITORS PRESS:—The recent heavy rains coming as they did upon a considerable body of snow, ensures plenty of water for mining operations during the next twelve months, and indeed gives to mining matters generally in this county a more favorable aspect than for many years past.

During the past two years some very important discoveries have been made in various portions of the county, both in the way of quartz and placer mines, but have lacked development in a great measure for the want of water.

Mills.

A number of new quartz mills have been, and are being erected, and will be ready to commence operations with the opening of spring. At the Indian Valley mine, recently purchased by Messrs. Applegarth and Drake, of San Francisco, a thirty-two stamp mill is being erected which will be ready for work in a few months. Of the old twelve-stamp mill, six stamps are now running, the rock yielding an average of about $15 per ton. I learn that the new proprietors purpose to push operations rapidly, and to thoroughly prospect and develop the mine during the coming year. The

Greenville Mining Co.

Are at work upon rock from the Union ledge located near to, and supposed to be an extension of the Indian Valley ledge. This company have a twelve-stamp mill running upon rock paying from $15 to $28 per ton. Mr. H. C. Bidwell, the Supt., informs me that upon the completion of the new tunnel, now being run at a depth of 460 feet, the mill will be removed to a point very near the mouth of the tunnel, the only trouble now being the expense of hauling the rock over a mile from the mine to the mill. At

Round Valley

The new mill of J. D. Compton is crushing some twenty tons of rock per day, the returns being from $15 to $18 per ton. This mill, although of only six stamp capacity is one of the new patents, being a double battery with a double discharging apparatus, and crushes as much rock as the ordinary twelve-stamp mill.

Mr. H. Gregg is running the old Batchelder mill on rock taken from the Grass ledge, but with what result I did not learn. The

Crescent

Mill has been idle for some months, only the pumps are kept running to keep the water out of the mines. The Supt., Capt. Brentford, informs me that the mine has been sold to a company of English capitalists, who are now on their way out to commence operations. The Crescent has proved itself to be one of the richest gold-bearing ledges in northern California, the yield up to the time of the suspension of work, being nearly one million of dollars.

Placer Mining

Is not carried on very extensively in this portion of the county, though there are some claims on Indian Creek that are paying moderately well.

Around La Porte, Port Wine, Gibsonville, Saint Louis and Howland Flat extensive preparations are being made for next year's mining, and more gold will be taken out than for some years past.

At La Porte a tunnel is being run under Bald Mountain, lying to the northward of the town, and a rich gravel bed discovered.

This deposit has been prospected at various points and found to extend all the way to Gibsonville, a distance of some nine miles. Dr. Brewster showed me his claim on Slate Creek, which he proposes to work next year. The doctor has at a very heavy expense, run a tunnel under a point of rocks, changing the course of the stream, and gaining some 26 feet of fall. He is now putting in sluices for the purpose of sluicing out the tailings in the bed of the creek, that have accumulated there since '49 and '50. He is very sanguine of success and no man better deserves it.

Other claims are to be mined on a more extensive scale than heretofore, of which I shall speak in my next. W. M. A.

Crescent Mills, Dec. 22, 1871.

The Succession of Seasons.

EDITORS PRESS:—Following is the rainfall in this locality for December, 1871. With the exception of a shower on the 2d, the month continued so dry until the night of Sunday, 17th, that many and grave were the predictions of "another dry year."

Since then, we have had our share of the abundant rains which have fallen throughout our State, to make glad the hearts of our people. The heavy rains commenced between 7 and 8 P. M. the 17th. The result for the month is as follows:

DATE.	INCHES.
Dec. 2—Showers between 5 and 9 A. M.	0.04
" 18—To 7 A. M.	2.66
" 19—To 7 A. M.	1.93
" 20—To 7 A. M.	0.58
" 21—To noon	0.12
" 23—To 8 P. M.	0.54
" 24—Showers to 7 A. M.	0.02
" 27—Between 7 and 12 A. M.	0.17
" 28—To 7 A. M.	0.11
" 29—To 8 P. M.	0.44
" 30—To 8 A. M.	0.11
" 31—To midnight	0.47
Total for December, '71	7.19
Add for October and November, '71	1.33
Total to date for the season	8.52

This makes an *inch* and a *quarter* more than fell all last season; the entire amount then being 7.24 inches. In December, alone, we have had almost as much as fell in the season of '70 and '71.

If those who have a complete copy of Dr. Logan's Rain Table giving the rain for each month, at Sacramento, since '49, will compare the amount of rain this December, with the number of inches each December succeeding a dry year, they will find another remarkable agreement that tends to confirm the principle of a regular succession in our seasons, which was pointed out in the RURAL PRESS for November 11th. Attention has already been called to the fact that as far as past observations go, the Sacramento rain-table answers very well for our valley.

That table gives for Dec., 1851 ....7.07 inches
" " 1857.....6.63 "
" " 1864.....7.86 "
Now we have for Dec., 1871.....7.19 "

That is, for each December immediately after a dry year, our valley has had a little more or less than 7 inches of rain. Is this not a striking correspondence in seasons, to say the least?

It is very easy to say, "It just happened so." But does it not look as if there is a principle of succession here that has its origin in the laws of nature which produce the seasons in our valley? And does it not tend to confirm the inference that we may confidently expect a rainfall this winter ranging *at least* from 17 to 22 inches?

While speaking of these agreements, notice another, though not an important one, between the seasons of '64 and '71.

Whole rain at Sacramento in winter of '63 and '64.....7.86 inches
Whole rain at Sacramento, Dec., '64.7.86 "
Whole rain here, winter of '70 and '71.7.24 "
Whole rain here, Dec., '71 .....7.19 "

Close race that, between these December rains and the preceding seasons.

J. W. A. W.

Turlock, Stanislaus Co., Jan. 1, 1872.

Unfermented Juice of the Grape.

EDITORS PRESS:—I have recently seen it stated that Dr. B. F. Headen of Santa Clara, has invented a process by which the juice of the grape may be preserved sweet or without fermentation any length of time. What the invention consists of I do not know.

I will give you, however, and the readers of the PRESS our mode of preserving the juice of the grape, or the juice of any other fruit, free from fermentation for any length of time. The process, as practiced by my wife, is original with her. She has so preserved the juice of the grape for the last ten or twelve years. That is to say, she has put up more or less of it every year for that length of time. It has not kept so long, however, because it is too good to keep. She has it now two years old, and I think some that is three.

You, and more particularly those "making inquiries as to where this unfermented juice is manufactured," will perhaps be a little surprised to learn that the process is identical with the one practiced by almost every housekeeper in the land in the preservation of fruit in tin cans, glass jars, bottles—that and nothing more. Both depend for success on the same principle—the exclusion of the air.

Any one who can put up, and preserve, without fermentation, a bottle of grapes, hulls, seeds and all, can, in the same way, preserve the juice *without* the hulls and seeds. Why not? It is a temperance drink, pure and wholesome, and contains not a particle of alcohol.

That none may fail who desire to try it, I give the mode in detail:—Gather clean, ripe grapes; strip them from the stems; put them into a stew kettle and bring to the boil; turn them into a sack, press out the juice; put the juice back into the kettle and bring it again to the boiling point; then set it off and with a funnel, fill it into bottles—champagne bottles are best—till they are full. My wife's mode of sealing is as follows:—Have some strong muslin cut into pieces two inches square, as many as there are bottles to be filled; then melt some resin in a convenient vessel; add thereto sufficient tallow to render it slightly elastic, so that it will not break or crack in cooling and admit air. With this melted resin cover one side of the two-inch square cloth; lay it over the mouth of the bottle and with the hand press it down around the neck of the bottle; tie a little string around it, then put a little more resin over the top. If the work is properly done I will guarantee it to keep from one to a thousand years—if not sooner drank. HIRAM POMEROY.

Milpitas, Dec. 25, 1871.

Reproduction of Forest Trees, Etc.

EDITORS PRESS:—I noticed sometime since an article in your paper in regard to the reproductiveness of certain native timber. I have been a resident of this State twenty-two years, during which time I have had ample opportunity for observing the growth and reproductive qualities of our different forest trees.

Redwood—Which is the principal material used for nearly all ordinary building purposes in this State, and which is being so rapidly used for the purposes mentioned, that the day is not far distant when it will be among the scarcest of our timber trees, reproduces itself by suckering, which process is so slow that it can only become beneficial to generations in the very distant future.

In proof of this I will mention a stump from which the tree was cut 18 years ago. This stump is six feet in diameter, and has put forth three suckers or shoots—the largest of which has attained a hight of about twenty feet, and is ten inches in diameter at the base. Now, if we cut this eighteen-year old sapling down, we will discover that the solid wood part is only about one-fourth the thickness of the whole tree, and the balance, owing to its spongy nature, is unfit for any use, and will decay a short time after being cut.

The Oaks—Of which we have several varieties, including what is known as white oak, black oak, red oak, live oak, and tan-bark or chestnut oak, are all, with one exception (white oak), reproductive by suckering; but none of which thus far—owing perhaps to climatic influences—have to any great extent been utilized, except for fuel and for tanning purposes.

The chestnut oak, is a very beautiful evergreen, much resembling the European chestnut in foliage. It is a rapid grower and can easily be raised from the acorns which are found scattered in abundance beneath the trees, in the months of September and October. I think when this tree becomes better known it will take the place of many other sorts now planted for shade and ornamental purposes.

The California Laurels also sends up shoots from the stump when the old tree is destroyed. Of this tree too much can not be said to encourage its propagation among husbandmen throughout the State. It is well known that the wood of no tree in the world takes a finer polish, and none that can be converted into more beautiful articles of cabinet work than this laurel. It is bound to become one of our most valuable forest trees.

This tree is also easily grown from the nut, which can be procured in any quantity from the old trees in the fall of the year.

The laurel flourishes best in moist places, though often seen on high ground. It is most frequently met with along the banks of all the perennial brooks of our State, where it rejoices in the fullness of its glory, its sweet, aromatic fragrance reminding us of its presence before we behold its glossy beauty.

CLEMILIUS KAMP.

San Jose, Jan. 3, 1872.

Eureka Lakes.

Were the reader traveling in Nevada County, climbing up the hills and pausing in the gorges to take a drink from a dancing streamlet, then on again up among the increasing boulders and cañons, a surprise would burst upon him in the shape of a group of Lakes—twenty-four in all—clustering around each other like the setting of a cluster-ring, and more beautiful in appearance than all the diamond clusters in the world.

Twenty-four—the largest only three miles long and scarcely a mile wide—all sizes and shapes, set in the hills with such a variety of scenery that one hardly knows where to look first, or what particular point to admire most. Pines and oaks ornament the strips of land between them, while a numerous variety of gorgeous flowering-shrubs, such as the wild lilac and manzanita, perfume the clear air with an exquisite fragrance. There is nothing particularly marked about any one of these Lakes, but the entire group of waterlets (if we may coin the word) presents a remarkable scene to the eye. They are situated in the eastern part of Nevada County, and ought to be one of the fashionable resorts of the State.

Nothing so really lonely and unique can be found elsewhere on the coast as this group of twenty-four pure-water Lakes; at a distance some of them look as if one's arms could span them—

"So wondrous wild, the whole might seem
The scenery of a fairy dream."

From any approach they seem to smile a welcome, and they really possess the look of "intelligent nature." If "the air hath voices," Eureka Lakes have smiles, and countenances that seem to change in a variety of sweet expressions as one changes position.

The smallest appears from a distance like

"A narrow inlet, still and deep,
Affording scarce such breadth of brim
As served the wild duck's brood to swim;
Lost for a space through thickets veering,
But broader when again appearing."

Another, but a trifle larger, hemmed in with flowering shrubs, its quiet face reflecting the shadows of the clouds; then still another, sparkling with glimmering rays of sunshine that rest in silver lines across it from shore to shore. And so we may spend days among them, hardly knowing which to admire the most, and wonder if other lands can have anything more lovely.—*Lisle Lester.*

APPLES WITHOUT BLOSSOMS.—Some time last spring there was considerable talk about apple trees that never bloom, and which have been very productive. During the summer Mr. Ely, of Norwich, Conn., sent some of these apples to the Farmers' Club of New York. The apples came originally from the farm of Mr. Ely's father, in Litchfield county, of the same State. The original tree has borne for over 50 years and still has never shown a perceptible blossom. The shape of the blossom end is very peculiar, and Mr. Fuller was requested to dissect one, and make such remarks as he might see fit and which might be of interest to all who participated in the former discussion or read about it in the papers.

Mr. Fuller remarked that Mr. Ely had not examined closely, or he would have found that his trees do bloom. We have in these specimens the proof that these are blooms—not perfect, however, because there were no petals, and this is why the man thinks there are no blossoms. The petals in almost any flower is merely an ornamental organ and not essential to the production of fruit or pulp. These apple blossoms had a calyx, for it is now upon them; they had also pistils, for they contain seed and probably stamens, as I find the dried up fragments of the same within the calyx. If our correspondent will examine his apple trees very carefully he will find that they do really bloom, although the flowers may be inconspicuous on account of an entire want, or deformed petal.

FINE CHROMOS.—The chromo lithographic art has now been brought to such perfection in America by Mr. J. Hoover, of Philadelphia, that lovers of beautiful pictures can supply their homes with "perfect counterfeits" of the rarest touches of the most gifted artists of both old and modern days. The popular pictures are unmistakably cultivating a new and elevating taste for fine arts in the American community. Mr. Hoover is constantly adding to his already long list of home prints. We have examined those mentioned in his advertisement in the PRESS and can say they are among the most attractive and popular of any yet published in this country.

Mechanical Progress.

The Durability of Timber.

A late edition of *Tredgold* on carpentry furnishes the following interesting and useful facts with regard to the durability of different kinds of timber:

In regard to the durability of different woods, the most odoriferous kinds are generally considered to be the most durable; also woods of a close and compact texture are generally more durable than those that are open and porous, but there are exceptions, as the wood of the evergreen oak is more compact than that of the common oak, but not nearly so durable.

Sir H. Davy has observed that, "in general, the quantity of charcoal afforded by woods offers a tolerable accurate indication of their durability; those most abundant in charcoal and earthy matter are most permanent; and those that contain the largest proportion of gaseous elements are the most destructible. "Amongst our own trees," he adds, "the chestnut and the oak are pre-eminent as to durability, and the chestnut affords rather more carbonaceous matter than the oak. But we know from experience, that red or yellow fir is as durable as the oak in most situations, though it produces less charcoal by the ordinary process. The following table of the quantity of charcoal afforded by 100 parts of different woods is added, for the information of the reader:

Oak, dry	22.6	Pine	20.0
Chestnut	23.2	Scotch Pine	18.4
Mahogany	25.4	Ash	17.9
Walnut	20.6	Norway Pine	19.2
Elm	19.5	Sallow	18.4
Beech	19.9	Birch	17.4
Fir	15.6	Sycamore	19.7

But it does not appear that the proportion of charcoal is a satisfactory criterion of the durability.

An experiment to determine the comparative durability of different woods is related in Young's "Annals of Agriculture," which will be more satisfactory than any speculative opinion; and it is much to be regretted that such experiments have not been oftener made.

"Inch and half planks of trees from thirty to forty-five years' growth, after ten years' standing in the weather, were examanined and found to be in the following state and condition:

Cedar, perfectly sound; larch, the heart sound, but sap quite decayed; spruce fir, sound; silver fir, in decay; Scotch fir, much decayed; pinaster, quite rotten; chestnut, perfectly sound; abele, sound; walnut, in decay; sycamore, much decayed; beech, sound; birch, quite rotten.

This shows at once the kinds that are best adapted to resist the weather; but even in the same kind of wood there is much difference in the durability, and the observation is as old as Pliny, that "the timber of those trees which grow in moist and shady places is not so good as that which comes from a more exposed situation, nor is it so close, substantial, and durable;" and Vitruvius has made similar observations.

Also split timber is more durable than sawed timber, for the fissure in splitting follows the grain, and leaves it whole, whereas the saw divides the fibers and moisture finds more ready access to the internal parts of the wood. Split timber is also stronger than sawed timber because the fibers, being continuous, resist by means of their longitudinal strength; but when divided by the saw, the resistance often depends on the lateral cohesion of the fibers, which is in some woods only one twentieth of the direct cohesion of the same fibers. For the same reason whole trees are stronger than specimens, unless the specimens be selected of a straight grain, but the difference in large scantling is so small as not to be deserving of notice in practice.

Of the durability of timber in a wet state, the piles of the bridge, built by the Emperor Trajan across the Danube, are an example. One of these piles was taken up, and found to be petrified to the depth of three fourths of an inch; but the rest of the wood was little different from its ordinary state, though it had been driven more than sixteen centuries.

The piles under the piers of old London Bridge had been driven about 600 years, and, from Mr. Dance's observations in 1746, it did not appear that they were materially decayed; indeed they were found to the last to be sufficiently sound to support the massy superstructure. They were chiefly of elm.

Also, in digging away the foundation of old Savoy Palace, Loudon, built nearly 700 years ago, the whole of the piles, consisting of oak, elm, beech, and chestnut, were found in a state of perfect soundness; as also was the planking which covered the pile heads.

On opening one of the tombs at Thebes, M. Belzoni discovered two statues of wood, in good preservation; the only decayed parts being the sockets to receive the eyes. The wood of these statues is probably the oldest in existence that bears the traces of human labor.

Mechanical Progress in the United States.

There is nothing which brings the material progress of the United States into more prominent light than a retrospective view of the condition of affairs forty years ago, in regard to the capacities of our mechanics to produce machinery. In 1828, the first locomotive was imported from England, to draw the coal-cars on the Carbondale and Honesdale Railroad, Pa.; the second in 1830, to run passenger-cars on the Mohawk and Hudson Railroad. The first American locomotive was built in 1830, in the United States Foundry, at West Point, for the South Carolina Railroad, and the third in 1831, for the Mohawk and Hudson Railroad, which road was soon abandoned and broken up for want of patronage.

In the same year Baldwin, of Philadelphia, made a miniature locomotive, which could draw two little cars with four persons; he exhibited it in Peale's Museum, in Philadelphia, and this exhibition laid the foundation for his fortune, and the large machine shop in that city, still bearing his name. In the following year, he received an order from the Germantown Railroad Company to build a large locomotive. It would have frightened any other man of less pluck, as in the whole city there were only five men who were able to help him, and no proper tools at all. He therefore commenced at once to make tools and patterns, and, incredible as it seems, in six months the locomotive was ready. It appears to have been a very delicate affair, as the advertisements in the Philadelphia papers of that day prove. They say, "Passengers to Germantown will go with a train of cars drawn by the new engine, when the weather is fair; when it rains, the horses will draw the cars."

Notwithstanding this, Baldwin's reputation was settled; before the end of 1834, he had finished five locomotives. He was then able to finish two small ones in a year; now the same shop finishes one of large size, with tender, etc., *every day*. The first small locomotives could run with a velocity of ten miles an hour, and draw one or two tons; the present locomotives have a speed of 40 miles per hour, and draw 1,000 tons.

A business commenced in 1831, with five men, without proper tools, in a small shop, (which still stands,) has increased in 1871 to a large manufactory grown around it, occupying a quarter of a million square feet, employing 2,000 men, and manufacturing four million dollars worth of locomotives per year, which are sent to California, Canada, South America, Europe, etc., in spite of European competition, of cheap labor, and cheap material.—*Manufacturer and Builder.*

Experiments with Lubricators.

A very elaborate series of experiments were recently made in New York to test the relative value of different lubricators. The experiments were continued during a period of fourteen months. The following were the general results and inferences: The consumption of oil varies with its temperature when applied.

Winter sperm oil, sustained the heaviest pressure, and was taken as the initial of comparison for all others, and their per cent. of lubricating value determined by it. The tests of mineral oils and mixtures of animal and fish oils with them would not sustain an equal pressure with the sperm, when equal quantities of the oil were applied, without rapidly increasing the temperature of the journals, and producing an abrasion of their surfaces.

When the pressure on the bearings were made equal with winter sperm, it required from 100 to 400 per cent. increase of oil, to keep the temperature of the journals below 100° Fahr.

Experiments were made at varied velocites, with the same oils. The results proved that as the velocity was reduced the pressure could be increased, and the relative consumption of oil, applied at equal temperatures, was decreased in almost equal ratio.

Scientific Progress.

Meteorites—Their Orbits, Etc.

Much attention has of late years been given to that erratic class of heavenly bodies known as meteors, or, as they are sometimes called, *shooting stars*. In rare instances these bodies reach the earth, and when they do, they are usually called aerolites, or meteoric stones, from the character of their composition. Those which reach the earth are not supposed to be in any way different from those which merely blaze out for an instant, or shoot across a portion of the heavens, leaving a bright train of light behind.

When they fall to the earth, their direction is such as to lead to an unavoidable collision; those which become visible, for a moment only, and do not fall, enter into and pass through the upper and more rarified portions of the atmosphere. If their direction is such that they enter deeply into the atmosphere, but not pointed directly to the earth's surface, their motion is so much retarded by the friction of the air, that their direction is sufficiently changed by gravitation to bring them to the earth, and thus end their existence as separate and distinct bodies in space.

Meteors are of all sizes, from those of a few grains in weight to those of many pounds or even tons. The former, on entering deeply into the atmosphere, are rapidly dissipated by the great heat which is created by their friction, and the consuming effect of the oxygen with which they come in contact. The larger ones are usually fractured by the great heat produced upon their surface, and fall in fragments to the earth. Their fracture is usually attended by concussion, which often sounds like the report of distant cannon. The continued, subdued roaring which is often heard during their flight across the heavens in their approach to the earth, is produced by the rushing past them, laterally, of the air, which falls rapidly in behind them, to fill the partial vacuum caused by their motion.

It has been calculated that not less than an average of seven millions of meteors might be seen from all parts of the earth, every twenty-four hours, provided the earth should move during that time through a clear sky, without any light from the sun or moon. If all the meteors which so pass the earth within the time specified could be brought into the field of a telescope, it is calculated, on reliable authority, that the number would reach fully four hundred millions!

All these bodies move around the sun, and late observations have established the fact that many, if not most of them, move in approximately concentrated orbits, like the asteroids; but unlike the asteroids, in extremely elliptical orbits, like comets. The path of the "November meteors" has its aphelion just beyond the orbit of Uranus, and its perhelion at or near the earth's orbit, and inclined about 17 degrees to that of the earth.

Careful observations have led to the supposition that there are at least fifty different rings of meteors, such as the November ring, of which, however, that is by far the most extensive. Chemical analysis has revealed the presence of at least twenty-three different elements in these meteors, out of the whole number of sixty five thus far discovered as composing the earth's substance. The names of these elements are as follows: Oxygen, hydrogen, nitrogen, sulphur, phosphorus, carbon, silicon, nickel, chromium, tin, aluminum, magnesium, calcium, potassium, sodium, cobalt, manganese, iron, copper, titanium, lead, lithium and strontium. The presence of these elements, found also in the earth, suggests a common origin.

The asteroids probably compose a "ring" very similar to the November meteors; but its great distance from the earth will not admit of any except its larger component parts being seen, even by the telescope. No doubt a closer view would reveal an almost illimitable number, even down to bodies not greater than the larger asteroids. These bodies are supposed to be either the fragments of an exploded planet, or a planetary body thrown off from the sun in the form of a ring, and aggregated into a great number of small bodies, instead of into one large body, like the earth and other planets.

From the eccentrity of the orbits of the meteorites, we might perhaps suppose them to be fragmentary portions of a cometary body, widely scattered in space, instead of being concentrated into a single body, as are the bodies known as comets.

The spectrum, that wonderful instrument of comparatively recent discovery, which is just beginning to be employed in the observation of comets, appears to indicate that these erratic bodies are composed of gases at a very elevated temperature. A careful microscopic study of many of the asteroids which have fallen to the earth, shows most conclusively that these bodies have at some time been in a state of vapor—as the comets now are—and that proximately they are made up of small rounded globules, which have accumulated and been more or less fractured by mutual impact, and finally consolidated. These supposed facts would seem to indicate a common origin for comets and meteors.

Action of Sulphurous Acid on Phosphates.—B. W. Gerland has been making some important experiments on the action of aqueous sulphurous acid upon phosphates, which have developed some points of great practical importance, especially in their bearing on the manufacture of artificial composts and soluble phosphates. He finds that aqueous sulphurous acid does not, like the strong acids, wholly decompose the phosphates, but transforms them into soluble modifications. The ordinary bone phosphate, called tribasic, is easily soluble in sulphurous acid, and if the solution be hastily boiled and evaporated in open vessels, a crystalline double salt, a mixture of trihasic phosphate with a sulphate of lime, will separate. This new acid remarkable body is said to be quite permanent, and in reference to its use as a disinfectant, and upon farm land it is certainly deserving of special notice. If we can by means of sulphurous acid decompose the phosphates, we shall avoid the expense of sulphuric acid, which must first be made from sulphurous acid, and obtain a product not so difficult to handle, and capable of a greater variety of uses than the superphosphates made in the old way. Mr. G. has studied the behavior of sulphurous acid towards other phosphates, the results of which, however, being purely theoretical we omit them.

Bromide of Potassium.—The increasing use of bromide of potassium, another of chemistry's contributions, would have been impossible, were it not for the extraordinary discovery of an apparently evaporated sea water bed in Germany. The amount of bromide consumed in medicine is now enormous, and most of it is derived from this source. The same mines have also completely changed our sources of potash; they produce far more than all the other sources of England and France put together, and have so reduced the price that carbonate of potash is now largely made in England at a price which competes most favorably with American pearlash, and will ultimately drive it out of that market. Bromide of potassium is an instance of a substance long used in medicine before its valuable properties were discovered.

Inhalation of Dust by Workmen.—The injurious effect of exposure to the dust of various manufacturing establishments has not unfrequently been dwelt upon with more or less force; but we are hardly prepared for the result of certain specific investigations on this subject. It has long been a disputed point whether the particles of iron, silica, etc., merely lodge within the air-cells of the lungs, or penetrate through their walls into the tissue between them. But Professor Zenker informs us that, on examining the lungs of a woman who had been exposed to the dust of iron oxide, used in preparing books of gold-leaf, he found the powder in the tissue between the air-cells and in their walls, as well as in their cavities. From less than two ounces of this lung over twelve grains of iron oxide were obtained by chemical methods; so that, if equally distributed through both lungs, there must have been at least three-quarters of an ounce inhaled. In another case—that of a workman exposed to the dust of a mixture used in preparing ultramarine substances—he found a quantity estimated at fully an ounce.—*Harper's Magazine.*

M. Devergie, a French chemist, finds that water containing only one four thousandth of its weight of carbolic acid sufficed for the disinfection of the Morgue in Paris during the hottest weather, when it contained six or seven bodies,

Mining Summary.

The following information is condensed mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

AMADOR COUNTY.

Jackson Ledger.—Jan. 6: The recent storms do not seem to have affected quartz mining throughout the county, as we learn all our quartz mills are busy crushing rock, and the mines worked without any interruption caused by the storms.

Good.—Jackson *Dispatch*, Dec. 30: D. Worley informs us that his recently discovered claim, near Drytown, still continues to yield as brilliant prospects as ever—he being able to get sometimes as much as $8 or $10 to the pan.

CALAVERAS COUNTY.

Gwin Mine.—Calaveras *Chronicle*, Dec. 30: Operations have been resumed in the upper mine at Lower Rich Gulch, the shaft having been freed from water on Thursday last. Rock has constantly been taken from Alexander shaft, water not proving an obstacle.

What Cheer.—A very good quality of gravel is being taken from the What Cheer mine. In consequence of the storm but a small working force is at present engaged.

Good Hope.—After running a tunnel 350 ft. through solid rock the owners have "struck the lead" and paying quartz at the same time. Scarcely a piece of rock can be taken from the lead that does not carry free gold. The ledge is about 3½ ft. wide and has every appearance of being a permanent one. The Good Hope is an extension of the celebrated San Bruno mine, and there is every reason for believing that it will prove equally as valuable as the latter.

Petticoat.—The main shaft in the Petticoat mine at Railroad Flat has reached the depth of 350 ft. A fair quality of ore has been struck, and levels are to be commenced immediately.

Rich Rock.—Calaveras *Citizen*, Dec. 30: We were shown yesterday about a ton of quartz from the claim of B. K. Thorn, about one mile from town, which surpasses in richness any quartz heretofore found in this part of the county. It was taken from a depth of 240 from the surface, and gold is visible all through it. The lead at this depth, from hanging to foot wall is 12 ft. wide, about 4 ft. of which shows the above kind of rock, which will yield at least $300 per ton.

INYO COUNTY.

At Work.—Inyo *Independent*, Dec 23: Work on the big tunnel from the lower town of Cerro Gordo, to tap the Front at a depth of 1,000 ft., is being energetically pushed by the projectors, Messrs. Brady & Simpson. Two years will be required to complete the work.

NEVADA COUNTY.

Locations.—Nevada *Transcript*, Jan. 3: During the past year 178 instruments, locating claims or water rights for mining purposes, have been entered upon the books of the County Recorder. The number of claims is not so large, but the extent of ground covered by each Co., is much greater than formerly.

The Hibernia Co. in Grass Valley township, have located 1,200 ft. of mining ground near the tunnel of the Ural Co.

Banner Mine.—Grass Valley *Republican*, Jan. 5: Rich ore has been discovered in the south drift of the fourth level of the Banner mine.

Daisy Hill.—The storm has delayed the owners of the Daisy Hill mine in getting their pumping and hoisting machinery into operation. If the weather continues fair the machinery will be in working order in four five days.

Branch Mint Tunnel.—The owners of the Branch Mint tunnel, this side of Pittsburg mine, have at last struck the ledge in their tunnel, which is in the hill or ridge, a distance of 700 ft. The ledge is about 14 inches wide, and prospects well. A contract has been let for taking out a crushing of 25 or 50 tons of rock for a test.

Items.—Grass Valley *Union*, Jan. 4: The mill at the Greenhorn mine started to work on the 1st inst. after months of idleness. There is plenty of rock on hand to keep it running while water lasts. The shaft of the mine is down 227 ft. and levels have been started. The ledge is from 3 to 5 ft. wide and shows well in free gold. The Schuylkill mine, in Mary's Ravine at the foot of Hueston Hill, has a tunnel in 315 ft. to the ledge. The Co. have 230 ft. of backs. The ledge averages a foot in thickness and contains splendid sulphurets. Drifts are being run both ways on the ledge. The Co. has been 2½ years running their tunnel. The ground is very hard some of the work in running, cost $24 per foot. The Fillibneter Co., operating in Gravel on the Washington Ridge 8 miles above Nevada city, has been successful. On Saturday before Christmas miners struck into gravel which prospects from $2 to $3 to the pan. The Co. has run 800 feet.

PLUMAS COUNTY.

La Porte.—Quincy *National*, Dec. 23: Kirk, McClellan, Hiland, and Hersom have taken the contract to run, the Bordwell & Co. tunnel. It will take 2 years to finish the contract.

The members of the Illinois. G. M. Co. held a meeting on the 11th inst., and organized.

SAN DIEGO COUNTY.

Bullion.—San Diego *Union*, Dec. 21: There was shipped by W. F. & Co. on the steamer California, bullion amounting to $1,100.

The Mines.—The news from the mines in our county continues to be most encouraging. Nearly every lead is being worked, and many improving in richness as they go down. The mills are steadily employed night and day in crushing rock and the only trouble with the miners is that the facilities for taking out the gold are not sufficiently extensive. The addition of the new mill to those already in operation will remove this trouble in a measure. The work done by the mills at present gives satisfaction to the owners of quartz ledges, as they are run in good style. The mills of Gunn, Reynolds & Co. and De Frees & Co. are both engaged at present on rock from the Owens lead. They commenced crushing quartz from this mine 2 weeks since, and both mills have been steadily at work night and day ever since on the ore. The clean up, which will take place in a day or two, will be the largest yet made in the mines. The Whitney & McMechan mill has been running for some days on ore from the Golden Chariot mine. As the ore is of the same character as that crushed some time since, which yielded $153 per ton, we may expect a large result at the clean up.

SAN LUIS OBISPO COUNTY.

The New Quicksilver Mines.—San Luis Obispo *Tribune*, Dec. 23: Capital mines have been discovered in the new diggings. The croppings of quicksilver ore are very extensive, and have been followed for a distance of 5 miles northwesterly from the Pine mountaine, and southeasterly, in the direction of Santa Rosa creek, a distance of over 10 miles. The most promising locations are those of the Pine Mountain Co. the Little Almaden, the Garibaldi and the Occidental. The latter is considered one of the most promising locations in the mineral range.

YUBA COUNTY.

Oregon Hill—Marysville *Appeal*, Jan. 4: The miners in this section are all at work excepting those who have creek claims. These claims are lying idle, owing to the water, which is higher than it has been since the winter of '61 and '62. It is supposed that this season will be the best for mining purposes of any since the winter mentioned.

Nevada.

ELKO COUNTY.

Lucin.—Elko *Independent*, Jan. 6: The Buel & Bateman furnace will start up again on Wednesday next. The mines generally, are looking well. The Iron Clad, No 1, has an incline down 40 ft., showing a ledge from 7 to 10 ft. wide, of carbonate of lead ore, which assays 50 per cent. in lead and about $20 per ton in silver. New ledges are being struck almost daily, some of which present flattering prospects. About 100 men are now burning coal for the smelting works. Ore is being shipped from the dist. to Reno for reduction.

EUREKA DISTRICT.

New York Canon.—Eureka *Sentinel*, Jan. 3: Much work is being done in the mines in the neighborhood of New York Cañon. The South Eureka M. Co. are prosecuting work on their mine (X. Y. Z.), and have more ore than they can find room for on their dumps. J. Drieshach is working the Fourth of July mine with gratifying prospects. A splendid vein has been disclosed, which is continually increasing in size as depth is attained. The Golden State has fine prospects. The main shaft is down 70 ft., and a splendid body of ore has already been developed.

ELY DISTRICT.

Bullion.—Pioche *Record*, Dec. 31: W. F. & Co. shipped since Dec. 24th, bullion valued at $182,041.72, of which amount $33,060.23 was shipped by the Raymond & Ely.

Rich Strike.—A rich strike is reported to have been made on the divide between Pioche and Highland.

Our Mines.—On the Page & Panaca, work has been commenced at the lower level to sink a shaft an additional 100 ft. before drifting to the ledge. The shaft of the Newton Booth has been sunk through the ledge, now sinking in very hard quartzite. The American Flag is looking very well and shipping the usual quantity of ore. The Chief of the Hill is rapidly developing into a first class mine. The ledge improves in solidity and richness of ore as depth is attained. The Hermese, Newark, Ingomar, Oneida and other claims on the Panaca flat are being worked steadily with good prospects. Every portion of the Raymond & Ely mine is looking well. The Pioche is still doing dead work and prospecting for ore; mine steadily improving.

HUMBOLDT.

Golconda Dist.—Unionville *Silver State*, Jan. 6th: A San F. Co. will commence work on the Cumberland mine immediately. The Cumberland ledge was one of the first locations made in the dist., and is considered one the best mines in the locality. The ore is argentiferous galena, worth on an average about $70 per ton in silver. A portion of the ore contains sufficient lead for smelting.

Improving.—The incline started some 2 months since, is down about 135 ft. The vein is full 4 ft. in width, and continues to improve in quality. The mine throughout is yielding well, and in good working condition.

REESE RIVER.

Bullion Shipment in 1871.—Reese River *Reveille*, Jan. 3: W. F. & Co. shipped from this city, during the past year, 1272 bars of bullion, 103,231 lbs., valued at $1,166,707.31. This does not include shipments by the Stage Co., and by fast and slow freight, which would bring the total shipments up to more than two millions, most of which is the product of the mines in the vicinity of this city and Belmont.

W. F. and Co's., Bullion Shipment for Dec.—W. F. and Co. shipped during Dec., 172 bars of bullion, 12,496 lbs., of the value of $137,561.74.

Manhattan Bullion for Dec.—The Manhattan Co., during Dec., turned out and shipped from their mill 77 bars of bullion, 6,662 lbs., and of the value of $87,502.49.

During the 9¼ months which the Manhattan Mill was running in the last year, it turned out 834 bars of bullion, valued at $894,465.98.

WASHOE.

Bullion.—Virginia *Enterprise*, Jan. 6: The Crown Point Co. yesterday shipped $40,000 in silver bars. Weight 1,600 pounds.

WHITE PINE.

East Sheboygan.—White Pine *News*, Dec 30: Connection is made between the South Original tunnel and the North shaft, and all the works of the mine are ventilated. Two drifts, one to connect the Exchange and Original drifts, and the other turning East. There are about 1,500 tons of ore on the dumps, and the Manager estimates that there are 24,000 tons of ore in sight in the different openings. The last crushing-out of ore turned out $95 to the ton, pulp assay. A force of 24 men is employed at present in and about the mine, and the same number will be employed during the winter, breaking down ore and hoisting it to the dumps.

North Aurora.—Since the tramway started up with a new cable, the ore that accumulated on the dumps of the Risdale chamber is being shipped to the International mill. The ore in this chamber holds out in quantity and grade. The south drift in the Lady's chamber still shows an extensive body of ore (much of it assaying high), and the body increases as the chamber is opened.

Eberhardt.—Stormy weather prevents work in the open cut. The drift from the Keystone shaft is going ahead as usual.

Truckee.—This mine is on Blue Hill There is a cut running into the hill 100 ft. in length, showing ledge matter the whole distance. There is a fair quality of ore in the face. It is estimated that there are 100 tons of ore on the dumps that will mill from $35 to $40 per ton.

South Aurora.—The main lower tunnel is pushed ahead rapidly by contract. Mr. McDonald, Foreman of the South Aurora Co's. mines, is of the opinion that the tunnel will tap the mineral belt about the 1st of April.

South Ex. of Hidden Treasure.—The ledge matter in main north shaft looks favorable for the development of a fine mine. The drift from the Anchor tunnel is pushed ahead rapidly.

Iceberg—This mine turns out over-average milling ore. At present the ore is hoisted and piled on the dumps, for shipment to mill when the storm subsides. The whole underground force of miners is employed breasting out.

San Juan Del Rio.—The ore-body in right has increased in size since our last report, and bunches of rich ore come in mixed with the second class.

Silver Wave.—Persons who have visited the mine report work going ahead vigorously in the Perkins, Lyford, Chamberlain and No. 4 shafts.

Noonday.—The bad condition of the roads prevents shipment of ore to mill. The ore is piled on the dumps. Hoisting about 3½ tons daily.

Ward Beecher.—The ore in the east end of the mine is of a fair milling quality, and holds out the usual body.

The proceeds of the mines for the year will foot up nearly $2,500,000; and had several of the promiuent mines—now, and for the past 4 months, doing dead work for the purpose of prospecting and making openings—been operating in ore, the turn-out of bullion would have reached $3,000,000.

Outside Dists.—Ruby Hill.—The mill of the Ruby M. & M. Co. is ready to start up as soon as quicksilver arrives, which is on the way. The Cow & Calf has several tons of ore on the dump, estimated to go upward of $1,000 per ton, ready for shipment to this place, and a lot of second class which will be worked by the Ruby mill.

Arizona.

Mines and Mining.—Prescott *Miner*, Dec 16: In Yavapai Co. work is progressing upon the Tiger, Lorena and other lodes, in Tiger Dist. From information recently received, we give it as a fact that the Tiger mine, at this time, shows better than at any previous time, which implies the fact it is richer and larger. At a depth of 100 ft. and at the end of a 100 ft. tunnel—driven northwards along one face of the lode cutting across the vein—has developed 32 ft. of rich quartz, most of which will pay to ship. Out of the Lorena, too, some very rich rock is being taken.

In Pine Grove Dist. Jackson, Shoup & Co., are making things tell. They have recently struck a good-sized vein of water, and their little mill is thumping away.

In Walker Dist. Mr. Pointer and others are taking ont ore, and many placer mines are "rocking." The water is yet "light."

In Hassayampa Dist. placer miners are making fair wages with rockers. Work upon the new series of silver ledges—Benjamin, Bismarck, etc., is being pushed. Col. Bigelow's report is favorable. He has 3 tons of ore sacked and ready for shipment.

Col. Cany appears to have a "big thing" on quartz in the Black Hill region.

In Walnut Grove Dist. some mining is being done, and it is thought that Mr. Rush's mill will be set up in the Dist.

In Weaver Dist. the Great Sexton and one other lode are being worked with great satisfaction.

In Wickenburg Dist. the Vulturo Co. have changed Supts.

In Mohave Co. Wallapai Dist. is giving a good account of itself.

In Yuma Co. the Castle Dome mines are turning out well. Considerable placer mining is being done at the Laguna, Gila city and other points.

In Pina Co. the mines near Florence are now the text upon which miners preach.

Maricopa Co. has some rich mines which are being developed, rather slowly, but surely.

Colorado.

Shipped.—Georgetown *Miner*, Dec. 14: The Stewart S. Reducing Co. have shipped for the week ending to-day, bricks (gold and silver) valued at $3,381.68, also 2 lead bars valued at $508.68. Palmer & Nichols have shipped for the same time 1 bar 729 fine, valued at $964.81, Campbell & Clark are shipping ore taken principally from the Clark S. M. Co. in the Terrible lode. Gen. J. Marshall is shipping very rich smelting ore to Swansea, Wales. He has now a car load of Equator ore in preparation for shipment to the same place. Since our last issue, Baily & Nott have shipped on account of owners, only 5 tons of ore. The heavy state of the road has prevented larger shipments.

New Mill.—N. B. Judd & Co., of Chicago and F. W. Crosby, of this place, Supt., will commence the work, this week, of preparing the ground for the erection of a large mill, for the treatment of silver ores at an early day in the spring of 1872. The site selected and purchased for the mill is just below the devil's gate. The mill will be built on the most approved plan, and will be run by water power.

Caribou.—Carihou *Post*, Dec 23: The weather is not cold, and mining continues

wherever suitable shaft-houses are built over the mines. The splendid opening of the Wabash lode, on Caribou hill, about 1,000 ft. south from the Caribou lode, and running parallel with it, is most encouraging.

Pillars of "ground" containing surface quartz are still being mined on the Gregory lode, where it was supposed none existed. Parties are at work taking out a "pillar of quartz" about 40 ft. from the surface, that carries a crevice of pay ore 12 or 15 inches in width, that looks as if it would yield a handsome return.

Myers & Co. are putting up an Arey furnace in the Buford G. M. Co.'s mill at Masonville.

D. Hodgson, who is working a coal mine near Saint Vrain post office, 35 miles down the Platte, is taking out from 15 to 20 tons of coal per day. The vein furnishes about 5 ft. in thickness of good clear coal.

Nichols & Co. are making active preparations for work on the U. P. R. lode.

Prospects of 1872.—Central *Herald*, Dec. 27: Among the new works ready for ores and those that will be completed early next spring, are Breed & Cutter's at Middle Boulder, capacity at least 20 tons daily; the Boston As. Works at St. Johns, Summit Co., capacity 25 tons or more; St. Lawrence Works at Montezuma, Summit Co., 20 tons daily; Prof. Du Bois' Smelting Furnace and Chlorination Works, Buckskin, Park Co., capacity not known to us; Works in Ward Dist., Boulder Co., capacity not known to us; and Baker Mill at Bakerville, Clear Creek Co., capacity about 20 tons daily. Among the projected works whose construction next summer seems quite certain, are the Miner's Smelting and Reducing Works, to be located in Gilpin or one of the adjoining counties; Smelting Works of large capacity at or near Georgetown, in Clear Creek Co.; Smelting Works at or near Fair Play, Park Co.; Mill and Furnace in Lake Co., near Oro City; and Smelting Works near the San Juan silver mines in Conejos Co. In addition to these stamps, mills will be erected at different points in the gold dists. and some old works which have been silent for years, again be put in operation.

A considerable quantity of rich ore is being milled from the Gunnel lode, on which 8 claims are worked. The Church Bros. have recently put in one of Clark's patent furnaces at the Gunnel Central Co.'s claim, which they are working under lease.

The heaviest gold producing lodes in Gilpin Co. at present are the Kansas, Kent Co., Leavitt or Kip, and California lodes. The Illinois, Prize, Sudehurg, Fiske, Ashtabula and many other mines are also being more or less extensively worked. The 4 first mentioned lodes keep over 200 stamps in motion, of which the Kansas employs nearly 100.

The various stamp mills of Black Hawk and Nevada are well supplied with ore and with an abundance of water. Fourteen or fifteen mills are in operation in Black Hawk and 6 in Nevada and Eureka Gulch. Nichols & Fisher started up the Cons. Gregory on Tuesday on Kent Co. ore.

A. N. Rogers is pushing work vigorously at the Black Hawk tunnel, below Gregory Point. Nine men are employed under ground, 2 outside, and 1 at the blacksmith shop. Work has progressed during the past 3 weeks at the rate of 14 ft. per week, and the head of the tunnel is now 485 ft., being very near the line of the Fisk lode.

J. Smith has been busily engaged for many weeks in enlarging and timbering the shaft of the Coleman mine on the Gunnell lode, which, previous to this Fall had been idle for many years. At great labor and considerable expense the mine has been put in first class working order, and sinking and drifting will be resumed next week. The ore is unusually rich and the crevice of fair proportions. The shaft is 65 ft. deep.

Grand Island.—The Caribou mine is being worked energetically and is producing large quantities of silver ore. At the bottom of the main shaft, 235 ft. below the surface, the body of ore is 8 ft. in width. Four levels are being worked, and the greatest length of the mine now opened extends 350 ft. from east to west. On the east side, the upper drift has been stoped out to within 12 ft. of the surface. One hundred and thirty ft. is another shaft, over which a whim house is being built. Ore from the west shaft is raised by a windlass. These shafts are now all connected hencath the surface by a level. Sixty men are employed in the mine, which force will soon be largely increased. Mr. Breed expects to have the mine opened within the next month, so that 25 tons of first class, and a much larger quantity of second class quartz can be raised per day.

The reduction works at Middle Boulder were to have commenced operations to-day with E. Sherman as Supt. and E. E. Peters as assayer and refiner. Eight men will be required to run the mill and as many more will be employed outside in connection with the establishment.

Among the lodes worked near Caribou are the Elephant, Eureka, Grand View (reported sold to St. Louis parties), the Seven-Thirty, Boulder Co. and Trojan.

The late new discoveries in Peewink Dist. 6 miles northeast of Middle Boulder, are exciting much interest; among them is one which displays a 3 ft. crevice showing much silver glance.

At Middle Boulder Hinds & Hetzer's 10 stamp mill is running steadily on Trojan and Boulder Co. (gold) ores. Claims on the latter are worked by Congdon, Morgan and others, from which the selected ore yields about 9½ ozs under the stamps—the gold selling in Central at $17 per oz. The Trojan quartz, at the same mill, as it comes from the mine, without assorting, runs from 7 to 14 ozs.

J. Millen is working the Kip or Leavitt lode. It produced 126 tons of ore in Nov. from which over 800 ozs. of gold were obtained from the stamps, or considerably over $13,000 product of the month. During that time 18 men were employed in the mine and about 50 stamps in crushing the ore.

The only claim worked on the Gregory Second lode at the present time is Cave & Mellor's. They are sinking and drifting ata depth of 265 ft. though out of pay at present.

B. P. Haman has struck a lode near by his house in Russell dist. which yields 8 ozs. of gold to the cord.

Sullivan & Wheeler's claim on the Kansas lode enables them to keep 40 stamps at the New York mill in constant motion.

Idaho.

South Mt. Assays.—Silver City *Avalanche*, Dec. 30: Mr. Deniston furnishes us with the following assays of St. Croix ore; Surface ore, $53.39 in silver; decomposed ore, 5 ft. from surface, $186.80; ore from shaft, 16 ft. deep, $356.43. The vein is well defined and 10 ft. wide.

The recent strike in the 7th level of the Elmore is proving rich beyond all expectations.

Bullion City.—Cor. same: Work in the mines has almost been suspended on account of the recent had weather. B. Cook is still at work on the Bay State, which looks splendidly. Wm. Hastings has commenced work on the May Queen which opens out well.

Montana.

Philipsburg.—Deer Lodge *New North West*, Dec. 23: Everybody is at work in and around Philipsburg. Col. Morse says of the 90 men in camp, none are idle. Brown & Plaisted are developing the Cordova, the first lead discovered in Flint Dist., and getting out very rich ore. They are also at work on Comanche extension. Other leads are being developed, and there are several hundred tons of custom rock out. Col. J. J. Lyon is making a success of his enterprise. The mill will start up in Jan.

Cable.—S. Cameron brought in from Cable, on Thursday, 264 ozs. of gold bullion—value, $4,884—crushed from 125 tons of Cable ledge ore, in a 5 or 6 days run finished on Tuesday. Mr. Cameron has been prosecuting work vigorously on the ledge, and has 10 ft. of very rich rock in the shaft at 231 ft. In the incline on the south wall he has plenty of quartz but not very rich. He has a drift now in from the shaft 190 ft., and believes he is within 15 or 20 ft. of the ore. Twenty men are working in the mine, and there are about 50, all told, in the Camp.

Cedar Creek.—Missoula *Pioneer*, Dec 23: The prospects for the coming season are very flattering. There are about 300 miners wintering there engaged in drifting and preparing their claims for a vigorous mining campaign next season. A new discovery was made on a bar above Forest City, late in the fall, which promises to be very rich, although the extent has not yet been ascertained. Mr. Roosevelt reports having made an important discovery while *en route* from Cedar to this place.

Utah.

Ophir.—Cor. S. L. *Tribune*, Dec. 27: I visited the Mayflower tunnel, the location of which is some 250 ft. below the Silver Exchange and Sunny Side mines. The object of this tunnel is to prospect for "blind" leads that may be lying between the starting point of the tunnel and the top of Lion Hill. In its course the Sunny Side, Silver Exchange, Mountain Lion and Defiance mines will be tapped. Two men have in 4 months' time driven the Mayflower tunnel through solid limestone rock for a distance of 120 ft.. The proprietors calculate that about 125 ft. further will bring them to the first of above named mines; but from indications existing in the face of the tunnel, it is believed that a deposit of ore is in the immediate neighboorhood.

Camp Floyd.—Cor. S. L. *Review*, Dec. 23: The Silver Cloud Co. are employing a large force and are taking out a steady supply of fine ore. They find it better the further they go. All the mines on the Silver Hill side of the cañon prove to be of immense extent and richness the further they are developed.

The Camp Floyd M. Co. have struck large bodies of horn silver on the Last Chance and Sparrow Hawk. I should estimate the ore in sight at the mouth of the tunnel on the last named mine to be worth at least $20,000 without entering the tunnel or counting the ore piled on the dump. The Last Chance shows plenty of horn silver and sulphurets in almost every piece of their quartz. These mines have been opened recently by 3 new tunnels, and all show the most unmistakable signs of paying ore within. The peculiar formation of this vast vein or deposit of ore presents the most favorable opportunities for working by tunnels. So far as has been proved, the vein has a dip of only about 18 or 20 degrees towards the north, with a slight dip to the east, so that a tunnel run in a northwesterly direction will have an almost level course, from which side cutrics can he run north and south.

The Queen of the West after lying idle for several weeks, opens up again on Monday next, and will run continually the rest of the winter, purposing I believe, to have a large quantity of ore ready for spring crushing.

Fine Bullion.—W. F. & Co. received on the 2d, from the Raymond & Ely works, 11 bars of bullion worth $33,060,23. Yesterday the same house received from the Meadow Valley works, 5 bars worth $5,845,-83, all of which has been shipped to New York.

Timmins Dist.—A large number of the mines are being worked with good results, though no great depth has yet been attained. The principal ones, are the Mammoth, 28 ft. down, the Sultana, 40 ft., the Mountain Queen and the French, 20 ft., Olive Branch, 25 ft., Great Western 25. Besides these there are a great many claims upon which sufficient work has been done to hold them. The prospect is that labor will be continued on most of the mines mentioned, through the winter. Timmins, Dist. is at the foot of Mt. Nebo, 5 miles from the town of Nephi, Juab Co. 70 miles from S. L. City.

In the Vermillion mine the ore is chloride and galena. The mine is bonded for a large sum, consequently there is no work being done on it now.

San Francisco Mining Stock Market.

Thursday Eve., Jan. 11, 1872.

The mining stock market has been moderately active this week. The sales at the Stock Board for the week ending Wednesday, Jan. 3d, amounted to $2,702,800. On December account $117,200 have been received from the Raymond & Ely mine. During the past year this mine has turned out $1,361,600 in bullion, of which $615,000 have been disbursed as dividends. The Belcher and Crown Point Co.'s have again begun to declare dividends as will be seen by reference to our Shareholders' Directory. The assessments of the Empire Mill and Imperial companies will amount to $12,000 and $40,000 respectively.

The receipts from the North Star (Grass Valley) mine for December were $19,850 which. after deducting the amount drawn for expenses left enough to declare a $3 dividend, aggregating $9,000. The dividend of the Belcher of $10 per share will amount to $104,000 and is the first one ever declared by the company, although the mine has been worked for years. On the 5th of October, 1870, the mine was worth, according to the value of the stock ($1 per share) $10,400, but on the 2d inst., according to the same basis ($490 per share) it was valued at $5,096,000.

The receipts for Decemher from the Savage mine were $56,131. At the annual election of the San Francisco Stock and Exchauge Board on Monday, the following officers were elected to serve the ensuing year:—President, E. P. Peckham; Vice-President, Geo. W. Smiley; Caller, B. H. Coit (re-elected); Secretary, Franklin Lawton (re-elected); Treasurer, Henry Schaiedell (re-elected).

Comparative Prices—Extremes, Advance and Decline.—S. F. Stock and Ex. Board.

	Jan. 4.	*Highest.*	*Lowest.*	Jan. 11.	*Adv.*	*Dec.*
Alpha	$—	25	10½	—	—	—
Belcher	475	485	475	—	—	—
Buckeye	3¾	4	3¾	3¾	—	—
Chollar-Potosi	38	40½	39½	39½	1¼	—
Caledonia	18¾	20	14¾	16	—	2½
Cons. Virginia	19	20	17½	19	—	—
Crown Point	470	470	450	470	—	—
Daney	—	7½	6	—	—	—
Eureka Cons.	26½	27	24	24½	—	2½
Eureka	24	24	19¼	20	—	3
Gould & Curry	109	120	107	120	11	—
Golden Chariot	28½	37½	23½	21	—	6½
Hale & Norcross	136½	145	135	145	8½	—
Imperial	42	57½	40	51	9	—
Ida Elmore	17½	19	16	15	—	2½
Kentuck	122¼	142¼	—	—	—	—
Meadow Valley	21	24	17	17	—	4
Ophir	39½	40	37	39½	—	—
Orig. Hid. Treas.	8¼	9¼	6½	8	—	1¼
Overman	39½	43	31	33	—	6½
Pioche	9½	10⅞	9½	10⅞	1⅜	—
Raymond & Ely	88½	88	81	88	9⅛	—
Savage	48½	58	48½	53½	5	—
Sierra Nevada	—	27	22½	—	—	—
Wash. & Creole	6¼	6	5	—	—	1¼
Yellow Jacket	61	62½	60½	62	1	—
St. Patrick	—	46	46	46	—	—
Seg. Belcher	48	49	32	37	—	11

Latest Prices—Bid and Asked.

	Bid.	Asked.		Bid.	Asked.
Alpha Cons	—	—	Ida Elmore	14	14½
Amador	220	300	Imperial	50	51
Belcher	455	460	Kentuck	—	—
Chollar-Potosi	38	38½	Meadow Valley	16¾	17
Crown Point	460	470	Ophir	39½	40
Daney	—	—	Orig. Hid. Treas	6¾	7
Eureka Cons.	23¾	24	Overman	32	32½
Eureka	20	20	Savage	52	52½
Golden Chariot	19½	20	Raymond & Ely	96	97
Gould & Curry	117	118	Sierra Nevada	—	—
Hale & Norcross	144	145	Yellow Jacket	61	61½

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the Scientific Press and other San Francisco Journals.]

ASSESSMENTS.

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT	DAY DELINQUENT.	DAY OF SALE.
Alhambra Hill M. Co., Nev., Dec. 9, 50c.	Jan. 13	Feb. 5*
Buckeye G. & S. M. Co., Nev., Jan. 9, $1	Feb. 13	Mar 4
Cherokee Flat, Butte Co., Jan. 3, $2.50	Feb. 6	Feb. 23
Daney, Lyon Co., Nev., Nov. 27, $1	Dec. 30	Jan. 18
Eagle Quicksilver, Cal., Oct. 30, $40	Jan 6	Jan. 8*
El Dorado M. Co., Cal., Dec. 7, 25c	Jan. 24	Feb. 14
Ely Consolidated, Nev., Nov. 27, 50c	Jan. 30	Jan. 30
Empire M. & M. Co., Nev., Jan. 5, $10	Feb. 8	Feb. 26
Golden Chariot, Idaho, Nov. 15, $3	Dec. 28	Jan. 15
General Lee S. M. Co., W. P, Dec. 5, 10c.	Jan. 10	Jan. 30
Hale & Norcross, Nev., Dec. 14, $5	Jan. 18	Feb. 7
Ida Elmore, Idaho, Dec. 30 $3.00	Jan. 31	March 4
Imperial S. M. Co., Nev, Jan. 5, $10	Feb. 8,	Feb. 26
Jackson M. Co., Eureka, Dec. 8, 25c	Jan. 10	Jan. 29
Kincaid Flat M. Co., Dec. 11 $2.50	Jan. 17	Feb. 7*
Knickerbocker M. Co., Storey Co., N., Dec. 4-50c	Jan 7,	26
Lemon, Nev., Jan. 6, 50c	Feb, 10	March 2
Lillian Hall M. Co., Ely Dist., Nov. 18, 50c.	Dec. 27,	Jan. 23
Magnolia, Eureka Dist., Nov. 27, 25c	Dec. 29	Jan. 19
Mammoth, White Pine, Dec. 13, 10c	Jan. 18	Feb. 8
Meadow Valley, Ely Dist., Nov. 27, 50c	Jan. 9	Jan. 31
Monitor & Magnet, N. T. Dec. 4, 25c	Jan. 23	Feb. 17
Mt. Jefferson M. & M. Co., Cal., Jan 8, 25c.	Fe	22*
Nevada Con. Borax Co., Nov. 29, 5 cts.	Jan. 10	Jan. 29*
Nevada L. and M. Co., Nev., Jan. 9, 4c.	Feb. 13	Mar. 4*
Ophir S. M. Co., Nev., Dec. 20, $2	Jan. 24	Feb. 14
Orig. Hid. Treasure, W. P., Nov. 24, $1.50.	Jan 3	Jan 25
Overman, Nev., Nov. 20, $4	Dec. 25	Jan. 23
Overman, Nev., Nov. 25, $2	Dec. 29	Jan. 16
Phœnix, Lander Co., Nev., Nov. 21, 50c.	Dec. 27,	Jan. 16
Ploche W. Ex, Ely Dist., Nov. 23, $1.50	Jan. 4	Jan. 27
Pioche S. M. Co., Nev., Dec. 18, $1.50	Jan. 25	Feb. 16
Pocahontas G. M. Co., Cal., Nov. 29, $5.	Jan. 6	Jan. 30*
Quail Hill M. and W. Co., Dec. 19, $5.	Jan. 23	Feb. 13*
Silver Wave, White Pine, Dec. 19, $3.	Jan. 25	Feb. 23*
Spring Mount Co., Ely Dist, Nov. 27, 50c.	Jan. 7	Jan. 29
South Chariot M. Co. Owyhee Co. Id., Nov. 7, $1	Dec. 18,	Jan. 8
Succor, M. M. Co., G. H., Jan. 3, $1.50	Feb 6	Feb. 27
Tecumseh G. S. & C. Co., Dec. 5, $3	Jan. 9	Jan. 30*
Tallulah M. Co., Humboldt Co. Nev., Nov 29	$1, Jan 3,	30
Union G. M. Co., Cal., Jan. 4, $1,00	Feb. 5	Feb. 26*
Washington & Creole, Nev, Nov. 27, 50c.	Jan. 5	Feb. 1

MEETINGS TO BE HELD.

Amador M. Co	Annual Meeting, Jan. 15
El Dorado M. Co	Annual Meeting, Jan. 23
Ely Consolidated	Annual Meeting, Jan. 24
Gold Hill Quartz M. & M. Co	Annual Meeting Jan. 15
Knickerbocker M. Co	Annual Meeting, Jan. 19
Marble Falls M. Co	Annual Meeting, Jan. 22
Meadow Valley, East Ex. Co	Annual Meeting, Jan. 26
Pioche, West Extension Co	Annual Meeting, Jan. 23
Raymond & Ely	Annual Meeting, Jan. 16
Spring Mount M. Co	Annual Meeting, Jan. 22

LATEST DIVIDENDS—(Within Three Months).

Belcher, $10	Jan. 10
Chollar Potoei, $1	Payable Dec. 11
Chollar Potosi, $1	Payable Jan. 10
Crown Point, $10	Payable Jan. 12
Eureka Cons., $1	Payable Oct. 20
Eureka Gold M. Co., $1	Payable Jan. 6
Meadow Valley, $1.50	Payable Dec. 15
North Star G. M. Co., $3	Jan. 10
Raymond & Ely, $5	Payable Dec. 18
Succor Mill and M. Co., 50c	Payable Oct. 16
Yule Gravel M. Co., 50c	Payable Dec. 5

—*Advertised in this journal.

Leather Market Report.

[Corrected weekly by Dolliver & Bro., No. 109 Post st.]

San Francisco, Thursday, January 11.

Sole Leather.—The demand is still equal to the supply, and prices still continue firm.

City Tanned Leather, ₱ lb	26@29
Santa Cruz Leather, ₱ lb	26@29
Country Leather, ₱ lb	25@28

The market is well supplied with French stocks, and prices have a downward tendency. Heavy California skins are firm, with an upward tendency.

Jodot, 8 Kil., per doz	$60 00@
Jodot, 11 to 13 Kil., per doz	76 00@ 85 00
Jodot, second choice. 11 to 15 Kil. ₱ doz	60 00@ 80 00
Lemoine, 16 to 18 Kil., ₱ doz	85 00@
Levin, 12 and 13 Kil., per doz	68 00@ 70 00
Cornellian, 16 Kil., per doz	72 00@
Cornellian, 12 to 14 Kil., per doz	65 00@ 70 00
Ogerau Calf, ₱ doz	54 00@
Simon, 18 Kil., ₱ doz	68 00
Simon, 20 Kil. ₱ doz	80 00
Simon, 24 Kil, ₱ doz	72 00
Robert Calf, 7 and 8 Kil	35 00@ 40 00
French Kips, ₱ lb	1 00@ 1 30
California kip, ₱ doz	65 00 to 80 00
French Sheep, all colors, ₱ doz	15 00
Eastern Calf for Backs, ₱ lb	1 15@ 1 25
Sheep Roans for Topping, all colors, ₱ doz	8 00@ 13 00
Sheep Roans for Linings, ₱ doz	5 50@ 10 50
California Russett Sheep Linings	1 75@ 5 50
Best Jodot Calf Boot Legs, ₱ pair	5 25
Good French Calf Boot Legs, ₱ pair	4 50@ 5 00
French Calf Boot Legs, ₱ pair	4 00
Harness Leather, ₱ lb	36@ 37½
Fair Bridle Leather, ₱ doz	48 00@ 72 00
Skirting Leather, ₱ lb	34@ 37½
Welt Leather, ₱ doz	30 00@ 50 00
Buff Leather, ₱ foot	17@ 21
Wax Side Leather, ₱ foot	18@ 29

Our Mining Prospects.

The prospects throughout our mining regions are the hrightest that have heen seeu since 1864, and the eonstantly increasing eonfidence in mining operations is due to the eontinued yield of paying properties, new diseoveries, and improved faeilities for extraeting and working ores. In Washoe, tho lowest grade ores are now mado to pay, and in California, gold quartz veins, whose gross yield is not more than from $6 to $8 per ton, are worked to great profit. An artiele on the mining review of the year in the *Bulletin* says that the past year, although it has not been distinguished for a large produetion of the preeious metals on this eoast, has, nevertheless, heen generally propitions to the mining interest; many improvements having been iutroduced iuto the business and many substantial gains effeeted, while eapital has come to its aid more freely than ever before. The amount of money invested on aeeount of legitimate mining has greatly exceeded that of any former year; these investments having heen made as a general thing, with sueh eireumspeetion and judgment as must insure for them favorahle results. To the dronth that has prevailed, for two sueeessive years, having been espeeially stringent during that just elosed, is due this restrieted yield of the precious metals; it having been so severe as to seriously interfere with both vein and placer mining. Owing to this cause many ore erushing mills dependent on wator power for propulsion and even a eonsiderable number driven hy steam were obliged to remain idle both in this and the adjoining State of Nevada, thereby greatly eurtailing the produet of hoth our gold and silver hullion.

New Improvements.

Inveution has heen rife during the year, our mill-men and miners giving hearty encouragement to every proeess or deviee promising to seeure a saving of labor or more efficient mode of amalgamation. As a consequence, a great many eeonomizing agents and a more potent metallurgy has heen generally introduced, this spirit of innovation having extended to every line of improvement and pervaded every hranch of this industry.

We have had improved sereens, stamps aud batteries, mill-gearing, pumps and nozzles; patent drilling maehines, furnaees and amalgamators, eoneentrators for saving the sulphurets, and new methods for their ehloriuation, with tramways for the eheap and speedy transmission of ore from the mines to the mills, and a great variety of other inventions for expediting operations and saving the metals.

Nor in this eagerness for seeuring larger pecuniary gains have higher eonsiderations heen lost sight of, more effieient plans have heen adopted for the ventilation of the mines, valnable additione have been made to the safety eage, and a meaus diseovered for laying the nitrous fumes of Giant powder and eimilar exploeives with numerous other heneficent schemes and agents ealled in, or snggested, for insuring the health, life and limh of those employed in nnderground operations, in all which we pereeive that our miniug population has heen undergoing a valuable schooling of late, tending to qualify them for an enlightened and successful proseeutiou of this great industry whieh has heen advanced meantime to a mueh higher plane than it occupied hut a little while ago.

Future Product of Bullion.

With all these aids and improvements these reforms effeeted, with so mueh auriferous earth and milling ore aeeumnlated, and more thau all, with the present prospeet of an abundant water snpply, we may eafely count upon an immense produetion of bullion for the coming year. Indeed it is quite likely that the out-turn of the preeious metals, including the entire seope of country west of the Rocky Mountains, will greatly surpass that of any preceding year. In California we shall have as new contributors towards such results a numher of large hydraulic claims with much drift ground, lately opened and fitted up for operations; also in this State, several additional cement mille, many new and enlarged qnartz mills, with similar establishments, besidos numerous moro efficient roasting furnaces and new smelting works throughout the entire mining regions. We shall have the eapaeious ditches and reservoirs, the improved processes, the aid of eapital and all the miuor agents and applianeess before mentioned for activo allies, making sure of a large and constantly increasing product of hullion hereafter. With the advent of the current year we shall enter upon a new and better era in our mining history, the first fruits of which we are already beginning to reap.

Utilizing the Low Grade Material.

Some idea may he gained of the improvements lately effeeted in mining on this eoast from the faet that we are now everywhere redueing with profit a class of ores that would not a few years ago have yielded enough to pay the cost of their extraction. In the Washoe district thousands of tons of snoh ores are being milled annually with satisfaetory results, notwithstanding the greater depths from whieh they have now to he lifted; while the working of the tailings there, that were before suffered to ruu to waste, eonstitntes at present a large and luerative hraneh of husiness; extensive mills having been huilt and other eostly preparations made for that purpose.

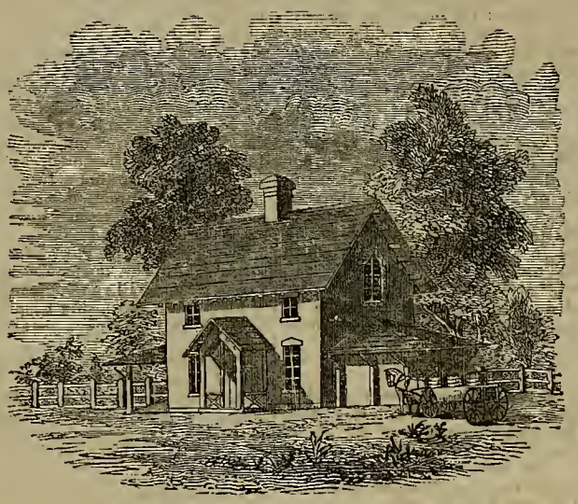
In California large fortunes are being realized hy the reduction of gold bearing qnartz that affords not more than $8 or $10 to the ton; and even mueh money made in milling roek, where all the eonditions are favorahle, that gives a gross average return not exeeeding $6 or $8 to the ton. With the powerful nozzles, improved under-eurrents, riffles and other applianees now in use, auriferous gravel can be washed that yields only five cents to the eubie yard; and although it is diffieult to eee how mueh more ean he aeeomplished in that diroetion, it is probable that as in the past, so every eoming year will hring with it something gained in the effieieney and eeonomy of this elass of operations, thereby giving corrosponding enlargement to the area of our availahlo mines and finally earrying this industry into fields now considered hopeless, or perhaps wholly unkuown.

Already we are in advanee of all other gold and silver-hearing eountries, both as regards perfeetion of maehinery, effieieney of proeesses, and novelty of invention. Our ore crushing apparatns and amalgamating pans have not been surpassed elsewhere; our safety eages are an improvement over all others; the employment of immense powder blasts for shattering and hreaking down masses of earth, seem to have originated with ns, while the hydraulie mode of washing, with its ingenious paraphernalia, not only had its origin in, but seems thus far to have been confined to, California; not to mention a multitude of miuor hut highly useful and ingenious contrivanees for whieh our people may justly claim the eredit of invention.

With eo mnch that is new and peculiar iu the means used for working them, our mines themselves preseut some features of novelty. In our gold beaches and bluffs, our dead rivers, tahle mountains and deep gravel beds, as well as in our reeently-diseovered seam diggings, we meet with geologieal wonders and strange modes of deposits, not common, nor, perhaps, at all encountered elsewhere in the world.

A Cheerful Outlook.

In conelusion we may, after having thus hriefly surveyed the field, repeat the remark made at the ontset, that the past has been a generally auspieious year for the mining interest; adding that the ontlook was never more cheerful than now, at its elose. Purged of its mistakes, aud with eonfidenee restored, the future of this industry is full of encouragement. With eapital ready to aid legitimato enterprise, and a praetieal education guaranteeing for it safe and profitable employment, we may safely eount on more favorable results than have heretofore generally attended thie business. What is learned iu the school of adverse experienee is apt to he learned well—no lessons heing so franght with wisdom as those of personal trial. We are now huilding a euperstrueture on tho hed-rock—rearing up a generation of miners praetically trained to the husiness, and who, heing familiar with all its mysteries and requirements, will be fitted to respond to them in an intelligent and eapahle manner.



PERSPECTIVE VIEW OF A CHEESE DAIRY.

Dairying in California.

Sinee no State in the Union, perhaps, eontains a larger area of land suitahle for dairying, and certainly none where the elimate is hetter adapted to the business, than California, it is not a little remarkahle that nearly one-half of all the butter and cheese we eonsume should he transported to us over the longest railroad in the world, aud at the highest rate of freight anywhere known. Some elaim that over one-half of the hutter and eheese eonsumed here is thus imported; hut the question is not how mneh, hut why any amount whatever is thus obtained.

GROUND PLAN.

Very good dairy land can be had hero at from $5 to $20 per acre, and convenient to transportation. Dairy eows can be raised and pastured here as eheap or cheaper than in the Atlantic states, and ean be kept for less than half the cost there. Labor is very nearly as cheap as at the East and living mneh cheaper. Of eourse nothing need be said with regard to the superiority of the climate of California, where neither stable feed or shelter is used (although it might be used to advantage).

Siugular it certainly must appear to visitors here, that with all these advantages in onr favor, Eastern dairymen are growiug rich on their eold, hleak, rocky farms, in making hutter and cheese for the California market; and yet we are told that the few who have gone into business here, with intelligenee and energy have made money at it—prohahly less failnres having oeeurred in that business than in almost any other whieh could be named. We might give names and facts and figures; and at some future time perhaps we may do so, as there are ahout 1,000 dairies in the State, averaging from 30 to 300 eows eaeh—a few being mueh larger.

Perhaps the greatest drawbaek is the nneertainty of the labor market in this State, and the disinelination of lahorers to go out from the great eentres of popnlation to engage in *hard work*. Quite too large a proportion of our people are inelined to stiek to the eities and towns to do *head work*. Single men are partieularly so inelined, and when the eares of the family begin to press upon the married man, he is too often foreed to forego a favorable opportunity to enter npon the dairy or some other good bnsiness in the eountry because his *helpmate*, eannot endure the isolation of California life in the country—where the latest style of a Parisian bonnet is never seeu. What we want here is a few thousand aetive energetie yonng meu with small eapital who will take hold of "outside" enterprises with an energy and a will that takes no note of hard work, dull times or personal isolation; but who will rest perfeetly satisfied with a legitimato and moderate reward of industry.

Many of the readers of the Scientific Press are loeated in mountainous distriets where more attention given to dairying and gardening would add to the eomfort and eheapness of living, and we think it not amiss to present in our columns some facts ahout California dairyiug, and an illustratiou of

A Cheese Dairy House.

Tho plan here shown consists of a huild- 1½ stories high, with a broad spreading roof of 45° piteh. The ground plan is 10 feet high hetween joists, and the posts 16 high. An ice house may be plaeed at one end (if wished). A wood shed is plaeed at the other eud.

The huildiug is supposed to be ereeted near the milking sheds of the farm and iu eontiguity to the feeding troughs of the cows, or the piggery and adapted to the convenience of feeding.

Interior Arrangements.

The frout door is protected by a light poreh, *a*. Entering hy a door, *b*, the main dairy room, tho cheese presses *c*, *c*, occupying the left end of room, hetween which a passage leads through a door, *l*, into the wood shed, *h*, open on all sides, with its roof resting on four posts set in the ground. Tho large eheese table, *d*, stands on the opposite end. In the eeuter of the room is a chimney, *e*, with a whey and a water boiler and vats on eaeh side. A flight of stairs, *f*, leading into the storage room above is iu the rear. A door, *b*, on the extreme right, leads into the ice house, *g*.

There are four windows to the room, two on each eide, front and rear. In the ioft are plaeed the shelves for storing tho eheese as soon as snffieiently prepared on the temporary table below. This loft is thoroughly ventilated hy windows, and the heat of the sun npon it ripons the cheeso rapidly for market. A trap door through the floors over whieh is hung a taekle admits the cheeso from helow, or passes it down when prepared for the market.

The cheese honse should he placed on a sloping bauk when it is designed to feed the whey to pigs, and even when it is fed to eows it is more eonvenient it to pass to them on a lower level, than to earry it out in bnckets. It may however, if on level ground, be diseharged into vats in a eellar below and pumped out as wanted. A cellar is eouvenient, indeed almost indispensable, under the eheese dairy, and water should be so noar as to he easily pumped or drawn into the vats and kettles used in ruuning up the curd or for washing tho utensils used in the work.

When the milk is kept over night for the next morning's curd, temporary tables may be placed near the ice room to hold the pans or tubs in whieh it may be set and the ice nsed to temper the milk to a proper dogree for raising the cream if the dairy be of sueh extent as to reqnire larger aeeomodation than the plan here suggested a room or two can be added.

The Wheeler Expedition has concluded its scientific exploratious throughout California, Nevada, Utah and Arizona, and the officers are now in this city *en-route* to Washingtou.

Useful Information.

Advantaoes of Crying.—A French physician is out in a long dissertation on the advantages of crying and groaning in general, and especially during surgical operations. He eontends that groaning and crying are two grand operations by which nature allays angnish; and those patients who give way to their natural feelings more speedily recover from accidents and operations than those who suppose it unworthy a man to betray such symptoms of cowardice as either to groan or cry. He tells of a man who reduced his pulse from one hundred and twenty-six to sixty, in the course of a few hours, by giving full vent to his emotions. If people are at all unhappy about anything, let them go into their rooms and comfort themselves with a loud boo hoo, and they will feel a hundred per cent. better afterward.

In accordance with the above, the crying of children should not be too greatly discouraged. If it is systematically repressed, the result may be St. Vitus' dance, epileptic fits, or some other disease of the nervous system. What is natural is useful; and nothing can be more natural than the crying of children when anything occurs to give them either physical or mental pain.

Eating Without an Appetite.—It is wrong to eat without an appetite, for it shows that there is no gastric juice in the stomach, and that nature does not need food; and not needing it, there being no fluid to receive and act upon it, it remains there only to putrify, the very thought of which should be sufficient to deter any man from eating without an appetite for the remainder of his life. If a tonic is taken to whet the appetite, it is a mistaken course, for its only result is to cause one to eat more when already an amount has been eaten beyond what the gastric juice supply is able to prepare.

The object to be attained is a larger supply of gastric jnice, not a larger supply of food, and whatever fails to accomplish that essential object, fails to have any efficiency toward the cure of dyspeptic diseases. The formation of gastric juice is directly proportioned to the wear and tear of the system, which is to be the means of supplying, and this wear and tear can only take place as the result of exercise. The efficient remedy for dyspepsia is work—outdoor work—beneficial and successful in direct proportion as it is agreeable, interesting and profitable.—*Hall's Journal of Health.*

Bad Effect of Hair Restorers.—A correspondent of the *Country Gentleman* says that he has under his care two invalid ladies. "One has been paralyzed on the right side for nearly three years, and has been utterly helpless most of that time. Her vision has been very imperfect; her knowledge of past events has utterly departed from her; recently she appears to be recovering her recollection, and can count with tolerable accuracy as high as twenty." He attributes her prostration entirely to the use of a popular hair restorer. "The other case is not so bad, but bad enough. For the past year her eyes have been an occasion of constant torture. The retina has become so sensitive to the light as to make a dark room indispensable. Wheels of burning flame revolve constantly before her eyes, attended by lightning-like flashes, which are terrible to hear. She is another victim to the poisonous lead contained in the same popular hair-restorer."

Chemical Experiments.—Most persons have an idea that it requires a great deal of expensive apparatus to show or perform chemical experiments. Such, however, is not the case; a great many pleasing and instructive experiments can be shown without any more apparatus than can generally be found in every dwelling. And with the addition of a few glass tubes of various diameters, a dozen or two test-tubes, a pint flask or two, and an assortment of ordinary glass bottles and corks, there is scarcely an experiment that may not be attempted with fair prospect of success. In order to make bell glasses it is only necessary to cut the bottom out of bottles, and grind the surface of the incision.

Curious Facts.—A curious observer has discovered that men and boys invariably run the heels of their boots and shoes over outwardly, while women and girls always run theirs over inwardly. Out of one hundred and forty-seven men and boys that passed the observer at a given point, this fact was true in every instance; out of sixty-seven women that passed, it was true in every instance but one.

Good Health.

Deterioration in Milk in Feeding Bottles.—Prof. Gunning, the Government Analyst at Amsterdam, writes: I object to the infants' bottles in all instances where any part of them is composed of caontchoue or india-rubber, or any like material. There is nothing so ill suited to the constitntion of the human body as the material in question. When, in consequence of suction, the pores of the caontchoue are enlarged, some portion of the milk always remains behind in them, which cannot, or at least cannot without great difficulty, be moved. This milk quickly becomes bad, and spoils the fresh milk with which it comes in contact. The caoutchouc material in question is made up of several ingredients. White zinc, or white lead, is very commonly employed, which is very poisonous. My objections are not founded exclusively upon *a priori* conclusions. In this country many fatal cases have happened among infants, which on solid grounds may be ascribed to the use of these bottles."

If some enterprising inventor will give the world a substitute for rubber, he will confer a great favor and make money beside.

Throat Diseases are so prevalent at this time that we commend to our friends a new remedy which is fully described in a late number of the *Pacific Medical Journal*. It is bisulphite of soda, in large and continuous doses. Diptheria, inflammation of the tonsils, and quinsy through local exhibitions, have their source in poisonous fermentations of the blood, the same as scarlet fever and other zymotic diseases. It is held that the salt prescribed enters into the circulation and retards putrefactive fermentation. Dr. Tyrell failed of success when he administered it in small doses and in three-hour intervals; but when he gave thirty-grain doses every hour, day and night, so as to saturate tho system with the salt, he was almost invariably successful in removing all the severe symptoms in twenty-four hours. The object of publication is to induce physicians to give this medicine a trial, that the curative effects may have more extended proofs.

Keeping Fruit in our Rooms.—We should be chary of keeping ripe fruit in our sitting-rooms, and especially beware of laying it about a sick chamber for any length of time. That complaint which some people make about a faint sensation in the presence of fruit, is not fanciful—they may be really affected hy it; for two continental chemists have shown that from the moment of plucking, apples, cherries, currants, and other fruits, are snbject to incessant transformation. At first, they absorb oxygen, thus robbing the surrounding air of its vital element. Then they evolve carbonic acid, and this in far greater volume than the purer gas is absorbed, so that we have poison given us in the place of pure air, with compound interest. Temperature affects the rate of changes, warmth accelerating it.—*Good Health.*

Pumpkins for Inflammatory Rheumatism.—At a recent meeting of the New York Farmer's Club, a correspondent wrote of the virtues of pumpkin, giving the following instance of its value for inflammatory rheumatism: A woman's arm was swelled to an enormous size and painfully inflamed. A poultice was made of stewed pumpkins, which was renewed every fifteen minutes, and in a short time produced a perfect cure. The fever drawn out by the poultice made them extremely offensive, as they were taken off. I know a man cured of inflammation of the bowels by the same kind of application.

How to Treat a Sty.—The sty is a small boil protruding from the eyelid. It will usnally pass away of itself, but its cure may be hastened by applying a warm poultice of bread and water in a small linen bag. Apply three or four times a day, and each time foment the eye with warm milk and water.

Drinking at Meals.—In the use of liquids as of solid food, desire is the best guide. We should drink when we are thirsty, and as we are usually thirsty at meals, especially when our food contains little water, we should drink with freedom, and usually to the full extent of the desire.

RAILROAD ITEMS.

Pacifi The Northe Railway Company has been incorporated. Its purpose is to build a railroad from Sancelito, Marin county, through said county and Sonoma county, to a point on the Walhalla river, a distance of 90 miles.

Trains upon the California and Oregon Railroad are running into Red Bluff.

Grading upon the Virginia and Truckee Railroad is being pushed ahead vigorously between Washoe and Carson. An extra force has been put to work on the two tunnels near the head of Washoe valley.

The Central Pacific has taken possession of the Stockton and Visalia and Stockton and Copporopolis railroads.

The tracklayers on the road south of the Merced river are making satisfactory progress. The cars are now running to a point but a few miles from and within sight of Bear creek.

The Hood surveying party, which has been laying out the line of the California and Oregon Railroad near the line dividing the two States, have returned, being forced by the snow storms to cease operations. When they quit operations they had advanced a distance of about 20 miles into Oregon.

Although the surveys have been made for a railroad from Napa Junction to Petaluma, to connect with the Sonoma Railroad, and work was actually commenced, the change of ownership of the California Pacific stopped movements in that direction. There are assurances for stating that the Sonoma connection will be made in time for moving the next year's crops. Recently the engineers of the Central Pacific railroad company have been running lines from the Summit, two or three miles above the Junction, across the tules toward Petaluma, with the purpose, it is stated, of looking a route through to Sancelito.

At the meeting of the Board of Directors of the San Diego & Los Angeles Railroad Company, it was resolved that a survey be made with a view to the permanent location of the route from San Diego to Los Angelos. Mr. Chas. J. Fox will act as Chief Engineer of the surveying expedition. The party will commence the survey at Old Town and working toward Pawn, from thence toward San Luis Rey and Santa Margareta to San Juan Capistrano and Anaheim, finally terminating at Los Angeles. The route for a branch from Anaheim to San Bernardino will also be surveyed. From all we can gather the San Diego & Los Angelos Railroad Company means business.

The Bakersville *Courier* rejoices in anticipation of the early connection of Kern county with the balance of the State by rail. It has information of a character which leads it to believe "that the extension of the San Joaquin Valley Road to that place early in the Spring is a certainty.

The Supervisors of Marin county have passed an order calling for an election, to be held on January 24th next, at which time the people will vote whether or not the county shall issue bonds to the amount of $160,000 in aid of building a railroad from San Rafael to Tomales. The North Pacific Coast Railroad Company who design to construct a road from Sancelito to the Walhalla river, by the way of San Rafael and Tomales, have signified a desire to accept of such a subsidy, and will build the road if the County Supervisors can agree with them on the route to be followed.

The object of the road is mainly to open up to the San Francisco market greater facilities in obtaining lumber from the Northern Coast counties.

The Central and Southern Pacific Railroad Companies are about to commence very extensive improvements in the southern part of San Francisco and on Mission Bay. The Central Company has a grant of sixty acres of land in Mission Bay, which, it is said, can be made available at a cost of about 700,000. It is further reported that a contract for filling in that part of Mission Bay covered by the grant has been entered into already. By the terms of the grant, the Company will be obliged to expend the sum of $200,000 on the work before March 21st, 1873.

The new track now being built between San Leandro and Melrose (Simpson's, Alameda county), is progressing rapidly—a train of construction cars has been lately employed in transportating large quantities of railroad iron. The road is completed about half the distance. When finished the old track between these two places will be removed.

The San Joaquin *Republican* says a large number of (four or five hundred) men are employed in grading the track for the branch road the Central Pacific Company are building from the main trunk on the west side of the river down the valley. The branch will leave the main road about three and a half miles west of Banta's, and follow the most direct route down the valley. The town of Antioch will not be the water terminus. The road will pass some three miles to the west of that place and reach deep water at a point below.

Hazlett's surveying party, of the Southern Pacific Narrow-gauge Railroad, returning from the survey of the route to Needles, below Hardyville, on the Colorado, the present terminus of the road, have arrived at Camp Cody, all well. They find a good, practicable route to the Colorado.

The surveying and locating of the Walla Walla and Columbia River Railroad has been completed. A considerable amount of the grading will be done this winter. It is expected that the road will be in running order within a year.

The surveying party under Capt. Maxwell has been ordered to Pend'Oreilee Lake, to make surveys during the winter.

—Gen. Sprague, T. B. Morris and E. S. Smith have gone to Puget Sound, and the Kalama *Beacon* says their visit is supposed to be connected with the location of the terminus, between Olympia and Steilacoom.

The track is laid and construction trains are running on the line nearly eighteen miles, extending five miles and a half beyond Kidder's Camp, up the Cowlitz. A side track has been put down opposite Freeport. The material for the Toutle river bridge is being transported up the Cowlitz by steamer; and as every part of the bridge is ready to be put together, its completion is but the work of a few days.

The Oregon and California Railroad has been graded to a point 60 miles above Eugene City, in the Umpqua Valley. The track is laid but 14 miles above Eugene, and cannot be extended further until a new supply of iron arrives.

Col. Martin, Engineer Northern Pacific Railroad, has just completed a survey up Fish creek, in Montana. The line, as run, has a grade of 105 feet to the mile. This route is said to be 50 miles shorter than the Lou Lou Fork route.

The Burgess party, who have been surveying a route for the Northern Pacific Railroad through the Pipestone Pass, state that this route will be some 50 miles shorter than that by the Deer Lodge Pass.

A suit is in progress at Omaha between the Union Pacific Company and T. C. Durant, to compel the latter to deliver to the railroad company about one million dollars' worth of property deeded to him by individuals in trust for the railroad company in 1863 and 1864.

Work on the western division of the Colorado Central is progressing rapidly. The road-bed is graded ready for the iron to station 275, at Huntsman's Ranch, and it is in a forward state of completion to station 375. The large force now employed between station 335 and Elk Meadow, at Elk creek, brings the working parties within four and a half miles of the Forks, where they will commence operations on or about the first of February.

The work of pushing the Atlantic and Pacific Railroad westward is progressing at a rate hardly surpassed by the operations which characterized the building of the Union Pacific, a few years ago. Already the line is completed to Vinite, 35 miles west of the Missouri line.

The final survey has been made on the Iowa Pacific Railroad, and the route is better in all respects than that surveyed before. The work will probably be completed on the road in Ida county this year, and east of Fort Dodge it is progressing so rapidly that the whole line from Wells to Fort Dodge will be graded by spring.

At a recent special election, Gonzales county, Texas, voted to take $200,000, and Caldwell county, $159,000, in bonds of the Western Texas and Pacific Railroad.

The Manufacture of Platinum.—As an item worthy of record amongst our mechanical news, we would notice the establishment in our country of a new manufacturing industry, namely, that of the manufacture from the raw material of platinum vessels, wire, etc., for the use of the chemist, and of those engaged in technical pursuits. For our supply of these materials we have been, until the establishment of this enterprise, entirely dependent on European makers. The establishment is now successfully conducted in New York by Mr. H. M. Raynor, and we wish the undertaking all success.—*Franklin Institute Journal.*

Scientific Press.

W. B. EWER..... .....SENIOR EDITOR.

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San Francisco:

Saturday Morning, Jan. 13, 1872.

Gold and Legal Tender Rates.

SAN FRANCISCO, Wednesday, January 10, 1872.—Legal Tendara buying 91¼; selling, 92⅛. Gold in New York to-day, 108¾.

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Notices to Correspondents.

OLD QUICKSILVER FLASKS.—We can inform C. S., Utah, that one firm in San Francisco pays 50 cents each for second-hand flasks. We should think it economy for many mine owners to return them to this city.

Post Office Changes.

Followiug are the Postal chauges in the Pacific States and Territories during the week ending Decemher 30, 1871.

POST OFFICES ESTANLISHED.–Hot Spring, Siskiyou county, California — George Townsend, Postmaster; Mount Fairview, San Diego county, California — B. F. Jones, Postmaster; Schellbourne, White Pine county, Nevada—Melchoir D. Raum, Postmaster; Woodburu, Marion county, Oregon—Adolphus Mathiot, Postmaster.

POSTMASTERS APPOINTED. — Caliotoga, Napa county, California—William P. Litten; Ellsworth, Nye county, Nevada—P. O. Tyler; Hiko, Lincoln county, Nevada —Charles G. Heath; Rock Creek, Owyhee county, Idaho—J. S. Delavan; Rocky Bar, Alturas county, Idaho—Warren P. Callahan.

DISCONTINUED.—Port Orchard, Kitsap county, Washington Territory.

NAME CHANGED.—Emmaville, Salt Lake county, Utah, to Granite City, aud Joseph J. Snell appointed Poetmaster.

DUTY ON QUICKSILVER.—A concurrent resolution has been offered in the Assembly by Mr. Everett, asking the influence of our Representatives in Congress to aid in eecuring the aholition of the duty on quickeilver. This resolution will surely find favor among all classes interested, and should be adopted. This neceeeary article ie used so very extensively not only for milling purposes, hut also among manufacturers, etc., that it should be hrought within easy reach of all at moderate prices, especially since we on this coast use more of it than any other part of the world.

ON FILE.—Letter from C. H. S.; Communication from C. S.

The State Geological Survey.—No. 2.

In our last week's iseue we made some general remarke upon the character of the Geological Survey, the purposes for which it wae instituted, and what may legitimately he expected from it. These remarks might easily have been extended to far greater length, showing how hroad and complex is the field which falls within the proper scope of such a work, aud how difficult are many of the problems with which it has to deal.

But our space would not permit it. For the eame reasou also, in reviewing what hae already been doue we cannot attempt any detailed history of the work from its inception down to the present time; but after a brief notice of the most important publications of the survey prior to its stoppage hy the Legislature of 1867–8, we shall pase rapidly on to the work of the last two years, of which our account will he eomewhat more detailed. Those who desire fuller information must be referred to the puhlished volumes of the report, and to the printed hieuuial letters of the State Geologist to the Governor, giving detailed reports of the progress of the work year after year.

Earlier Publications.

The first published volume of the report was issued in 1864, and formed a portion of the Paleontology, heing devoted to a descriptiou of the invertehrate fossils helonging to the formatione lower than the tertiary. It was finely illustrated with platee engraved on steel and etone, the text being the work of Messrs. Meek & Gahb. It is an important portion of the work, eince the fossils found in the rocks form the only sure and certain guide hy which to solve the intricate question of the relative ages of the rocke. But it possesses little interest to the general reader.

The next publication was a volume of the Geological Series proper, issued in 1865, and entitled a "Report of Progress and Synopsie of the field-work from 1860 to 1864." This volume consists of about 500 royal-octavo pages of handsomely printed text, profusely illustrated with geological soctious, and sketches of our grander mountain scenery, and crowded with valuahle geological facts and data from almost every portion of the State. It ought to he placed in the hauds of every intelligent miner throughout the State.

The next publication was a second volume of the Paleontology in 1867, to which the same remark will apply as to the first.

In 1867 also, was published the topographioal "Map of the Region adjacent to the Bay of San Francisco" on a scale of two miles to the inch, and covering an area about 88 miles long by 66 miles wide, whioh is nearly equivalent to the comhined areas of the two States of Connecticut and Rhode Islaud. This was the first really accurate map ever puhlished of auy considerable portion of California, and is to-day the finest topographical map yet published of any equal area of mountainous country in the Uuited States. We now pass to

The Work of the Last Two Years.

On the resumption of the work hy the last Legislature, the "Map of Central Califoroia" was one of the first and most important matters which engrossed atteution. This magnificent topographical map, if the means are furnished to oomplete it, will not only be an honor to the State, but its practical value for all time to come, will only grow more apparent year by year. Its scale is six miles to one inch. It embraces the central portion of the State from Owen's Lake and Visalia on the south to Lassen's Peak on the north, aud from Bodega Bay ou the west to Cerro Gordo on the east. It is iu four sheets, each twenty-four inches square, and covere an area of about eighty thousand square miles, of which, however, about eighteen thousand, in the northeastern portion of the map, are within the State of Nevada.

It covers ahout one-third of the whole area, and probably ninety-five per cent. of the population of the State of California.

The southwestern quarter of this map was already in the hande of the engraver. For the purpose of completing the sonth eastern qnarter, a party was fitted out to explore aud map the Inyo and White Mountain ranges and the region south of Mono Lake. Thie party consisted of Mr. C. F. Hoffman, topographer, Mr. Alfred Craven, assistant topographer, Mr. W. A. Goodyear, geologist, and Mr. Chester Averill barometrical observer. They took the field on the 20th of April 1870, and proceeded to Owen's Valley crossing tho Sierras by Walker's Pass. After working up the topography and geology of the Inyo aud White Mountain ranges, the region south of Mono Lake was explored aud mapped.

They then proceeded to Aurora where Prof. Whitney joined them, and together they surveyed the country arouud and to the west of that place, and about the heads of the East and West Walker including a portion of the Sierra hetween the heads of the Stanislaus, the Tuolumne and the Walker.

This whole trip occupied four months. Meantime Mr. Wackenreuder was al o iu the field engaged in mapping a portion of the High Sierra. And later in the season Messre. Craven and Goodyear, with two assistants spent three monthe in mapping, and working up the oomplex hut extremely interesting geology of the region in the Coast Rango exteuding from the head of Napa Valley northwesterly some distance into the higher mountains heyond Clear Lake.

From the field-work previously done hy the survey in the northern Sierra, and from the maps of western Nevada furniehed without, expense to the survey and in advance of their puhlication, by Mr. C. King, Chief of the U. S. Fortieth Parallel Survey, the means are in hand for the completion of the northeast quarter of the map. To furnish the meane of completing this map, it only remains thon to work up the topography and geology of ahout oue-third the area of the northwestern quarter, *i. e.*, a strip in the Coast Range northwest of Clear Lake, and a portion of Tehama county, which will require a party in the field eome three or four monthe. The beautiful engraving of this map, which is of necessity a slow and costly work, is already almost half done, and if the means are furnished the whole thing can he completed, the engraving finished, and the map a puhlished fact within the next two years. It ie proposed to publish two editions of this map, one as a splendid topographical and geographical map, and the other as a geological map on which the different geological formations will he accurately laid down. Moreover, the geological field-work for this map is heing done simultaneously with the topographical work so that as soon as the map is finished, it will only remain to color the geology upon it, and publish the descriptive volumes, which can then be quickly done.

Few people have any adequate conception of the amount of labor involved in the productiou of such a map; hut every one who travels in the mountains can appreciate its practical value when once it is completed. It would he a great lose to California not to have this map completed and published.

Ornithology.

We must not omit to mention one other publication of the survey. The first volume of the "Ornithology of California," devoted to the land birde of the State, made its appearance in tho spring of 1871. This beautiful volume is finely printed, and illustrated with 662 eugravings on wood aud copper. The plan of these illustrations is as follows. Each species, over three hundred in all—has a life-size figure of ite head colored from the life, by hand, while full length portraite illustrate the general appearance of some one representative of each genus, to which are also added diagrams carefully drawn, and executed in relief on copper by the "Jewett Process," which exhibit tho minute detaile of the external anatomy. This is by far the handsomest volume yet published by the Survey. The coloring of the engravings is finely and delicately executed. It forms a most elegant etandard work, and should be found in every gentleman's library.

In our next we shall have something to say of another, and extremely interesting department of the Survey-work.

Table of Altitudes.

The following list of altitudes above the eea-level, which has heen furnished us for publication, by Mr. W. A. Goodyear, Assistant Geologist, will doubtlese be interesting to many of our readers. The localities named are most of them in the region between the North aud Middle Forks of the American river. The determiuations were made with the harometer by the State Geological Survey during the summer of 1871. The results are not absolutely exact; but most of them will be found very near the truth, and acourate enough for practical purposes:

	Feet above level of the sea.
Colfax	2,421
Toll-house at Rice's Bar, North Fork of American River	1,146
Parker House, Iowa Hill	2,867
Summit of 1st Sugar Loaf, Iowa Hill	3,084
Mr. Teasland'e House, Wiscousiu Hill	2,880
Highest crest of Ridge between Elizabeth Hill and King's Hill	3,065
Crest of main ridgo betweeu Iowa Hill and Damascus, just southwest of head of Green Valley Gorge	4,139
Hotel at Damascus	4,016
Crest of main ridge immediately south of Damascus	4,691
Mouth of Humbug Canon, south branch of North Fork, American River	2,051
Fork's House, on ridge, south of Damascus	4,789
Crest of ridge betweeu Forks House and Hog's Back	5,468
Secret House	5,486
Summit of Secret Hill	6,651
Yank's Cabin, Cauada Hill	6,229
Northwest summit of Cauada Hill, Bald Mountain	7,179
Miller's Defeat	5,812
Last Chauce	4,545
Bottom of Canon of North Fork of Middle Fork of Americau River, on trail beteweu Last Chauce and Deadwood	2,719
Crest of ridge near the Devil's Basin	4,390
Hotel at Deadwood	3,943
Bottom of El Dorado Canon, on trail from Deadwood to Michigan Bluff	1,821
Express office, Michigan Bluff	3,488
Bottom of Volcano Canon, on road from Michigan Bluff to Bath	2,871
Forest House, Forest Hill	3,230
Martin B. Tubb's Saloon, Yaukee Jim's.	2,574
Todd's Valley	2,730
Ford's Bar, at mouth of Otter Creek, on Middle Fork of American River	795

The Last Storm.

We have heen visited, siuce our last issue, hy another storm, which set in on Sunday uight and continued with very little intermission for about thirty-six hours. A large amount of water fell during that time, and the rain was very general throughout the State, as far south as Visalia. We append the total of rainfall iu several localitiee, the excess of which, over our last week's report, shows the amount received during this storm:

Napa, to December 29th	26.99
Vallejo, to January 8th	19.30
San Rafael, to " 9th	38.35
Stockton, to " 8th	15.17
Sacramento, to " 8th	14.33
San Francisco, to Jan. 9th	24.60
Shasta, to Jan. 5th	50.14
Oakland, to " 9th	23.18
Woodland, to " 9th	20.10
Petaluma, to " 9th	23.45
Visalia, to " 9th	6.15

This storm in the mountains has also heen unusually severe and attended with a very large amount of rainfall. Lake Tahoe has risen 22 inches notwithstanding its large outlet. The average depth of snow on the eastern Summit of the Sierras is said to be about seven feet, and about one foot on the western slope. Some considerable damago has heen done to dams and ditchee in the mountains; but not so much as might have been expected.

Home Industries.

Carriage Spring Manufactory.

Among the number of our manufactures which have withstood the pressure incident to the opening of the Pacific R. R., and now in successful operation in this city, may be mentioned the enterprise of Wm. M. Betts & Bro. These gentlemen commenced the manufacture of springs of all kinds, from largest locomotive to the lighest carriage spring, nearly four years ago. They have recently erected a building 40x80, at 218 Fremont St. opposite the Fulton Foundry, provided with all the necessary furnaces for tempering, drawing and forging, (two of each kind) together with grindstones, emery wheels and all other appliances for the proper prosecution of the work.

The best steel for the purpose is consigned to the firm of Nelson & Doble from Firth & Son, Sheffield, England, coming in bars of the required width and thickness. Being cut into suitable lengths, the sections are then forged, punched, slotted and fitted. After which they are ground, polished, put together and thoroughly tested by lever purchase, when they are prepared for the market. The number of hands at present employed is fourteen. Besides a gold medal received at the Mechanic's Fair, they exhibit testimonials from the leading carriage makers of this city and coast in commendation of their work. They have filled a number of large orders for car springs from the Central Pacific Railroad Co. In short, they claim to manufacture a spring, unsurpassed in make, shape or temper, by any imported or otherwise.

The Occidental Foundry

Is the name of another establishment recently opened in this city at 137 and 139 First street, on the old stand of the Vulcan Foundry. It is owned and conducted by Messrs. Steiger & Boland, who bring into the new enterprise an experience in the business of some twenty years on this Coast. Many of the best moulders formerly associated with them, have again found employment. We understand also that the former foreman of the pattern department of the Vulcan Iron Works is to have charge of the designs and patterns for the new firm.

For the main foundry a new building has taken the place of the old, which is said to be as large, and as well arranged in all its internal workings as any of the kind in the city, while its advantages for proper ingress and egress are all that could be desired; the whole building running back from First street 137½ feet to W. T. Garratt's Brass Works, with a frontage of 57 feet on Natoma street. Everything has been provided to make it a first-class custom foundry—their motto being "promptness and neatness in the execution of all orders." Of the work on hand, we noticed some large kettles and tanks for the San Francisco Assaying and Refining Works. Retorts and a variety of other manufactured articles for two of our principal sugar refineries (the Bay and the California), a good display of different kinds of implements for the San Francisco Screw and Bolt Works of Phelps Bros., Drumm street; sundry sections of pump machinery for David Stoddart's Machine Works, as also a choice collection of cones, swedge blocks and tweer irons manufactured for the Glasgow Metal and Iron Works Co., Fremont street, together with a quantity of milling and mining machinery, for this city and the interior.

Safety Fuse Manufactory.

It may not be generally known that a manufactory of this kind exists in this State. Our correspondent, L. P. Mc., furnishes us with the following: There are three such establishments in the State, the principal one of which is situated two miles southeast of Alameda, and about twelve miles from San Francisco, and is known as the branch works of Toy, Bickford & Co., the original works being at Hartford, Connecticut, and were started thirty-five years ago. The works near Alameda are run by an engine of 35 horse power, and were started five years since. The greater part of the fuse used on this Coast is now manufactured at this establishment, and their capacity is sufficient to supply the entire demand. Twelve men are regularly employed.

Oregon Stoves.

The Oregon Iron Works some time since commenced the manufacture of stoves, of which they are turning out a very fine article, and averaging about a dozen a day. They make two patterns of cooking stoves, three parlor, two box, one cylinder; and have sent for other patterns. There is some boldness in this movement, says the Willamett *Farmer*, as it requires a permanent investment of about seventy-five thousand dollars to carry on the work. The present indications are that the company will find this a profitable branch of their business.

Hints to Miners.—No. 6.

Formation of Deep Placers—Continued.

As a rule, auriferous alluvia are found deposited in or near the present drainage courses, except in such instances as the following:

1. Where the old valley beds have been silted up to high levels forming wide alluvial flats, as illustrated in Fig. 5, in which *a* is the water channel; *b* wash dirt and *c* wash dirt. In this case the run of gold may be found at a considerable distance from the existing water-channel, although in the same flat or valley. This deviation seems to have been caused by the creek undergoing a constant change across the valley during the process of silting up by fluviatile action, as indicated by the alternate layers of sand, shingle and clay forming the deposits.

Fig. V.

2. It is sometimes found that the old drainage beds containing alluvial deposits of gold, after being silted up to a considerable hight, as described above, have been subsequently made to assume the form of hill ridges by the erosion of newer and deeper valley beds on each side of them, as shown in Fig. 2, where *a* represents the modern water course, *b* the wash dirt and *c* the modern water course. A well-known hill in Victoria presents a notable example of this sort, as it shows on the outside the appearance of an ordinary clay-slate spur; but it consists chiefly of deposits of sand, shingle, and clay; and alluvial gold in considerable quantities has been found in it from time to time directly under the present summit.

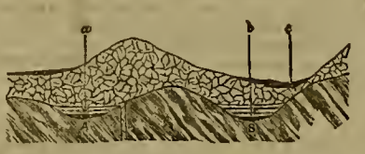
Fig. VI.

3. Again, where the silurian claystones, etc., have been wholly or partly capped by flows of basalt, the existing water courses or lines of drainage often differ very much in direction from the older valleys beneath them, but conform to them so far as the general direction of the drainage from the dividing ranges to the sea coast or principal rivers is concerned. Figs. 7 and 8 are examples of this kind of change.

Fig. 7 in which *a* and *b* are wash dirt and *c* the existing water course, represents a tract of country wholly covered with basalt, upon which new lines of drainage have been worn out, conformable to the depressions and slopes of the newer surface, and under which deep leads of gold often occur, occupying the position of the older valleys as at *A* and *B*.

In Fig. 8, *a* and *c* are the wash dirt and *b* and *d* the existing water course. This figure shows a flow of basalt originally confined to the bed of an old alluvial valley of the older sedimentary rocks, supposed to have been bounded on each side by hills, as shown by the dotted lines; but the basalt, from its indurated character, being much more impervious to the decomposing and wearing action of the atmospheric elements than the adjacent claystone rocks, newer valley beds at a much lower level have been eroded on each

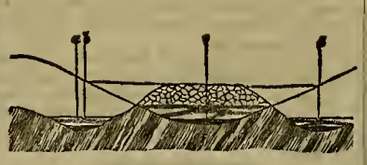
Fig. VII.



side, and the original level of the surface reduced, leaving the old valley capped by the harder rock to appear as a small elevated plateau. This formation may be observed in many places where the flows of basalt have been confined to narrow channels.

4. But reverting to the hill deposits of surfacing which have been alluded to, they appear to specially illustrate the extraordinary changes that have taken place in the drainage courses formed in the older sedimentary rocks by the ordinary agencies that are now in operation. The opinion entertained by most miners to account

Fig. VIII.



for shallow auriferous deposits on the hill, is, that they are of more recent date than the gold in the drifts of the valleys, and are the results of a later disintegration of rich quartz veins in their immediate vicinity, which has caused the gold to lodge on the slopes of the hills directly under these veins. This view may be correct with regard to those surface deposits of gold which do not lie directly upon the bedrock; but it does not appear to be so in this instance, as they are found in immediate contact with the silurian strata, and the water course character of the gold and quartz detritus indicates that they have been subjected to the same friction and disturbance as the shingle and gravel drifts of the valleys.

Careless Blasting.—We have had to record in our list of mining accidents this week two different ones that recently happened, both from the same cause, that of going back to a faulty blast before it was time. When a shot does not go off properly, it is only after the utmost precautions have been taken and a proper delay, that miners should approach the spot. Shots have been known to go off fully ten minutes after they had been lighted. Numbers of dreadful accidents have happened in consequence of too great haste on the part of the miner in his anxiety to return to his post, to draw the charge. In many districts in Europe this is not allowed; there new holes have to be made. If no such rule exists here, there should be some regulations made by superintendents as to the length of time employés should wait before returning to the hole. Accidents from this cause are of so frequent occurence that there should be some preventive applied at once.

James C. Conroy, the senior member of the firm of Couroy & O'Connor, a well-known house in this city, died at his residence in San Rafael on Tuesday.

Patents & Inventions.

Full List of U. S. Patents Issued to Pacific Coast Inventors.

[From Official Reports to Dewey & Co., U. S. and Foreign Patent Agents, and Publishers of the Scientific Press.]

For the Week Ending December 26.

Saw Collar.—Frank A. Huntington, San Francisco, Cal.

Shingle Machine.—Frank A. Huntington, San Francisco, Cal.

Lamp.—Emil Boesch, San Francisco, Cal.

Note.—Copies of U. S. and Foreign Patents furnished by Dewey & Co., in the shortest time possible by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency.

Report of the Sutro Tunnel Commission.—The report of the Sutro Tunnel Commission was transmitted to the Senate on the 9th inst. The Commissioners report that the tunnel is entirely feasible and may be constructed in less than two and a half years at a cost of about $4,500,000. They believe that the Comstock is a true fissure vein, continuing downwards indefinitely, and express an opinion that, while the tunnel is not a necessity for ventilation or drainage, yet any scheme which promises increased economy in the working of the mines and rendering valuable a vast amount of now worthless low grade ores in the Comstock lode, becomes of national importance. Whether the Sutro Tunnel project will fulfil this condition of economy, depends upon the efficacy of the methods now employed in Germany and other countries of Europe for the concentration and profitable working of low grade ores. On this point the Commissioner has not in this country by personal investigation been able to obtain the desired information. In conclusion, the report commends the Sutro Tunnel to favorable consideration as an exploring work for deep mining.

Mining Sales.—It is reported that the Lexington mine in Little Cottonwood Cañon, U. T., has been sold to S. G. Phillips of London for $75,000. The former owners were Messrs. Connor, Moore, Pierson and Laurence.

The Prussian Hill mine near Railroad Flat, Calaveras Co., is also reported sold to a San Francisco Co.

The Santa Maria mine, Cerro Gordo District, Inyo Co., has been sold by the sheriff in execution for $100,041 to satisfy judgment for $97,000, the purchaser being P. W. Bennet. The Inyo *Independent* thinks that Mr. Dorr, the former owner, will redeem the property.

The Jackson *Ledger* says that a report is current in the neighborhood that two important sales of quartz mines have been affected to an English Co. The mines are the Kennedy, near Jackson, for $150,000, and the Amador, or Hayward mine, at Sutter at $300 per share, aggregating for the last named mine the sum of $1,140,000.

Original and Solid.—Contrary to ordinary custom, much of the original matter in the Press is not solid, in order to give the readers as much information as possible. Hence some of our neighbors have often failed to give us credit in copying original articles. For instance, we find the Humboldt *Register* crediting our article "Sage Brush as a Fertilizer" to the Reese River *Reveille*. Written for us by a very intelligent and observing lady, it was probably taken by the *Reveille* without credit. We have forehorn noticing such instances heretofore, although we frequently meet with them, preferring to see our articles traveling abroad, without credit, rather than staying at home. We are aware that such things are sometimes the result of inadvertence, as we have learned in our own experience. Probably this might have been such a case. We simply rise to explain—that's all.

W. R. Eckart, C. E., recently returned to San Francisco from the East. Mr. E. happened to be one of the snow-bound passengers delayed on the U. P. R. R. He suggests the plan of elevating the snow and conveying and discharging it at a suitable distance from the track by use of two conveying screws placed one on each side of the locomotive, the forward ends approaching each other in V form so as to receive snow from a properly shaped snow-plow. The screws to be worked by connection with the engine.

Domestic Economy.

How to Make a Coal Fire.

The art of making and maintaining a coal fire properly is possessed by but few. We believe that there would be a sensible diminution in the number of domestic quarrels and soured tempers, if a knowledge of it were more general. Husbands would not have to growl and scold over so many late dinners, nor wives fret themselves to skin and bone over obstinate fires that will neither bake, roast, nor boil.

There are many faults in the usual construction of a coal fire. A common fault is to use too coarse wood for kindling, and too much of it. This, while it generally succeeds in lighting the coal, leaves a bed of ashes below the coal which interferes with the draft unless raked out. The wood should be of some rapidly burning variety which gives a quick and high heat, and should be split fine. It should be so placed that the coal will remain on the top of it and not fall through to the grate, leaving the kindling on the top of any part of the coal. A good rule, where stoves or furnaces have a good draft, is to use coal as small as can be used without inconvenience from its sifting too freely through the grate.

Grates should have their bars closely set for stoves that are cleaned out daily, and have fires lighted in them each morning, while those which are intended to have fires kept in them continuously for days and weeks will not admit of fine grates, on account of the accumulation of ashes and small "clinkers."

There is much difference in coal in regard to the formation of clinkers. These are nothing but vitrified, or partially vitrified earthy matters, and only can form when a high heat is maintained; they are apt to be troublesome when there is too great a draft. A coal stove or furnace should, therefore, be so constructed that its draft can be perfectly controlled. The bottom draft should admit of being closed air-tight, as nearly as is possible to make it, and there ought always be provision made for a top draft. If, however, the draft of a chimney should be so strong that air in too great quantities is drawn in at the bottom when the dampers are closed, a damper in the pipe, which will close it partially, must be employed, though in sluggish chimneys such a damper is apt to force the gases of combustion into the room, and therefore it ought always to be avoided when possible.

The practice of putting ashes on the top of a fire to keep it, is very productive of clinkers, although it answers very well in other respects. Damp coal screenings are better, and may be economically burned in this manner. If a coal fire gets very low, the quickest way to extinguish it is to rake it at the bottom. To preserve a fire under such circumstances, a little coal should be placed on the fire, and when it has caught, more may be added, and the raking deferred until it has got well ignited. When the fire bricks have become hardened with clinkers which have fused and adhered, they may be cleaned by throwing oyster or clam shells into the fire box when the fire is very hot, and allowing the fire to go out. The clinkers will generally cleave off without the use of much force the next morning. From two quarts to one-half a peck will be sufficient for most stoves, and the operation can be repeated if some of the clinkers still adhere.

Water-Proof Boot Soles.

If hot tar is applied to boot soles, it will make them water-proof. Let it be as hot as leather will bear without injury, applied with a swab, and drying in the fire. The operation may be repeated two or three times during the winter, if necessary. It makes the surface of the leather quite hard, so that it wears longer, as well as keeps the water out. It is a good plan to provide boots for winter during the summer, and prepare the soles by tarring, as they will then become, before they are wanted to wear, almost as firm as horn, and wear twice as long as those unprepared.

Ten years ago, says a correspondent of the *Country Gentleman*, I met with a direction similar to the above, and with some hesitation I concluded to have it tried on the soles of a pair of field boots. By a piece of superarrogance, a pair of thin-soled morocco boots was tarred with the others, the soles being saturated and the seaming too, all round, including the lower rim of the morocco all round the soles. As these boots are doing service yet, and have been much used every summer during the ten years, I mention the fact because it furnishes what I then wished for, namely, a proof that the tar would not burn or otherwise hurt the leather. The soles remain like horn, and have never required any repair, and even the thin upper apparently cracked in all directions from the first, has never torn but a little on one boot, at the bend on the outer side of the foot. It has been oiled but once each summer, but the soles received only the one thorough tarring. Boot soles will take the tar best after having the grain worn off slightly. It soon dries in, if exposed to the sun, and the odor, even of gas tar, is quickly overcome by the all conquering effects of dry earth. A short walk over a fallow field will remove it completely, and make it entirely unnecessary to imitate the eastern custom of taking off the boots at the house entrance, unless there be some other reason for it than fresh tarred soles.

Out Door Cellar.—In the first place, select the most elevated spot of ground conveniently near to your dwelling house and throw out the dirt to the depth of two feet. Build a double brick wall at the base of the excavation, leaving a vacant space of six inches, between the walls, which should be tied at the corners and several places in the sides, being careful, however, to leave vacant places for vent holes, to admit a free circulation of air throughout the length and breadth of the walls. The hight of the walls when completed, nine feet from base to top. The surplus dirt, banked up, ou outside four feet in hight. Floor overhead, two thicknes of well seasoned, matched flooring, and cover the whole with good shingles; construct a flue exteuding upwards and at the top of the building, to allow impure air to escape. A drain should be constructed by which any water which might penetrate, would run off. Of course a proper floor should be constructed for the cellar.

A correspondent of the *Prairie Farmer* says he has used such cellars for upwards of twelve years and ever found them sure depositories for fruits and vegetables in winter, and for milk, butter, etc., in summer.

Mechanical Hints.

Many mechanics complain of inability to set a machine to be driven at right angles from the line or counter-shaft, without continual trouble with friction from the shifter on the belt, and the slipping of the belt to the tight or loose pulley. The operation is a simple one, and just as effectual as to drive in a direct perpendicular or horizontal. Take the center of tho off or contributing side of your drive pulley and drop from it a plummet; let this line decide the center and perpendicular of the side of the tight and loose pullies which takes your belt at a right angle below. Unless your eye is accustomed to the angles which are given to the appearance of the belt, from either side, you will condemn the position without trying, but if you are careful to get an exact perpendicular in the manner described there can be no mistake.—*Am. Manufacturer.*

To Improve Woods.—An ingenious Frenchman has invented a process for treating common woods, which makes them of a closer texture, harder grain, and greater density, and so enables the cheaper kinds of wood to take a polish. The mode is as follows: The surface is first planed perfectly smooth, and then rubbed with diluted nitrous acid. An ounce and a half of dragon's blood, dissolved in half a pint of spirits of wine, and half an ounce of carbonate of soda are mixed together and filtered; and the liquid is then laid on the wood with a soft brush. The treatment should be repeated after a short interval, and the wood will then possess the outward appearance of mahogany. If the polish is not sufficiently brilliant, rubbing with cold drawn linseed oil will improve it.

White Lines in Cabinet Work.—The Chinese are supposed to use a combination of rice gluten and fresh shell lime in their inimitable white work; indeed, they use rice paste made by pounding boiled rice into a sticky mass, for a great number of purposes. Rice, when pounded as above, with a little plaster of Paris, is a capital substance for inlaying. In Europe, isinglass, dissolved in a strong white spirit, and any pale coloring ingredient added, constitutes artificial ivory. The dust of ivory, bone, box, or holly, made up with gelatine into paste, is also used.

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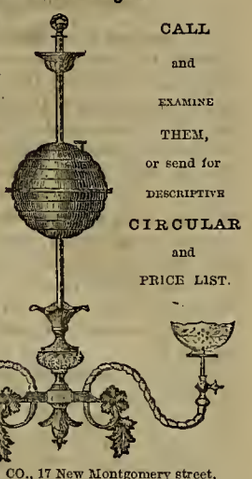

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This device is just what its name indicates. As a Kitchen Tool it is indispensable It will fit and lift with perfect safety, any Stove Lid, Frying Pan, Pie Pan, Pot, Kettle, or any other vessel or dish used about a stove. It is a complete tool for stretching carpets, driving tacks, pulling tacks, &c., &c. It answers the double purpose of hammer and pincers, and is also a good Nut Cracker. It is made of the best malleable iron, and the Hammer, Pincers and tack puller, are all hardened so as to stand the roughest usage. An Agent is wanted in every town on the Pacific Coast to sell this valuable little implement. Retail price fifty cents.

WIESTER & CO.,
17 New Montgomery street (Grand Hotel),
San Francisco.

READ THIS.

A POLISHING AND FLUTING IRON that should be in every house in California. It flutes collars, cuffs and ruffles of every description, without injury to the finest fabrics. As a Polishing Iron it cannot be excelled, being made of the best material and highly polished. The fluting of the Iron is made of finely polished brass, which adds much to the beauty as well as the utility of the article. We want a few good agents and will be pleased to receive communications from persons who mean business. WIESTER & CO.,
17 New Montgomery st. (Grand Hotel), S. F.

THE

Gutta Percha and Rubber Manufacturing COMPANY.

109 California street, San Francisco.

Patent Combination Carbolized Steam Fire Hose, Steam and Petroleum Oil Hose,

Suction Hose, Hydrant Hose, Conducting Hose, Engine Hose, Round Packing, Rubber Belting, Packing, Valves, Caskets, Pure Vulcanized Sheet Rubber, Fire Buckets.

12v23-3m J. W. TAYLOR, Agent.

A. J. SMITH,

PLUMBER,

—AND—

Manufacturer of Pumps and Water Closets,

No. 220 Fremont street, opposite Fulton and Ætna Iron Works, San Francisco, Cal.

18v23-3m

GILES H. GRAY. JAMES M. HAVEN.

GRAY & HAVEN,

ATTORNEYS AND COUNSELORS AT LAW,

In Building of Pacific Insurance Co., N. E. corner California and Leidesdorff streets,

SAN FRANCISCO.

PLUMBAGO CRUCIBLES.

MORGAN'S CELEBRATED PLUMBAGO CRUCIBLES, all sizes (except 25 and 30), from No. 1 to 100, for sale low to close consignment.

22v23-3m A. S. HALLIDIE, 519 Front street, S. F.

San Francisco Wire Works,

NO. 665 MISSION STREET,

Near Third Street.....San Francisco.

C. H. GRUENHAGEN & CO.

Business Cards.

J. ROSS BROWNE,
Office, No. 415 Montgomery Block,
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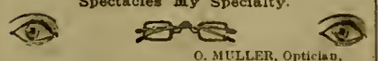
Spectacles My Specialty.



O. MULLER, Optician,
205 Montgomery street, Huss Block.

JOHN ROACH, Optician,
Has removed from 522 Montgomery street to
540 Washington street,
East of Montgomery.
Surveying Instruments made, repaired and adjusted
22v17-3m

E. J. FRASER, M. D.,
SURGEON,
No. 102 Stockton Street, San Francisco, Cal.

Farmers and Mechanics
BANK OF SAVINGS,
No. 225 Sansome Street.
Interest paid on Deposits. Money Loaned on Real Estate.
H. DUTTON, President.
GEO. M. CONDEE Cashier. 19v16-3m

N. P. LANGLAND,
Stair Builder, Wood Turner, and
SCROLL SAWYER,
No. 485 Brannan Street.....San Francisco.
And No. 9 Q St., bet. First and Second,
21v23-tf Sacramento.

WM. BARTLING. HENRY KIMBALL.
BARTLING & KIMBALL,
BOOKBINDERS,
Paper Rulers and Blank Book Manufacturers,
505 Clay street, (southwest cor. Sansome),
15v12-3m SAN FRANCISCO.

SAN FRANCISCO
CORDAGE COMPANY.
Manila Rope of all sizes. Also, Bale Rope and Whale Line constantly on hand. Tarred Manila Mining Ropes of any size and length manufactured to order.
TUBBS & CO., Agents,
26 611 and 613 Front street.

JOSEPH GILLOTT'S
STEEL PENS.
Sold by all Dealers throughout the World.

J. F. PAGES,
SEAL ENGRAVER,
AND LETTER CUTTER,
Brass and Steel Stamps and Dies, 608 Sacramento street, San Francisco. Orders by express promptly attended to.

INTERNATIONAL HOTEL,
San Francisco, Cal.
This Favorite House is located on Jackson street, a few doors west from Montgomery; offers the greatest inducements for Families. The International Coach will be at each Car Depot and Steamboat, plainly marked International Hotel, to convey passengers to the Hotel FREE, and to any part of the city at reasonable rates.
F E. WEYGANT & H. C. PARTRIDGE,
24v22-3m Proprietors.

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Meerschaum Pipe Manufacturer,

No. 341 KEARNY STREET,
Between Bush and Pine streets, San Francisco.
The first and only Manufactory on the Pacific Coast. MEERSCHAUMS MOUNTED WITH SILVER. Meerschaum Pipes Boiled and Repaired. Amber Mouth-pieces Fitted.

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OF SAN FRANCISCO.
Capital, One Million Dollars.
LEVI STEVENS.....President.
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No. 415 CALIFORNIA STREET.
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Patent Agraffe Pianos,
GRAND, SQUARE AND UPRIGHT.
Pianos to Let.

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I street, between Sixth and Seventh,
ma18-tf Opposite old Capitol, SACRAMENTO.

Eastern Advertisements.

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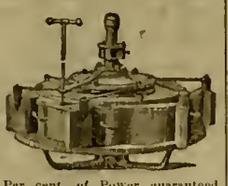
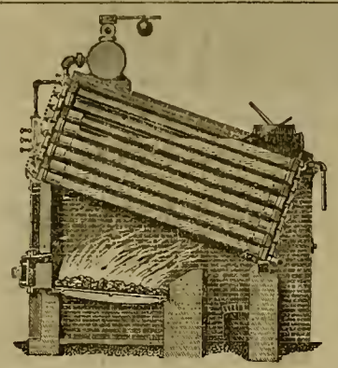
PROPRIETORS OF THE
GLOBE IRON WORKS,
DAYTON, OHIO.
Hydraulic
ENGINEERS,
Patentees
AND
Manufacturers
OF THE



Per cent. of Power guaranteed equal to any Overshot Wheel.
American Turbine Water Wheel,
MILL GEARING AND SHAFTING
Of all Descriptions, and General Mill Furnishing.
Water Powers Estimated and Plans Furnished.
A. L. STOUT, W. M. MILLS, J. TEMPLE.
Send for Descriptive Circular. 22v23-3m-sa



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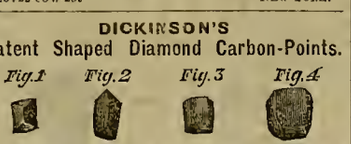
BEST IN THE MARKET.
Engines, Pumps, Etc., Manufactured and on Hand.
☞ For pamphlets and testimonials address
ROOT STEAM ENGINE CO.,
Twenty-eighth Street, corner Second Avenue,
20v22-cow-26t NEW YORK.

DICKINSON'S
Patent Shaped Diamond Carbon-Points.
Fig. 1 Fig. 2 Fig. 3 Fig. 4



Diamond and Carbon, shaped or crude, furnished and set for Dressing Mill-Burrs, Emery-Wheels, Grindstones, Conglomerate, Drilling Rock, Sawing or Working Stone, Trueing up Hardened Steel, and for other mechanical purposes. Also Glaziers' Diamonds. See Scientific American, July 24th, Nov. 20th and 27th, 1869; Engineering and Mining Journal, Jan. 7th, 1871; Journal of the Franklin Institute, Philadelphia, June, 1870. For Circulars descriptive, and Prices, send stamp to
1v24-6m J. DICKINSON, 64 Nassau St., N. Y.

SELF-OILERS.
WATERS'
SELF-OILERS.

PATENTED October 21, 1862; July 6, 1867; July 23 and Sept. 22, 1868, and June 20, 1869.
Glass reservoir, with white metal coupling cast on.
Substantial brass stem, with graduating plug—V slot on one side, as shown in magnified cut—in the top.
The best and cheapest OILER in the market; perfect lubrication on loose pulleys and all kinds of bearings. Any kind of Oil in any kind of weather. Price, $4.50 per dozen Liberal discount to agents and to the trade.
WATERS & CO.,
no13-3m 164 Elm st, near Fourth, Cincinnati, Ohio.

Phœnixville Bridge Works
OF PENNSYLVANIA.
CLARKE, REEVES & CO.,
ENGINEERS AND BUILDERS.
NEW BRIDGES, VIADUCTS, ROOFS, ETC.
Would respectfully call the attention of the officers of Railway Companies, and Engineers having charge of New Bridge Constructions, to their new
Album of Designs,
showing various styles of New Railroad Bridges, Viaducts, etc., which they have either constructed or are prepared to construct. A copy will be mailed on application to our address, No. 410 Walnut Street, Philadelphia. ap8-1y

Situation as Chemist Wanted.
The undersigned, having completed the working course of Chemistry in La Fayette College, Easton, Pa., including Dry Assay of Ores and Blowpipe Analysis, desires a situation requiring a
Practical Knowledge of Chemistry.
By permission refers to Dr. Traill Green, Professor of Chemistry in La Fayette College.
B. CHAMBERS, Jr.,
20v23-3m Chambersburg, Pa.

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MICROSCOPES.
Illustrated Price List sent free.
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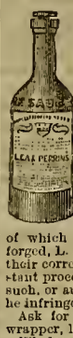
The California Powder Works
No. 314 CALIFORNIA STREET,
SAN FRANCISCO.
Manufacturers and have constantly on hand
SPORTING,
MINING,
And BLASTING
POWDER,
Of SUPERIOR QUALITY, FRESH FROM THE MILLS. It being constantly received and transported into the interior, is delivered to the consumer within a few days of the time of its manufacture, and is in every way superior to any other Powder in Market.
We have been awarded successively
Three Gold Medals
By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others.
We also call attention to our
HERCULES POWDER,
Which combines all the force of other strong explosive now in use, and the lifting force of the BEST BLASTING POWDER, thus making it vastly superior to any other compound now in use.
A circular containing a full description of this Powder can be obtained on application to our Office.
16v20-3m JOHN F. LOINE, Secretary.

LEA & PERRINS'
CELEBRATED
Worcestershire Sauce.



Declared by Connoisseurs to be the only good Sauce. The success of this most delicious and unrivalled Condiment having caused certain dealers to apply the name of "Worcestershire Sauce" to their own inferior compounds, the public is hereby informed that the only way to secure the genuine is to ASK FOR LEA & PERRINS' SAUCE, and see that their names are upon the wrapper, labels, stopper and bottle.
Some of the foreign markets having been supplied with a spurious Worcestershire sauce, upon the wrapper and labels of which the names of Lea and Perrins have been forged, L. and P. give notice that they have furnished their correspondents with power of attorney to take instant proceedings against manufacturers and vendors of such, or any other imitations by which their right may be infringed.
Ask for LEA & PERRINS' Sauce and see name on wrapper, label, bottle and stopper
Wholesale and for export by the Proprietors, Worcester; Crosse & Blackwell, London, &c., &c., and by Grocers and Oilmen universally. Agents, CROSS & CO., San Francisco. 1v22-1yeow

FARMERS and MECHANICS
Are especially invited to call and see a Model of the
Self-Opening and Self-Closing Gate,
The Simplest and Most Practicable now in use.
—ALSO THE—
Verticle and Straight Mould-Board Plow,
Which is Cheaper of Construction, opens its furrow Wider and Cleaner, and with 20 per cent. Less Draft than ordinary Plows of the same cut.
These Plows are being manufactured TO ORDER by HILL & KNAUGH, of Marysville, and S. CONRAD, of Petaluma. Rights for sale by
WIESTER & CO.,
No. 17 New Montgomery St., San Francisco, Cal.

FRED. KRAJEWSKI,
MANUFACTURER OF TOOLS
—FOR—
Molding, Turning, Carving, Etc.
Mortise Chisels, Blind Chisels, Crotchet Chisels, and also all kinds of Screws for Stair Work and Sash Joints on hand and made to order.
Berry street, bet. Fourth and Fifth, SAN FRANCISCO.
25v23-tf

CUNDURANGO.
BLISS, KEENE & CO.'S Fluid Extract, the wonderful remedy for Cancer, Syphilis, Scrofula, Ulcers, Pulmonary Complaints, Salt Rheum, and all Chronic Blood Diseases, is prepared from the Genuine Cundurango Bark, from Loja, Ecuador, secured by the assistance of the authorities of that country. It is the most effective, prompt and certain alterative and blood purifier known. Sold by all Druggists, in pint bottles, having on them our name, trade mark and directions. Send for a circular. Office and Laboratory, No. 60 Cedar street, N. Y. 25v23-3m

Travelers' Guide.

CENTRAL PACIFIC RAILROAD.

OVERLAND TRAINS.

Express Daily, via Oakland.	Express Daily, via Vallejo.	Dec. 6, 1871.	Express Daily, via Vallejo.	Express Daily, Oakland.
LEAVE.	LEAVE.		ARRIVE.	ARRIVE.
7.00 A M	8.30 A M	....San Francisco....	7.30 P M	8.30 P M
7.35 A M	.....	....Oakland	.....	8.00 P M
7.50 A M	.....	.. San Jose..... ..	.....	8.30 P M
8.35 A M	.....	...Niles.....	.....	7.05 P M
11.27 A M	.....	...Stockton.....	.....	4.22 P M
.....	10.30 A M	...Vallejo	5.30 P M	.....
.....	12.50 P M	...Davis.....	3.10 P M	.....
1.15 P M	2.00 P M	...Sacramento	2.30 P M	2.35 P M
ARRIVE.	5.15 P M	....Colfax	10.20 P M	LEAVE.
	12.45 A M	...Reno	2.10 A M	
	9.10 A M	...Winnemucca....	4.15 P M	
	12.00 M	...Battle Mountain.	1.25 P M	
	4.40 P M	...Elko.....	8.35 A M	
	6.20 A M	...Ogden	5.20 P M	
	ARRIVE.		LEAVE.	

Down / Up

San Francisco and San Jose.

LEAVE.	LEAVE.		ARRIVE.	ARRIVE.
.....	3.00 P M	....San Francisco. .	10.40 A M	.....
7.10 P M	4.40 P M	... Niles	8.35 A M	5.30 P M
8.30 P M	5.50 P M	.. San Jose.....	7.00 A M	4.10 P M
ARRIVE.	ARRIVE.		LEAVE.	LEAVE.

San Francisco, Stockton and Modesto.

LEAVE.	LEAVE.		ARRIVE.	ARRIVE.
*4.00 P M	7.00 A M	....San Francisco..	8.30 P M	*12.40 P M
7.10 P M	11.35 A M	....Latrop.....	4.45 P M	8.10 A M
9.20 P M	5.50 P M	....Modesto.....	7.00 A M	5.00 A M
8.30 P M	11.27 A M	....Stockton.....	4.22 P M	7.45 A M
ARRIVE.	ARRIVE.		LEAVE.	LEAVE.

Sacramento, Marysville and Tehama.

LEAVE.	LEAVE.		ARRIVE.	ARRIVE
*8.45 A M	2.35 P M	....Sacramento	1.05 P M	*4.45 P M
10.25 A M	3.25 P M	....Junction.....	12.15 P M	3.25 P M
5.50 P M	5.45 P M	....Marysville.....	10.20 A M	12.00 P M
8.00 P M	8.35 P M	....Tehama.....	6.50 A M	5.30 A M
.....	9.30 P M	....Red Bluff.....	6.00 A M	.....
ARRIVE	ARRIVE.		LEAVE.	LEAVE.

OAKLAND BRANCH.—LEAVE SAN FRANCISCO, 7.00, 8.10, 9.2 , 10.10 and 11.20 a. m., 12.20, 1.50, 3.00, 4.00, 5.15, 6.30, 8.00 9.20 and *11.30 p. m. (9.20, 11.20 and 3.00 to Oakland only).
LEAVE BROOKLYN, *5.20, 6.40, 7.50, 9.00 and 11.00 a. m., 1.30, 2.40, 4.55, 6.10, 7.40 and 10.10 p. m.
LEAVE OAKLAND, *5.40, 6.50, 8.00, 9.10, 10.00, and 11.10 a. m., 12.00, 1.40, 2.50, 3.50, 5.05, 6.20, 7.50 and 10.20 p. m.
ALAMEDA BRANCH.—LEAVE SAN FRANCISCO, 7.20, 9.00, and 11.15 a. m., 1.20, 4.00, 5.30 and 7.00 p. m. (7.20, 11.15 and 5.30 to Fruit Vale only).
LEAVE HAYWARDS, *4.30, 7.00 and 10.45 a. m., and 3.30 p. m.
LEAVE FRUIT VALE, *5.25, 7.35, 9.00 and 11.20 a. m., 1.30, 4.05 and 5.30 p. m.

CALIFORNIA PACIFIC RAILROAD.

Leave S. Fran.	Leave Vallejo.	Arrive at Calistoga.	Arrive Marys'le.	Arrive Sacra'to.
8.30 A M	10.30 A M	*1.30 P M	4.00 P M	1.30 P M
*1.0 P M	3.45 P M	8.15 P M	10.25 P M	8.40 P M
*8.30 A M	10.35 A M	1.00 P M	5.15 P M	.....
Leave Sacra'to.	Leave Marys'le.	Leave Calistoga.	Arrive Vallejo.	Arrive S. Fran.
*7.30 A M	6.00 A M	7.50 A M	10.15 A M	12.15 P M
2.30 P M	*11.30 A M	*2.15 P M	5.30 P M	7.30 P M
.....	†10.45 A M	3.00 P M	5.20 P M	7.30 P M

Sacramento, Davis and Marysville.

Leave S. Fran.	Leave Sacra'to.	Leave Davis.	Arrive Wood'ld	Arrive Mar'ville
8.30 A M	*11.45 A M	12.50 P M	1.25 P M	4.00 P M
*4.00 P M	7.15 P M	8.05 P M	8.35 P M	10.35 P M
8.30 A M	2.30 P M	3.10 P M	3.38 P M	5.15 P M
Leave Mar'ville	Leave Wood'ld.	Leave Davis.	Arrive Sacra'to	Arrive S. Fran.
*6.00 A M	7.35 A M	8.15 A M	9.00 A M	12.15 P M
*11.30 A M	2.30 P M	3.10 P M	4.00 P M	7.30 P M
†10.45 A M	12.30 P M	3.10 P M	1.30 P M	7.30 P M

SAN FRANCISCO & N. PACIFIC R. R.

Leave	*2.00 P M	....San Francisco. .	*11.00 A M	Arrive
.....	4.35 P M	....Donahue.....	8.45 A M	.....
.....	5.00 P M	....Petaluma.....	8.20 A M	.....
.....	6.00 P M	....Santa Rosa.....	7.30 A M	.....
Arrive.	6.45 P M	...Healdsburg.....	6.45 A M	Leave.

CAL. P. R. R. CO.'S STEAMERS.

Leave.	Leave.		Arrive.	Arrive.
*4.00 P M	*4.00 P M	....San Francisco. ..	*10.00 P M	*8.00 P M
6.00 P M	6.00 P M	....Benicia.....	8.00 P M	6.00 P M
.....	2.00 A M	....Stockton.....	2.00 P M	.....
2.00 A M	.....	....Sacramento	.....	12.00 M.
Arrive.	Arrive.		Leave.	Leave.

*Sundays excepted. †Sundays only.
T. H. GOODMAN, A. N. TOWNE,
Gen'l Pass'gr and Ticket Agt. Gen'l Supt.

UNION PACIFIC RAILROAD.

Running from Ogden, Utah, to Omaha, Nebraska—over one thousand miles, without change of cars.
MAKING DIRECT CONNECTIONS
AT OGDEN with the CENTRAL PACIFIC R. R. (from San Francisco); also with the Utah Central R. R. to Salt Lake City.
AT CHEYENNE with the DENVER PACIFIC R. R., for Denver City and the Mining Districts of Colorado.
AT OMAHA, for Chicago, Eastern and other cities, with the Chicago and Northwestern; Chicago, Rock Island and Pacific; Burlington and Missouri River; St. Joseph and Council Bluffs Railroads; also, for St. Louis and all Southern cities.
EXPRESS TRAINS RUN DAILY.—The U. P. R. R. use the Westinghouse patent air brake; Miller's patent trussed platform and elastic car-coupler; and the most approved construction of cars for the comfort and safety of passengers.
PULLMAN'S MOST MAGNIFICENT PALACE SLEEPING CARS attached to express trains.
T. L. KIMBALL,
General Passenger Agent, Omaha.

LUBRICATING OIL,
THE BEST IN THE WORLD!
The attention of the public is called to GRUBER'S NEW PATENT LUBRICATING OIL.
For running Machinery of all kinds it has no equal.
It will not gum, and runs perfectly smooth, cool and clean.
This OIL offers special inducements to Farmers, Livery Stable Keepers, etc.
It will be found far Superior
To any other Oil or Grease now in use, for Carriages Wagons, and all kinds of Farming Machinery.
Mill-men, Printers, and all others having occasion to use a Lubricator, will find a decided advantage in using this Oil—one gallon being equal to two of the best Oil in the market.
Perfect Satisfaction Guaranteed
OR MONEY REFUNDED.
Orders per Mail or Express will receive prompt attention.
☞ Office and Salesroom—
GRUBER LUBRICATING OIL CO.,
Corner Drumm and Market streets,.....SAN FRANCISCO
no25-3m-bp-sa

Mining Accidents.

Edwin Edmonds, a miner in the Idaho mine, was killed by a cave in the shaft, on the 4th inst. Deceased was well known and much esteemed in Grass Valley.

Daniel Schneider recently fell a distance of 20 feet in the Uniou mine, Cerro Gordo, and besides breaking a rib, sustaiued au injury of the spine which has nearly paralyzed his lower limbs.

John Kasher, an employee on the Kansas lode, Nevada, while passing over an old shaft, which was temporarily covered for convenience of stoping in its vicinity, fell, by reason of the planking being insecure, a distance of 60 feet, He struck some obstruction at 20 feet which turned him over and when taken from the bottom it was found that he had fractured his skull and received a number of flesh wounds on his body. It is believed that his injuries will not prove fatal.

An Italian by the name of J. Camari employed in the Gwin mine, Calaveras county, was severely cut and bruised about the head and face, a week since, by the explosion of a blast which hung fire, and which Camari was re-adjusting.

Another accident occurred at the Yellow Jacket mine, in which Samuel Holden working in the 1,100-foot level, was severely injured. Both these latter accidents were from the same cause. The blasts did not go off when they shonld have done so, and the miners went to them for the purpose of seeing what was the matter, when they exploded and hurt the men.

A Winter Musk-melon.

In tbe issne of the Scientific Press of December 3d, 1870, reference was made to a new and singular melon which Mr. R. Marchella, of Oroville, has raised the previous season. They were the only specimens of the kind which had ever been raised in the State, or probably in America, and were the product of about 100 seeds, which bad beeu obtained at much cost and tronble, from some portion of Turkey. The botauical name of tbe melon is given as *Buchiri*. One of these melons has been left at this office where it was cut and devoured. It was plucked from the vine some three months previously, bnt was as sound and perfect as the day on which it was picked, and to all appearance might have been kept for several months longer. The appearance of the melon differs but little from those of the ordinary growtb, except that the skiu is a little darker aud bard, like that of a winter squasb, a fact to which is probably chiefly due its keeping quality. If bung up in a dry and cool place, we are informed, it may be kept good the year round. The taste was of a slightly nutmeg flavor; but with the specimen we tried was not as rich as some of the ordinary melons. Its peculiarity aud great value consists in tbe fact that it will furnisb a genuine and very good musk-melon for the table the year rounnd; as such it is invaluable, and will no doubt be largely sought for.

A year ago the seed conld not have been purchased for love or money—the entire first year's crop being reserved for the importer's own use and propagation. Tbe seeds are for sale at this office.

These melons are for sale by Geo. Hugbes, No. 315 Washingtou street.

With 1872

Commences volnme XXIV of the Scientific Press. Its life of ncarly 12 years, we verily believe, bas saved more to the Pacific States, and imparted more profitable and practical knowledge to porsonal readers tban any other journal in this new and still developing field. We wish to increase our usefulness. We want more subscribers added to our already large list. The publication of such a first-class paper is expensive. We shall make the Press worthy of donble its present circulation this year.

Every old snbscriber who can feel the value to himself and the commuuity of a journal that seeks its patronage through articles instructive, elovating, and interesting, and without trasb or sensation, we earnestly solicit to renew bis own subscription and to speak a good word for the Press to others. Tbe commencemont of a new year and volume is a good time to

Send Us Your Subscriptions.

Jan. 1, 1872.

Forest Destruction.—It is estimated that at the present rate of destruction tbat uot one of the forest pines will remain in either Wiscousin or Michigan in 30 years from this time.

The Best Varieties of Grapes.

At the meeting of the Grape Growers' Association, held at Napa, on the 16th ult., a paper was read by Dr. Lockwood, from the Committe on vines, on the best varieties for vineyard planting. The varieties recommended by the Committee were pure black grapes, Zenfridel and Black Malvoise ; pure white grapes, the Golden Arapelas and Boyer ; pure musk grapes, the Rhenish Muscat. These were commended for their productiveness, although Rieslings would he entitled to the first place, if their good bearing qualities were satisfactorily established.

In response to an inquiry, Mr. Baufetou stated his Grey Rieslings averaged 15 pounds to the vine.

Dr. Crane has found that Rieslings were abundant bearers when trained high. Without high training they were shy bearers. The weight of fruit on a single vine—an exception, of course—thus trained, has hy careful estimate heen placed at 70 pounds. Not only is the Riesling a good bearer, bnt the superior quality of its product gives it special value. He had found, in the East, no difficulty in selling Riesling wine, when that from Missiou grapes was neglected.

Mr. Krug would confine his selection to a very limited variety, naming as his favorites the Rieslings (Schaumherg and Frankling), the Zenfridel and Muscatel. He was aware that these would not suit all localities. Thus Rieslings did not prosper in Sonoma. Mr. Craig confirmed Mr. K's statement of the unsuitahleness of Rieslings to Sonoma. His Riesling vines, trained on stakes, suffered from wind-blast and yielded badly. Col. Walton had no success with his Rieslings while he pursued the practice of low training and short spurs. He now reserves three canes to be tied together at the upper extremities. The increase over his former treatment is 600 per cent. He trains some other varieties (Chepelas, Muscats, etc.) in the same way.

Mr. Harazthy deprecated the especial attention paid to varieties without any consideration of the different qualities of soil. Planting should be done with reference to the adaptation of soils, to produce the qualities of wine desired. At Stockton, wines partook of the character of Port and Madeira. At St. Helena, Claret was indicated by depth of color.

A Trespass Law Wanted.

The following resolutiou was adopted by the Couvention :

Resolved, That this Association earnestly recommend the immediate attention of the Legislature to the Trespass law, already memoralized for, and that the Association invite their special attention to the remedy necessary to carry into effect the proposed law ; that the remedy by action in the courts of justice of this State is not satisfactory, and that a system of pounds, aud the impounding of estrays should he estahlished in each county, dividing the same into districts.

Our Tule Land Levees.

A difference of opinion exists in regard to the stability of the levees uow finished or in course of construction around the delta islands of the Sacramento and San Joaquin rivers. Of course everything depends upon the hight and strength of snch levees; mere hight, without sufficient width of both base and top, will not afford the security desired. Nor nnder certain circumstances will botb of these suffice.

Unless these levees are secured against impinging waters, caused by the natural, rapid flow of tbe rivers, or the washings of tbe waves from passing steamers, their endurance is yet problematical. At the present season of high water the rivers are more thau bank full, with the backing np of the tides, the steamer wave passing freely over that portiou of land between the river hank aud levee is doing considerable damage to a portion of the levee on the east of Grand Island by washing away its base.

This might be almost entirely prevented by setting out and growiug a thick copse of willows on tbe strip of land between the river bank and tbe levee. If more land was given to such border by building the levee further back from tbe river, it would afford far greater security, at the same time that the land could be mado to pay a good per cent. upon its value, in the simple production of willows or other woods for fnel. If tho yellow or golden willow of the Eastern States is not already introdnced here, it sbould be at once, being the most valuable willow for river bank protection in the world.

Pecan Nuts in Texas.—The pecan trees in San Antonio county, Texas, were reported as breaking down with fruit. The crop in that immediate section, it was thought, would bring over one million of dollars; the nuts selling at $2.50 per bushel. The crop in Lonisiana is reported at 25 per cent. over that of last year.

The Five Per-Cent. Law.—In the Senate, Jan. 9th, the bill to repeal this obnoxious law came np, and without debate was passed by the following vote: Ayes, 30; Noes, 7. Senator Duffy gave notice that he sbould move for a reconsideratiou, but it will be quite nseless. The voice of the people throngh the press, has removed the odious law from our statutes.

Daily Record,

By the U. S. Army Signal Service, for the week ending Wednesday, January 3, 1872.

Date and Place of Observation.	Hight of Barometer.	Hight of Thermometer.	Relative Humidity. Per Cent.	Direction of Wind.	Force of Wind reed. to Boufort's Scale. Approximately.	Rainfall since last Report in Inches and Hundredths.	State of Weather
San Francisco.	Thursd'y..31.07	52	66	S. E.	Brisk		Threat'g
	Friday...30.13	47	85	Calm			Fair
	Saturday..30.16	50	86	N. W.	Fresh		Fog
	Sunday...30.00	52	79	S.	Light	.04	Cloudy
	Monday..29.72	51	86	Calm		.45	H. Rain
	Tuesday..29.82	49	85	N. E.	Gentle	.29	Lt. Rain
	Wed'day..30.17	47	77	S.	Fresh		Fair
Sta. Barbara.	Thursd'y.30.22	48	92	E.	Light	.02	Fog
	Friday...						
	Saturday.						
	Sunday...30.10	48	77	N. W.	Light		Fair
	Monday...30.04	48	85	N. E.	Gentle		Fair
	Tuesday..						
	Wed'day..						
Fort Yuma, M. T.	Thursd'y.29.72	21	74	S. E.	Fresh		Cloudy
	Friday...29.52	9	79	S. E.	Gentle		Clear
	Saturday 29.75	13	82	S.	Fresh		Fair
	Sunday...29.60	24	81	S.	Fresh		Cloudy
	Monday..29.63	22	75	S. E.	Gentle		Fair
	Tuesday..	38	66	S. W.	Brisk		Clear
	Wed'day..						
Oroville.	Thursd'y.30.18	31	79	N.	Gentle		Cloudy
	Friday...30.35	29	85	N.	Gentle		Clear
	Saturday..30.26	16	85	N.	Gentle		Fair
	Sunday...30.13	19	85	N. W.	Light		Cloudy
	Monday...30.06	26	76	N. W.	Gentle		Cloudy
	Tuesday. 30.01	41	56	S. E.	Light		Cloudy
	Wed'day..29.96	39	56	S. W.	Fresh		Cloudy
Downieville.	Thursd'y.30.05	30	59	W.	Brisk		Clear
	Friday...30.21	13	79	N. W.	Fresh		Clear
	Saturday.30.06	8	76	W. S.	Light		Clear
	Sunday...29.85	14	61	Calm.			Clear
	Monday...29.88	32	48	N. W.	Fresh		Fair
	Tuesday. 30.01	38	56	Calm			Cloudy
	Wed'day..29.92	34	52	S. W.	Gentle		Fair
Dennett, Cal.	Thursd'y.30.10	31	79	S.	Fresh		Fair
	Friday...30.24	20	85	Calm		.03	Clear
	Saturday.30.13	9	78	S. W.	Gentle		Clear
	Sunday...30.01	13	81	S.	Fresh		Clear
	Monday...30.01	22	85	S.	Gentle		Clear
	Tuesday..30.03	37	53	S. W.	Fre-h		Cloudy
	Wed'day..29.92	44	30	W.	Fresh		Fair
Camp Independence, Nev. Territory.	Thursd'y..30.26	4	74	N. W.	Light		Clear
	Friday...30.11	26	75	N. W.	Fresh		Cloudy
	Saturday.						
	Sunday...30.29	18	84	Calm			Foggy
	Monday...30.21	20	85	S.	Light		Cloudy
	Tuesday..30.10	27	83	S.	Gentle		Fair
	Wed'day..29.96	33	89	S.	Fresh		Fair
Carson City, Nev. Territory.	Thursd'y..30.13	18	67	N. W.	Brisk		Threat.
	Friday...30.08	34	70	S.	Gentle		Clear
	Saturday 30.37	22	85	N. E.	Fresh		Fair
	Sunday...30.35	24	86	N. E.	Fresh		Cloudy
	Monday..31.57	16	83	N.	Fresh		Clear
	Tuesday. 30.36	25	86	S.	Fresh		Cloudy
	Wed'day..						

Sacramento.

[By T. M. Logan, M. D., Secretary State Board of Health.

Jan. 1, 1872. Rainfall for the season to date..12.421 inches
" 10, " " " ...3.030 "

Total for the season up to Jan 10, 1872.....15.451 inchs.

Remarks.—The succession of southeast storms, which set in on the 17th of Dec., last, appears at last to have exhausted themselves, leaving our plains deluged and an ample supply of water impounded on our mountain summits, in the form of snow. At all events the indications, at the present writing, are favorable for clear weather. Wind N. W. and barometer steadily rising.

San Francisco Metal Market.

[Corrected weekly by Hooker & Co., 117 and 119 Cal. street.]

PRICES FOR INVOICES

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

THURSDAY, January 11, 1872

Iron.—Duty: Pig, $7 ₱ ton; Railroad, 60c ₱ 100 lbs; Bar, 1@1½c ₱ lb; Sheet, polished, 3c ₱ lb; common, 1½@1¾c ₱ lb; Plate, 1½c ₱ lb; Pipe, 1½c ₱ lb; Galvanized, 2½c ₱ lb.			
Scotch and English Pig Iron, ₱ ton	$52 50	@	55 00
White Pig, ₱ ton	45 00	@	— —
Refined Bar, bad assortment, ₱ lb	— 04	@	— 05
Refined Bar, good assortment, ₱ lb	— 05	@	— 06
Boiler, No. 1 to 4	— 05	@	— —
Plate, No. 5 to 9	— —	@	— 05
Sheet, No. 10 to 13	— 05½	@	— —
Sheet, No. 14 to 20	— 06	@	— —
Sheet, No. 24 to 27	— 06	@	— —
Horse Shoes	7 50		
Nail Rod	9		
Norway Iron	7½		
Rolled Iron	5		
Other Irons for Blacksmiths, Miners, etc.	5	@	6
Copper.—Duty: Sheathing, 3½c ₱ lb; Pig and Bar, 2½c ₱ lb.			
Sheathing, ₱ lb	— 24	@	— 26
Sheathing, Yellow	— 24	@	— 25
Sheathing, Old Yellow	— 11	@	— 11½
Composition Nails	— 24		—
Composition Bolts	— 24		—
Tin Plates.—Duty: 25 ₱ cent. ad valorem.			
Plates, Charcoal, IX ₱ box	12 00		— —
Plates, I C Charcoal	10 00		10 50
Roofing Plates	11 00		— —
Banca Tin, Slabs, ₱ lb	— —		— 45
Steel.—English Cast, ₱ lb	— 16		— 17
Drill	— 16		17
Flat Bar	17		20
Plough Pointa	3 75		
Russia (for mould boards)	12½		
Quicksilver.—₱ lb	— —		— 85
Lead.—Pig, ₱ lb	— 05½		— 06½
Sheet	— 08		— 8½
Pipe	— 9		— 10
Bar	— 08		— 09
Zinc.—Sheets, ₱ lb	— 10		— 10½
Borax.—Refined	— 25		— 30
Borax, crude	— 5		— —

Mining Companies

Should advertise their Meetings, Assessments, and Sales, in the Scientific Press. Rates more than one-half less than daily publications. Stockholders should take the hint and request their managers to truly economize by advertising in a Mining Journal, where all notices may be seen by cheaply purchasing and examining a weekly. You will thus save money and uphold a journal which upholds your interests.

Our Agents.

Our Friends can do much in aid of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

Wm. F. Spencer—California.
W. H. Murray—General Traveling Agent.
C. H. Winnelle—Special Corresponding Agent.
I. N. Hoag—Sacramento, General Agent.
F. M. Shaw—San Diego.
L. P. McCarty—California.
M. B. Starr—Pacific Coast.
A. C. Knox, City Soliciting and Collecting Agent.

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Besides the studies of the public schools, Algebra, Geometry, Latin, Greek, German, French, Spanish and Book-Keeping are taught.

Terms: Board and tuition, 4 weeks, $30. Students received at any time. George Tait, Oakland, Master Fifth Class. se9bptf

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Roasting of Gold and Silver Ores, and the Extraction of their Respective Metals without Quicksilver, 1870.

This rare book on the treatment of gold and silver ores without quicksilver, is liberally illustrated and crammed full of facts. It gives short and concise descriptions of various processes and apparatus employed in this country and in Europe, and explains the why and wherefore.

It contains 142 pages, embracing illustrations of furnaces, implements and working apparatus,

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The Quartz Operator's Hand-Book; by P. M. Randall. Revised and Enlarged Edition. Cloth bound, 175 pages. Price, $2.

Sulphurets: What They Are, How Concentrated, How Assayed, and How Worked; with a Chapter on the Blow-Pipe Assay of Minerals By Wm. M. Barstow, M. D.; 1867; cloth bound, 114 pages. Printed and sold by Dewey & Co. Price, $1; postage free. The best written work, and most complete work on the subject treated.

Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the Scientific Press we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

Alhambra Hill Mining Company—Location

of works, Alhambra Hill, Pinto District, White Pine County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 9th day of December, 1871, an assessment (No. 1) of 50 cents per share was levied upon the capital stock of said company, payable in United States gold coin on the 13th day of December, 1871, to Henry G. Langley, 612 Clay street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the 13th day of January, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 5th day of February, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. HENRY G. LANGLEY, Secretary.

Office, No. 612 Clay street, San Francisco, Cal. de16

Caution—Eagle Quicksilver Mining Company—Location

of works, Santa Barbara County, Cal.

Notice is hereby given to the public not to purchase or negotiate for the following named shares, designated by the names of the delinquent owners in the Eagle Quicksilver Mining Company. They were duly advertised and sold in full at public auction, as by law, and the articles of agreement provided, by John Middleton and Son, Auctioneers, on Monday, the 8th day of January, 1872, for delinquent assessments thereon and accruing costs of advertising and expenses of sale, and will not be transferred by said company.

Names.	Shares sold.
Bush, A. F.	1
Piochu, F. L. A.	2
Pearson, H. H.	1
Townsend, James B.	2
Sinclair, Peter	1
Williams, Mrs Sarah	1

WM. H. WATSON.

Secretary of Eagle Quicksilver Mining Company, Room 5, No. 302 Montgomery street, San Francisco, Cal.

January 8, 1872. ja13-3t

Kincaid Flat Mining Company—Location

of works, Tuolumne County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 11th day of December, 1871, an assessment of two dollars and fifty cents ($2.50) per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Sec'y, at his office, No. 220 Clay street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Wednesday, the 17th day of January, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the 7th day of February, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. R. H. CORNELL, Secretary.

Office, 220 Clay street, San Francisco. de16-1w

Mount Jefferson Milling and Mining Company—Location of works, First Garote, Tuolumne county, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 8th day of January, 1872, an assessment of Twenty-five cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the company's office. Any stock upon which said assessment shall remain unpaid on Monday, the 5th day of February, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before the hour of 2 o'clock P. M., will be sold on Thursday, the 22d day of February, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. W. CLARK, Secretary.

Office, 418 California street, San Francisco. ja13-4w

Nevada Land and Mining Company—Location, Spruce Mountain, Antelope and Clifton Districts, Elko County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 9th day of January, 1872, an assessment of four cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the company's office, Room 5, No 302 Montgomery street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Tuesday, the 13th day of February, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 4th day of March, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

By order of the Board of Trustees.

WM. H. WATSON, Secretary.

Office, Room 5, No. 302 Montgomery street, San Francisco, Cal ja13-3w

Quail Hill Mining and Water Company—Location of works, Salt Springs Valley, Calaveras County, Cal.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 13th day of December, 1871, an assessment of Five Dollars per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, 409 California street (up-stairs), San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 23d day of January, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 13th day of February, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. F. CRONISE, Secretary.

Office, 409 California street, San Francisco, Cal. d23-4w

Silver Wave Mining Company----Location of works, White Pine Mining District, White Pine county, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 9th day of December, 1871, an assessment of Three Dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the Company's office. Any stock upon which said assessment shall remain unpaid on Thursday, the 25th day of January, 1872, shall be deemed delinquent, and will be duly advertised for sale, at public auction, and unless payment shall be made before, will be sold on Friday, the 23d day of February, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. J.W. CLARK, Secretary.

Office, 418 California St. San Francisco. De30-4w.

Union Gold Mining Company---Location of works, Howland Flat, Sierra county, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 4th day of January, 1872, an assessment of one dollar ($1) per share was levied upon the capital stock of said Company, payable immediately in United States gold coin, to the Secretary, at the office of the Company, Room No. 22, Merchants' Exchange, California street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the 5th day of February 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before will be sold on Monday the 26th day of February, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

ALFRED K. DURROW, Secretary.

OFFICE—Room No. 22 Merchants' Exchange, California street, San Francisco, Cal. jn4-1w.

MINERS, ATTENTION!

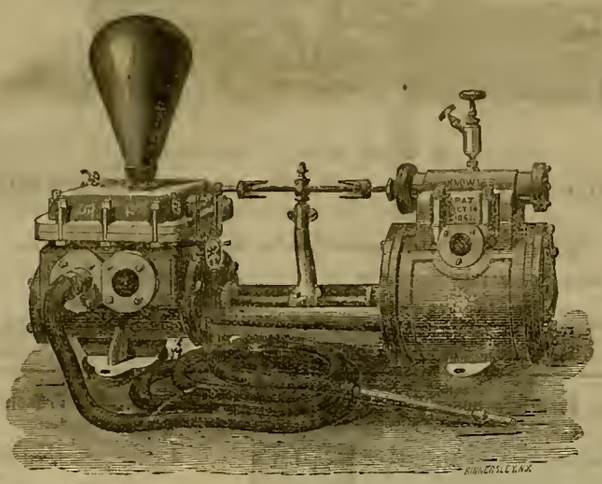
MINERS AND MANUFACTURERS ARE HEREBY cautioned against MAKING, BUYING, SELLING or USING, what is known as R. R. & J. CRAIG'S NEW AND IMPROVED HYDRAULIC JOINT OR NOZZLE, as the same is an infringement upon the invention of the undersigned secured by Letters Patent No. 108,658, dated Oct. 25th, 1870, known as Watson's "Hydraulic Champion," and all parties participating in such infringement will be rigorously prosecuted.

THOMAS WATSON,
Proprietor of Watson's Hydraulic Champion,
Dated Nevada City, Jan. 2d, 1872. 2v24-1m

KNOWLES' PATENT STEAM PUMP.

Awarded First Premium and Diploma

Over all Competitors, at Mechanics' Institute Fair of San Francisco, 1871; also Special Medal and Diploma at State Fair.



It has no Cranks or Fly-Wheel, and has no dead points where it will stop, consequently it is always ready to start without using a starting-bar, and does not require hand-work to get it past the center. Will always start when the steam cylinder is filled with cold water of condensation.

The trial of Steam Pumps at the Eighth Industrial Fair in San Francisco, by a Committee of Five of the most thoroughly practical mechanics on this coast, showed the Knowles Pump to lose but 11⅛ per cent., while others lost as high as 40 per cent., showing great difference in economy.

CENTRAL PACIFIC R. R., OFFICE OF THE GEN'L MASTER MECHANIC,
SACRAMENTO, Cal., April 14, 1871.

A. L. FISH, Esq., Agent of the Knowles' Steam Pump, San Francisco—Dear Sir: In reply to your inquiry as to the merits of the Knowles' Steam Pump, in use upon this road, I will say that we have nineteen of them in use on this road as fire engines, and pumping water for shop and station use. I consider the Knowles Steam Pump the best in use, and prefer it to any other. Yours truly, A. J. STEVENS, General Master Mechanic.

WE BUILD AND HAVE CONSTANTLY ON HAND

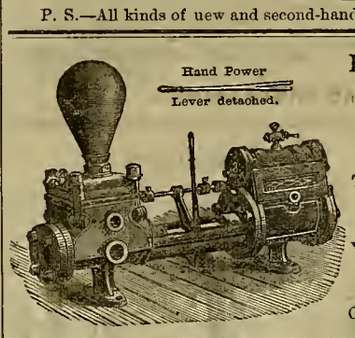
THE LARGEST STOCK OF PUMPS IN THE WORLD,

And for Every Conceivable Purpose.

A. L. FISH, Agent.

No 9 First Street, San Francisco, Cal.

P. S.—All kinds of new and second-hand Machines on hand. 3v24-eow-bp



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Wood-working Machinery, Machinists' Tools, Engineers' Supplies, Etc.

3v24-tf BERRY & PLACE, Machinery Depot, 112 California st., San Francisco.

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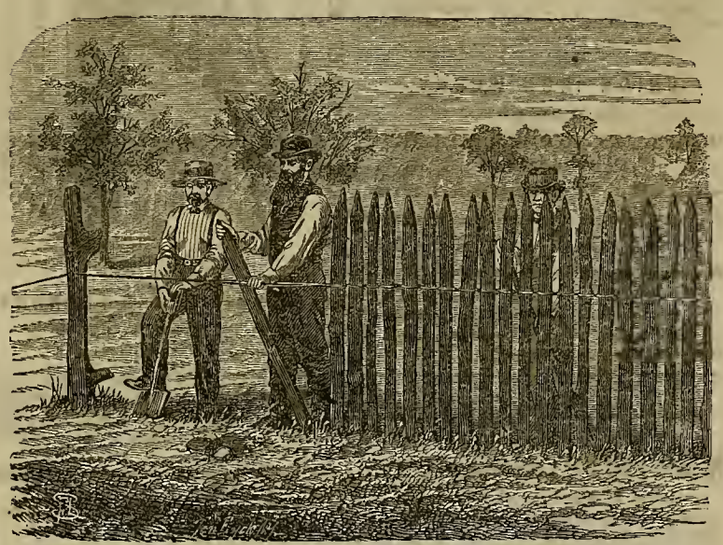

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Names.	No. of Certificate.	No. of Shares.	Am't.
Charles Myrtetus	15	3571	$178 55
Charles Myrtetus	16	3671	178 55
Charles Myrtetus	22	250	12 50
Charles Myrtetus	55	1220	61 00
Charles Bell	1	5955	297 75
Charles Bell	26	2000	100 00
Charles Bell	27	200	10 00
Charles Bell	28	100	5 00
Charles Bell	29	625⅔	31 26⅔
Charles Bell	30	2000	100 00
Charles Bell	31	200	10 00
Charles Bell	32	2000	100 00
Charles Bell	33	20	1 00
Charles Bell	61	2163⅔	108 08⅓
S E Holcombe	24	250	12 50
S E Holcombe	35	4167	208 35
S E Holcombe	59	729	36 45
F W Fratt	25	250	12 50
F W Fratt	62	41	2 05

And in accordance with law, and an order of the Board of Trustees, made on the 29th day of November, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the company, 420 Montgomery street, Room No. 1, (3d story) San Francisco, Cal., on Monday, the 29th day of January, 1872, at the hour of 11 o'clock A. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

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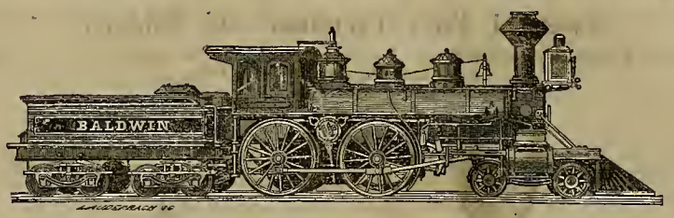

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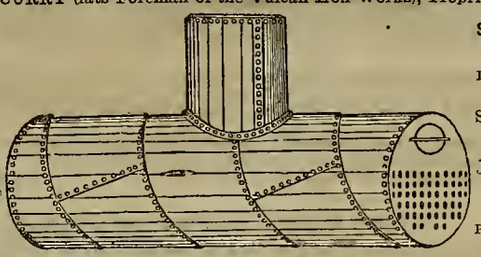

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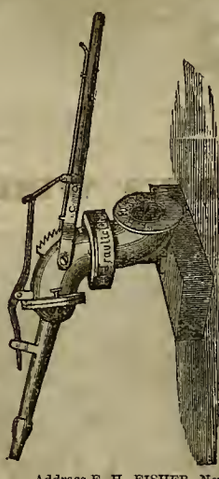

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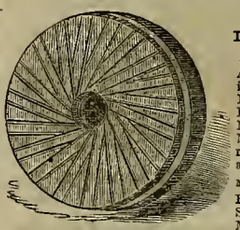

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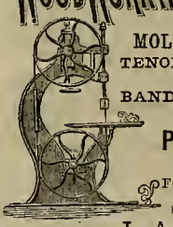

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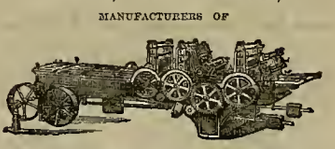

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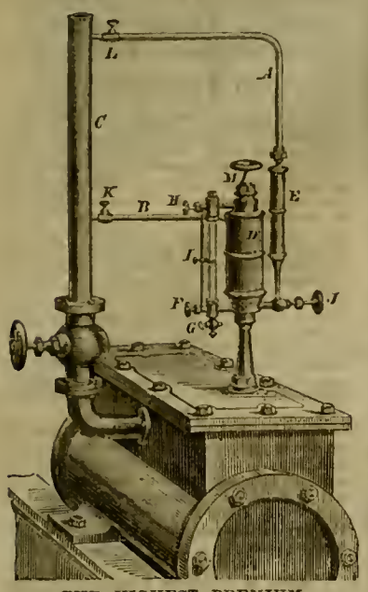

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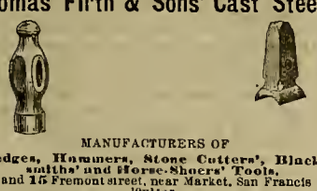

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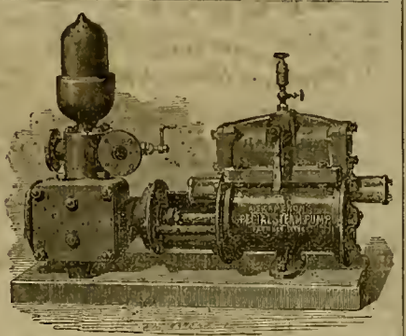

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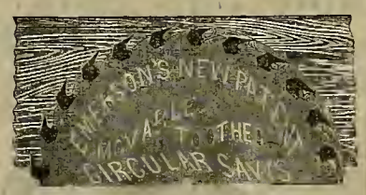

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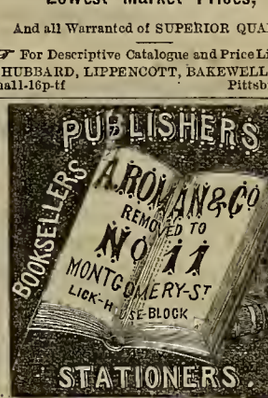

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AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,

Mining, Mechanic Arts and Inventions.

BY DEWEY & CO., Patent Solicitors.

SAN FRANCISCO, SATURDAY, JANUARY 20, 1872.

VOLUME XXIV. Number 3.

Rickey's Improved Bung and Bung Inserter.

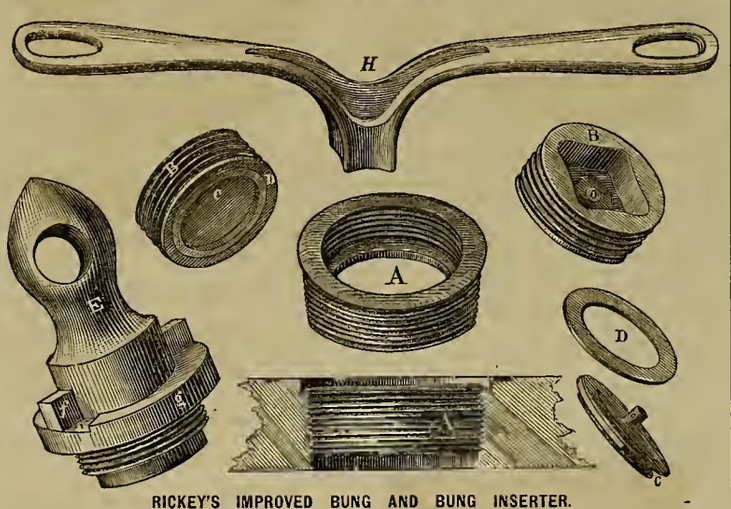
A cheap, convenient and perfectly tight bung has long been a necessity, especially for brewers purposes, where they are liable to leak or be blown out if they are not perfectly fitted and secured. Many different kinds of patent bungs have been offered to the public from time to time, but each of them has been thrown to one side after a short trial as defective or wanting in some particular. The illustration presented herewith represents Rickey's Patent Bung and Bung Inserter, the latter being an instrument devised by Mr. Rickey for screwing the bushing into which the bung or plug fits, into the barrel stave. The bung seems to us to be quite complete and we see no reason why it will not eventually take the place in the market of all others.

By referring to the cuts, it will be seen that the central figure, *A*, is the metallic ring or bushing, which is provided with internal and external screw-threads in the ordinary manner. This ring is made slightly tapering or conical and the threads narrow at the base and quite sharp, so that when it is screwed into a hole of the proper size it will cut its own threads. This may be done by the use of the bung inserter, shown on the left-hand side. The inserter consists of a metal standard, *E*, in the upper end of which is a hole. The base of this standard is made of the same size as the bung and provided with screw threads as shown. Resting upon this base and encircling the standard, *E*, is a ring, *g*, in the upper face of which and opposite each other, are two oppositely inclined depressions, as shown, and passing through the standard so that its opposite ends will rest in these depressions is a bar, *f*.

To use this inserter the base is screwed into the bushing until the ring, *g*, is brought down against the face of the bush. The standard, *E*, is then turned until the ends of the bar, *f*, rest as far as possible up the incline of the depressions. The base is then screwed down until the ring rests upon the face of the bushing. A proper-sized hole having been first made in the barrel stave by means of a bung borer, the bushing is started into it, when, by placing a rod through the hole in the standard as a lever the bushing can be screwed into the hole in the stave until it is snugly down; and when once it has been thus forced down so as to cut its own thread it cannot be started by ordinary means, and will not leak. After the bushing has been firmly screwed down the inserter can be readily removed by turning the standard, *E*, in a reverse direction which causes the bar, *f*, to move to the lowest part of the depression and relieves the pressure on the screw.

In the ordinary bung the washer is merely placed on the projecting seat on the lower end of the bushing and the bung screwed down upon it, thus leaving it free to be washed out every time the barrel is cleansed, and, if left for any length of time the leather becomes hard and adheres both to the seat in the bushing and to the bung so that it is almost impossible to remove the bung. The one illustrated entirely obviates this difficulty and is also provided with more convenient means for being turned. *B* represents a top view of the bung which is cast with a square socket in its upper face, the sides slightly convexed into which the wrench, *H*, is made to fit.

The Fig. marked, *B*, *C*, *D*, shows the bottom of the bung with the disk, *C*, attached by means of the stem as seen at *B*, in the right hand figure. *C* represents a metallic disk, having a projecting flange on its under side around which a groove is turned. The washer (either leather or rubber) is stretched over the lower flange so as to fit in the groove, around the outer edge of the disk and thus be permanently fixed upon it. The stem projecting from



RICKEY'S IMPROVED BUNG AND BUNG INSERTER.

the upper center of this disk passes up through a hole in the bottom of the bung, *B*, as shown, into the socket where a washer is placed over it and it is headed down. By this means the disk is attached to the bottom of the bung so as to revolve independently.

The object of this is to allow the disk and washer, as soon as the washer has touched the seat in the bushing, to remain stationary until the bung is firmly screwed down. When the bung has remained this way any length of time and it is desired to remove it, by unscrewing the bung, the disk and washer will be lifted directly upward by the screws and thus avoid the trouble heretofore experienced on account of its adhesion. *D* represents the washer which is to be stretched into the groove in the disk, and can be made either of leather or rubber as desired.

It will be seen that the bushing, *A*, as shown in the lower cut, sets below the face of the stave. This is done without any preparation of the hole, with the use of but a common bung-borer. The threads of the bushing are sharp, and as said before, the bushing is made slightly tapering, so that by the use of the bung inserter and the leverage obtained by using a bar in the hole in the standard of that tool, the bushing can be screwed down as deep as required.

The importance of this ingenious and useful invention is readily seen when the number of barrels and casks that are used on this coast are taken into consideration, and all made of imported material, causing them to be an expensive article. The wear and tear on barrels is principally on the bung stave, which is always the best stave in the barrel, but nevertheless the first to give out, owing to the difficulty in always finding a bung of the proper size or shape, in consequence of the hole becoming elongated. The wood in the hole presents two different surfaces, one with the grain of the wood at the sides and the other against it. To avoid this it becomes necesssary to frequently bore or burn them out, in order to keep them round. Each operation of this sort necessarily enlarges the hole and weakens the stave, and for this reason the bung in a new barrel is left much too small for convenience. Moreover, if by carelessness or an extra quality of timber the hole is not enlarged by this means, it becomes necessary after awhile to take out the head of the cask to get at the corks that have been driven in.

It will be seen from this that it is difficult to keep these holes of uniform size, and consequently a great variety of different sized bungs are required, and these have to be selected with care for each different barrel, consuming considerable time. These bungs are frequently made of old staves and vary in thickness. The thin ones if a good fit, form a shoulder at the bottom, which, when a thicker one is driven in, is broken and the lower end of the wood around the hole becomes a mass of splinters, rendering it difficult to clean, and liable to leak. The object of the above mentioned improvement is, not only to provide a means that will preserve the bung-stave as long as any other stave in the barrel, but to furnish a safe and reliable bung which will be a great saving of labor. This improvement has been thoroughly tested by all the brewers of San Francisco, and has given general satisfaction. One firm alone in this city, Messrs. Mangels & Co., of the Albany Brewery, have about 1,000 in use, and heartily recommend them. The patent for this device was secured through the SCIENTIFIC PRESS Agency by D. B. Rickey, who may be addressed at No. 111 and 113 Davis street, San Francisco.

A New Stock Board.

The amount of business which has been transacted in mining and other stocks during the past few months in the San Francisco Stock Board and on the streets has been much greater than at any time since its formation. The protracted sessions and heavy business of the old Board has caused considerable dissatisfaction among some of the dealers, who complain that they cannot transact their full business. The meetings of the Board have been necessarily prolonged over the usual time in order to permit the brokers to buy and sell the full amount of their orders. In view of this a number of dealers and brokers convened on Saturday evening last at John Middleton & Son's auction rooms for the purpose of organizing a new Board.

The new organization is to consist of 40 charter members who are to pay an initiation fee of $100 each, and to these may be added at the discretion of the Board, ten special members who are to pay $500 each for that privilege. The name adopted is "The California Stock and Exchange Board." Two meetings are to be held daily—from quarter past 10 to 11 A.M. and from quarter past 2 to 3 P.M. These hours have been chosen so as to permit persons to transact business in the in old Board, which meets after the adjournment of the new one. The price to be paid for placing any stock on the list of the Board is to be $50. With this exception all the rules of the San Francisco Stock Board have been adopted, as they have been found to work well in practice. The following are the 40 charter members:

George W. Ramage, T. J. L. Smiley, John Middleton, E. J. Baldwin, W. W. Lawton, A. Difthat, A. C. Chick, J. F. Crossett, C. Hosmer, B. M Rudsdale, T. J. Poulterer, T. J. Sanborn, F. Wolff, E. L. Smith, R. Broderick, H. S. Logan, E. S. Tibbey, J. McKenty, H. S. Fitch, J. Marina, J. P. Canton, George S. Sorren, M. D. Townsend, W. H. Wright, J. H. Owens, E. J. White, P. H. Phebe, R. T. Kent, Samuel Barrell, Simon Marks, C. A. Kenney, William H. Brown, D. Fay, J. Kloppenstein, W. J. Smith, Samuel Heineman, George Rogers, Charles L. Weller, W. J. Williams, John Harper.

MINERAL DISCOVERIES IN ASIATIC RUSSIA. Mines of extraordinary value are said to have been recently discovered in the province of Semipalatinski, Siberia. Copper mines yielding 60 per cent.; lead mines of 70 per cent.; silver "one-seventh of pure ore" and coal yielding 60 to 90 per cent. of coke are reported.

CORRESPONDENCE.

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[By Our Own Traveler.]

Deer Lodge.

This town is the county seat of Deer Lodge county, and is situated in a valley of the same name. A numher of fine huildings have heen erected during the past year, but, like many other towns on this coast its future prosperity scems to depend on the movements of a certain railroad compauy more than on its owu merits. Still, if the inhahitants would place more faith in the really excellent mines in their vicinity and in the advantages thcy possess in having a fine stock range and a country well adapted for agricultural pursuits, in my opinion a railroad would make much less difference to them than they suppose. The Odd Fellows and Masonic Fraternity are well represented here and their lodges are in a flourishing condition. Two weekly papers are published here, the *New North West* and *Independent*, both excellent puhlications and well adapted to the wants of the community. Through first-class tickets are sold from this place to San Francisco for $115, and second-class for $95.

Gold Production.

In this place are two hanking institutions, hoth huying gold dust from the miners. To give you some idea of the production of gold of this country I will furnish you with a few figures, given to me from the hooks of one of these firms, Bolim & Co., of the amount shipped hy them during four months of this year. For the month of June they shipped 118,000 ozs.; July, 219,000; August, 253,000; September, 109,000, making a total of 699,000 ounces. When you take into consideration the fact, that hesides the other bank here, there are a numher of them in Helena only ahout six hours ride from here, which are all buying dust, and that large quantities are carried away by individuals, the grand total of dollars is enormous. The above firm informs me, moreover, that their shipmeuts have fallen off since last year fully 25 per cent. for the reason that a number of the miuers are shipping direct to thc States and a large amount is being invested in improving and developing mining properties.

The Mines.

There are quite a number of mining districts in the vicinity of Deer Lodge within a radius of 50 miles, and the mines are principally placers. The quartz mincs at Phillipsburg are in a flourishing condition and work is heing prosecuted vigorously. The Speckled Trout miue is one of the principal ones, and developments prove it to be a ledge of more than ordinary richness. Captain Plaisted took out of a mine that he was working last winter $24,000, and last fall he leased a 10-stamp mill with six pans, which will work ores from the Alta and other minee in the district. The process of reducing hase metal ores hy dry crushing, roasting with ealt and barrel amalgamation, has been practically proved a success in this District, and the per cent. of the assayed value of the raw ores saved by mills working free ores.

Pioneer City

Is situated hut a few hours ride from Deer Lodge. It is a flourishing placer mining camp containing four large groceries, two hotels, a good school, two breweries, etc. The gold taken out in the camp is worth from $18.50 to $19 per ounce. Near the city are located many valuable claim; the first I vieitcd was one known as the Pioneer, owned hy Thomas & Bros, 2,400 feet on the bar and 1,500 feet wide. They have two pipes runuing night and day. They clean up weekly from $1,000 to $5,000. The mining ceason laets here from about the 15th of April to November. They have cleaned during the last season in the neighborhood of $60,000. Twelve hands are employed.

A short distance from this is another good claim owned by R. S. Kelly, J. S. Pemberton, and S. Gibhone. The gravel banks vary from 6 to 18 feet in depth and the gold is very coarse. The claim pays handsomely. The property of this claim is three-fourths of a mile long aud 800 feet wide. They uee gum hose, 5 inches in diameter, which will stand a pressure of 200 pounds. These two companies are the two leading ones of the place. A few miles distant is

Yam Hill,

Which is located betweeu Pike's Peak and Pioneer city, and is a very rich camp. The waters furnished to the miners is sold at 25 cents per inch for first head, and 15 cents second head. The miners complain of the high price and say that if it was reduced to 12½ cents per inch it would put three times as many men at work in the diggings during the mining season as there are now. Near Yam Hill is a place called

Pilgrim Bar.

On this bar is a claim owned by Wm. Roes, from which $50,000 were taken out in August, and in September $46,000 (currency). This will give you some idea of the value of the placer mines in the vicinity. There are a numher of other

Mining Localities,

Scattered in different directions throughout this section, all of which seem to he prospering. At the Henderson Gulch a number of men are at work, some of them averaging as high as from $12 to $20 per day to the hand. French Gulch and Fenian Gulch are hoth furnishing their quota to the bullion product of the country. Independence Gulch also contains some good mining ground. The Cable City mines are producing a goodly quantity of "dust." The claims at the Race Track mines are turning out well; they, like most of the others are worked by hydraulic process, hut the expeuse of water is a serious drawback.

W. H. M.

Remarkable Succession of Floods.

How To Prevent Destruction by Floods.

It is a notable fact that, for the past sixty years, commencing with 1812, and concluding with the present year, this continent has heen regularly visited by deluging floods about every tenth year. Iu the winter of 1811-12 the valley of the Mississippi was flooded to such au extent that hoats losing the channel, were drifted into the interior and stranded upon plantations, many miles away from the river. In 1822, ten years later, this coast was visited by the greatest deluge ever known here. In 1832 the valleys of the Ohio and Mississippi were visited by another memorable flood—in fact the waters of the Ohio, at that time, rose to a point never attained since. At the same time the Pacifice coast was deluged, hut not to such an extent as in 1822.

In 1842-'52-'62 and now in 1872 these pluvial visitations have occurred invariably at the close, or rather, at the beginning of every decade as can he proven by living witnesses.

The regular recurreuce of this meteorological phenomenon should be enough to satisfy the most sceptical that astronomers aud other scientists are correct when they affirm that disturhances upon thc sun's photosphere, which occur ahout every tenth or eleventh year, also produce simultaneous disturhances in the electrical currents of the earth and atmosphere, therehy creating storms, tornados, earthquakes, typhoons and devastating floods.

If this he true (and the experience of sixty years, as well as philosophical theory, renders it at least plausible) we may reasouably expect the recurrence of a flood every tenth or eleveuth year and predict its advent with as much precision as we can predict the phases of the moon, or changes of the season.

In view of the absolute certainty of these periodical floodings, it is the duty of people living in the valleys and on the margin of the rivers and creeks, in this State to adopt some plan to save their farms and gardens from heing overflowed and ruined by the rivers. The chiof source of destruction to valley lands hordering the streams, is the ahrasion and wearing away of the hanks by tho swollen waters.

For somo inexplicable reason, an American farmer uever can learn the value of trees and shrubs. Ahout the first thing he doee after enclosing his farm is to chop down, grub up and burn up every natural tree, bush and shruh on the place. Now overy rational person knowe that a loose, loamy eoil, such as we have in California, when not cemented and stayed by the roots of trees and shrubs must necessarily crumhle aud wash away when attacked hy rapidly running streame.

At a venture we suggest that the banks of all the streams in the country subject to abrasion be immediately planted with yellow German willow, or common basket willow of commerce. This shrub grows rapidly from cuttings; has an enormous spread of roots and the more it is cut off the wider it continues to spread. Iu addition to its heing a strengthener of the banks against abrasion, it will, to some exteut be valuable in the manufacture of wicker ware.

We merely suggest this as a starter without stopping to consider its practicability; at any event something should he done to save the land from abrasion by devastating floods, and that too quickly.

Truckee, Nevada.

During a recent vieit to this place I went to see the Truckee Smelting Works owned by Swain & Co., of San Francisco. These large and extensive works are situated on the hanks of the Truckee River. The main building is 30x80 feet, aud the ore house 40x40 feet. There are two furnaces 30 feet high, 4 feet square, and having a capacity of 10 tons, each lined with the best fire hrick from San Francisco. The engine used is 10-horse power. An assay office is connected with the works under the management of M. L. Cross. The hullion is sold to Selhy & Co., of San Francisco. In the last run made, before my visit thcy turned out25 tons of bullion iu 10 days which averaged 148 ounces of silver to the ton. They have a large shed 40x80 feet for storing charcoal, and have on hand for winter use about 25,000 bushels, which cost them 12 cents per bushel. Ores are brought from many districts in Nevada and Utah along the railroad, for reductiou at these works. Mr. Adlington is foremau.

Truckee is one of the best places for the lumber husiness in Nevada, and a large amount of the very hest lumber is cut and eawe dhere. Mr. E. Ellen has a large sawmill from which he turus out shingles, laths and all descriptions of lumber. The Truckee Lumber Co. have extensive works hero also, getting thcir water-power from the river as does the other mill. The sawmill is 50x120 feet and the planing mill 40x120. They make doors, sashes, blinds, etc., and all kinds of building material. The capacity is 80,000 feet of lumher per day when ruuuing full. A turhine wheel of 80-horse power is in use. Tho Truckee Hotel at the railroad depot, kept by John F. Moody, is the hest in thc place and has good accommodations. The city is built up with good substantial edifices.

W. H. M.

The Paul Process at Dun Glen.

Editors Press:—In my last I spoke of the Lang Syne mine, and unwillingly made an error which demands of me another letter in order to set right. The name was all right as its former one but receutly it has been conveyed to the incorporation known as the Great Central Mining Company of San Francisco, of which G. O'Hara Taaffe is President. Sprague & Company to whom I attributed its ownership are the large owners in it however. This mine is now being developed into a mine of some importance. Tho adit tunnel is now in some 225 feet which gives 100 feet of "hacks" to work out. They have two fine strata of pay ore, and have out for hauling to mill some 100 tons of first-class ore and as much more of lower grade. The ore will he worked by the Paul process at Sprague & Company's mill of which I wrote you in my last. This mill has reduced and worked ore with such succese that it is now considered a risk of the metal to work hy the old way. Paul'e new self-feeding and self-discharging pulverizing barrel hae been set to work lately and proves to be a thorough and fast pulverizer and is as great a euccess as his Process. It moves without the least trouble or attention, doing a large amount of work and takes the ore from No. 12 wiro screens. With many other minors I have had my prejudices against "Processes" and uew things, hut I am compelled to accord to Mr. Paul the credit of having hrought forth something radically new, that has genuine merit in it. The hullion of base ores is fine. It gets more metal out of our ores thau pans possihly can, $2 to $1, and runs right along, and why should not one give in to euch stubborn facts. Mr. Paul left here for San Francisco about a week ago, having the eatisfaction of seeing his work a complete success and receiving the good wishes of all, for in connection with the enterprise of Sprague & Company our almost deserted camp is receiving renewed life and an increase of population. Work on the Tulalah is heing pushed ahead vigorously.

Humboldter.

Dun Glen, Nev., Jan. 11th, 1872.

How to Keep From Freezing.

Editors Press:—I have heard of many persone throughout the mountains getting their hands and feet frozen while traveling; of course they are away from houses, or material for the speedy kindling of a fire, and before they can get to shelter or timher, frost does its work. Now my object in communicating this to the Press, is that a slight protection against such mishaps may receive a wide circulation, in mining localities situated far back in the mouutains, where snow is the deepest, and cold intense. At South Pass, in the winter of '68, I tricd the method, here given, and found it a good one.

Take an ordinary "Dark Lantern" and fasten it at the waist, in front of the person; have the coat, cloak, or hlanket to cover it, so that if riding or walking the hands can be placed directly on it; have the vessel that contains the oil so fastened that it will not jostle ahout, even if you should jump up and down, or fall down. Use oil in hurning.

The one I used was a small affair, and had a contrivance to close over and obscure the light, and also an arrangement fixed so that a belt could he passed through it, and around the waist, thereby holding it firmly in its place. It is then convenient for the hands, and in an extreme emergency it can be taken off and the feet warmed.

For persons who have a long distance to travel, a small canteen could he filled with oil, and slung over the shoulders, a supply would then be on hand to replenish the lamp or to aid in kindling a fire, if nccessary. It ie a fact that most persons are frozen, wheu out doors, while in the act of kindling a fire; the material is either damp, covered with snow and ice or a light cannot he etruck; and it is frequently the case, that not until the last minute do they conclude to build a fire. With one of these dark lanterus—commonly called a "Bulls-eye"—and a little oil the traveler has constantly with him a fire. True, it is but a small blaze, but what a delight that hlaze can create in the feeling of loet and cold travelers!

Another advantage gained by having along this little companion on a dark night, is that the sliding door can he opened, and the light'e rays, concentrated through the thick glass in front, thrown along the pathway and the correctness of your route determined, or any obstruction laying in your way seen and ite passage or removal accomplished.

The advantage of this little lantern cannot be fully understood, or rather appreciated until one is caught far from settlements in a cold dark night.

If I may, through these few instructions, be the cause of saving any one from freezing, the mere knowledge will he a pleasure to me through life. N. L. Turner.

Ophir City, U. T., Jan., 1872.

The Cost of Epidemics.—The statistics of small-pox, as it has been raging in London, are frightful, and, all things considered, mortifying, since they show that man is such a fool that he cannot profit hy the knowledge which Providence, or his own luck, vouchsafes to him. Notwithstanding the assured safety which vaccination offers, not less than 5,000 persons have died of the diseaso in London, while at least 100,000 have been maimed, disfigured and pauperized. The money cost to the metropolis of the epidemic has not heen less than $500,000. But this disregard of ordinary precautions is, perhaps, no greater, though it may, perhaps, he hetter defiued than the reckleseness which courts the advance of cholera by neglecting a few simple sanitary precautione. One would think that, as a race, we hated life, instead of loving it too well. Our theory ie that to its preservation all other things must defer; the law allows every one to defend it, and hangs those who unlawfully take it; but for all thie we go on risking it and loeing it, as if we had ninety-nine existeuces at our disposal instead of one.—*Medical and Surgical Reporter.*

Heavy Wheat.—Culpepper county, Va., *Farmer* eaye, that from three quarts of the Touzelle wheat sown on one-tenth of an acre, he harvested five bushels, weighing 66 pounds to the bushel. It ripened June 1st, about eight days earlier thau other varieties.

MECHANICAL PROGRESS.

Machine Puddling a Success.

No improvement in modern days has been more earnestly desired by the iron trade than a successful, practical machine puddler. The attainment of such an invention can not be considered of any less value than the Bessemer process of making steel. Various devices have been tried with greater or less success, the most promising of which have been based upon the principle of employing a rotary chamber in which to perform the work. Such devices have been tried both in this country and in Europe, and have been found perfectly practical with the single exception of the difficulty attending the procurement of a durable lining for the chamber.

During the past year, success in this important particular has been claimed by a Mr. Danks, of Cincinnati, who has devised a lining which is said to fully meet all reasonable requirements. Mr. D., after putting such a furnace into successful operation in Cincinnati, went to England, of which country he is a native, and explained his process in an elaborate paper, read before the Iron and Steel Institute. His deportment was such as to secure the confidence of that association to such an extent that it appointed a committee of experts to return with him and thoroughly examine into the merits of the alleged invention. This commission left England early in October last, taking with them about 40 tons of different kinds of English pig-irons, (such as they had unsuccessfully experimented with,) to be operated on as a crucial test. This commission has telegraphed to England, as stated in our issue of last week, that they had found the invention a complete success, a result which will at once insure its general adoption in England and on the Continent.

The Dank's Furnace,

Aside from its obvious general mechanical arrangement and construction, consists of rotating upon a horizontal axle one end of a chamber which communicates with a furnace in which the flame is urged by fan-blasts, and the other with a flue; this latter being closed by a detachable head while the apparatus is in use. The rotation of the chamber, duly charged with molten pig, of course insures the requisite movement of the metal, and consequently the results commonly obtained by the action of the puddler's tool. At the proper stage of the process, the head of the chamber is taken off, the flue moved aside out of the way, and a large fork suspended from a crane is thrust in. A few turns of the chamber then causes the ball to adhere to the fork, and the latter being withdrawn conveys the ball to the squeezing machinery. The method of lining this chamber is described as follows:

"The foundation for the lining consists of a mixture of pulverized iron ore and pure lime, worked with water into the consistency of a thick paste. Upon the completion of the initial lining, a quantity of pulverized iron ore, about one-fifth of the total amount required to line the apparatus, is thrown in, the furnaces is heated and made to revolve slowly until the iron is found to be completely melted, when the apparatus is stopped. That part of the molten iron which has not been consumed by glazing the initial lining surface runs to the lowest level of the furnace, and there forms a pool, into which there are put a number of small and large lumps of iron ore of such dimensions as will be required to allow the said lumps to project over the surface of the liquid ore by from two to six inches. This part of the lining is allowed to set, when a fresh quantity of pulverized ore is thrown in. The furnace is again made to rotate slightly until the newly added ore is liquefied, when the apparatus is again stopped, and the pool filled with lumps as before. The operation is continued in this way until the whole of the vessel is properly lined. From 2 to 2½ tons of iron ore are required to line a 700 lbs. furnace.

The London *Mining Journal* in alluding to the reported success of this invention, says: "The news appears too good to be true. The problem will, however, soon have its solution. We shall then know if in the United States there is at work a rotary puddling furnace which, although not very different from that with which Mr. Menelaus has been experimenting, yet has distinguished itself with important difference of having been a success, while the British machine cannot be so regarded."

Our cotemporary has ere this found the "news" both "good" and "true," and the meeting of the Iron and Steel Association before whom Mr. Danks read his paper, already referred to, will become, as the *Journal* said it would, if the expectations thus raised were realized, "more memorable in the history of this iron trade than that meeting in Cheltenham, at which Mr. Bessemer read to the British Association his famous paper, will prove to the steel trade."

It thus appears that this American invention is destined to take its place foremost among the improvements adopted by the greatest iron-making country in the world. The real value of the principle is shown not only in the doing away of the severe manual labor in the puddling operation, but also in the production of larger balls at a single heat than could be done by the old method; in an increased economy of fuel, and a greater yield of iron from a given grade and quantity of ore. In the furnaces at Cincinnati, puddled balls ranging from 650 to 1,000 pounds are conveniently made, and no special difficulty appears to have been met with in forming into a single ball the product of a heat of 1,400 pounds.

The iron is charged into the furnace either in a solid or molten condition. When charged in the shape of pig-iron, the melting down occupies from 30 to 35 minutes, during which a partial rotation is given to the furnace from time to time in order to expose equally all sides of the charge to the flame. When the whole of this is thoroughly melted, the furnace is made to rotate only once or twice per minute during the five or ten minutes, in order to obtain the most perfect action of the cinder upon the molten iron. But this article has already become quite too long to admit of any further details of the process at this time.

PULVERIZED FUEL—A SERIOUS DRAWBACK.—An "eminent engineer," who has had some experience in the use of pulverized fuel, says that although perfectly successful at first, it grew gradually unsatisfactory from the glazing produced upon the flues, grates, etc.; the percentage of silex, etc., which in ordinary stoking and burning is carried off as slag and refuse, being carried against the throat, etc., brings on a vitreous diptheria which is fatal to the flues. It is intimated in reply that in the use of this kind of fuel, much will of course depend upon the character of the material. If the refuse is easily vitrified, then the result described may possibly occur; but, if the refuse is not easily vitrified, it will be carried out of the chimney in the form of dust. Pulverized fuel has been successfully used by several establishments for a year or more, and is no doubt the most economical way in which coal can be used, when the objection above referred to does not interpose. By reference to another column it will be seen that the principle is about to be introduced into one of the principal machine shops in this city.

IMPROVED CONSTRUCTION OF SHEET-IRON STACKS.—Sheet-iron stacks, especially for heating and puddling furnaces, are now being made in separate rings, instead of one whole length as formerly. Each ring has a band of flat bar-iron—horseshoe bar—about two inches from the lower edge, firmly riveted, and by which each is supported as it fits into and rests on the edge of the one next below. By making the stack in this way in short sections, it can be more conveniently erected, and also can be repaired by renewing any worn-out part or burnt section at less cost and much less labor than when otherwise constructed.

SPEED OF OCEAN STEAMERS.—The steamship *Oceanic*, of the new "White Star" line, during a late trip from New York to Liverpool, ran 384 knots in a single day, which is spoken of by some of the newspapers as being the greatest distance ever made in twenty-four hours. This, says the *American Artizan*, seems to be a mistake, for we find by reference to our records of the passages of steamers, that the *City of Baltimore*, of the "Inman" line, ran 385 miles in twenty-four hours, in the year 1866.

IRON SHIP-BUILDING IN THE UNITED STATES.—No iron ships were built in the United States in 1867. In 1868 six small vessels were constructed, having an aggregate of 2,800 tons; in 1869 ten were built, of an aggregate of 4,584 tons; in 1870 fifteen, with an aggregate burthen of 8,281 tons; and in 1871, up to the middle of November, twenty were constructed, measuring an aggregate of 15,479 tons. Of the twenty iron vessels built during the year ending January 31, 1871, nineteen were steamers.

SCIENTIFIC PROGRESS.

The Force of Life.

There have been writers who affirmed that the pyramids of Egypt were the productions of Nature. We now regard them as the work of men's hands, aided by machinery of which no record remains. The blocks in this case were moved by a power external to themselves, and the final form of the pyramid expressed the thought of the human builder.

Let us pass from this illustration of building power to another of a different kind. When a solution of common salt is slowly evaporated the water disappears, but the salt remains behind. At certain stages of concentration particles, or molecules, as they are called, begin to deposit themselves as minute solids, so minute, indeed, as to defy all microscopic power. As evaporation continues, solidifications goes on and we finally obtain a mass of salt of a definte form.

What is this form? It sometimes seems as a mimicry of the architecture of Egypt. We have little pyramids, terrace above terrace forming a series of steps resembling those of the pyramids. The human mind is as little disposed to look at these little salt crystals without further question as to look at the pyramids of Egypt without inquiring whence they came. How, then, are those salt pyramids built up?

Guided by analogy, we may suppose that swarming among the constituent molecules of the salt there is an invisible population, guided and coerced by some invisible master, and placing the atomic blocks in their positions. This, however, is not the scientific idea, nor do I think your good sense will accept it as a likely one. The scientific idea is that the molecules act upon each other without the intervention of slave labor; that they attract and repel each other at definite points, and in certain different directions, and that the pyramidal form is the result of this play of attraction and repulsion. While then the blocks of Egypt were laid down by a power external to themselves, these molecular blocks of salt are self posited, being fixed in their places by the forces with which they act upon each other.

I take common salt as an illustration, because it is so familiar but almost any other substance would answer equally well. In fact, throughout organic Nature, we have this structural energy ready to come into play. It is present everywhere. The ice of our winters and of our polar regions is its hand-work, and so equally are the quartz, feldspar and of mica of our rocks.

This tendency of matter to organize itself, to grow into shape, to assume definite forms in obedience to the definite action of force, is all-pervading. It is in the ground on which you tread, in the water you drink, in the air you breath. Incipient life, in fact, manifests itself throughout the whole of what we call inorganic Nature.

The forms of minerals resulting from this play of forces are various and exhibit different degress of complexity. Men of science avail themselves of all possible means of exploring this molecular architecture. For this purpose they employ as agents of exploration, light, heat, magnetism, electricity and sound. Polarized light is especially useful and powerful here. A beam of such light, when sent into the molecules of a crystal, is acted on by them and from this action we infer with more or less clearness the manner in which the molecules are arranged. The difference, for example between the inner structure of a plate of rock-salt and a plate of crystallized sugar is thus strikingly revealed.

And now let us pass from what we are accustomed to regard as a dead mineral, to a living grain of corn. When it is examined by polarized light, chromatic phenomena similar to those noticed in crystals are observed. And why? Because the architecture of the grain resembles in some degree the architecture of the crystal. In the corn the molecules are also set in definite positions, from which they act upon the light. But what has built together the molecules of the corn! I have already said, regarding crystalline architecture, that you may, if you please, consider the atoms and molecules to be placed in position by a power external to themselves. The same hypothesis is open to you now. But, if in the case of crystals you have rejected this notion of an external architect, I think you are bound to reject it now, and to conclude that the molecules of corn are self-posited by the forces by which they act upon each other. It would be poor philosophy to invoke an external agent in the one case, and reject it in the other.

But, I must go still further, and affirm that in the eye of science the animal body is just as much the product of molecular forces as the stalk and ear of corn, or as the crystal of salt or sugar. Many of its parts are obviously mechanical. Take the human heart, for example, with its exquisite system of valves, or take the eye or hand. Animal heat, moreover, is the same in kind as the heat of a fire, being produced by the same chemical process. Animal motion, too, is directly derived from the food of the animal.

As regards matter, the animal body creates nothing; as regards force, it creates nothing. Which of you by taking thought can add one cubit to his stature? All that has been said regarding the plant may be re-stated with regard to the animal. Every particle that enters into the composition of a muscle, a nerve, or a bone, has been placed in its position by a molecular force; and unless the existence of law in these matters be denied, and the element of caprice be introduced, we must conclude that, given the relation of any molecule of the body to its environment, its position in the body might be predicted. Our difficulty is not with the quality of the problem, but with its complexity; and this difficulty might be met by the simple expansion of the faculties which man now possesses. Given this expansion, and given the necessary molecular data, the chick might be deduced as rigorously and as logically from the egg as the existence of Neptune was deduced from the disturbances of Uranus, or as conical refraction was deduced from the undulatory theory of light.—*Condensed from a lecture by Tyndall.*

Iron Electrotypes.

The art of electrotyping, says a contemporary, already applied to myriad uses, shows constant evidence of progress, especially in the successful deposition for practical purposes of metals that have hitherto been considered intractable. Nickel-plating is now common, and, while cheaper, is for some purposes superior to silver; and there is some reason to suppose that by the employment of a small percentage of some other metal to diminish the brittleness, the rather refractory nature of the nickel coating may be brought more completely under the control of the burnisher, in lieu of the polishing wheel, than is now the case.

There are many purposes, however, for which a plating of iron would be, all things considered, better than any of those now familiar in electro-metallurgy; and to secure this has occupied the attention of some foreign experimenters, who have, apparently, been very successful in their efforts.

At the late London International Exhibition (1871) were exhibited bank-note plates, medallions, and a page of printing-type, electrotyped in iron, by a process devised by M. Eugene Klein, who is at the head of the Chemical Department in the Imperial State Paper Manufactory in St. Petersburg.

The advancement of the iron electrotype to a practical success has not been accomplished without the expenditure of much thought and experiment, and many difficulties have had to be surmounted; but the scientific interest which attached to the new development, and the eminently useful applications of which he saw it was susceptible, especially in the departments of engraving and printing, stimulated M. Klein to continue his experiments, against what appeared to be almost or quite insurmountable hindrances.

His starting point was the steeling of engraved copper-plates, which process was effected in a bath composed of chlorate of ammonia and iron, to which he added a small quantity of glycerine. On leaving the bath the iron is as hard as tempered steel and very brittle. Reheated it loses much of its hardness, and becomes malleable at cherry red, when it may be cut with the graver as readily as soft steel.

Of the importance of the practical application of the process there can be no doubt whatever. By replacing plates of copper by those of iron, greater facilities will be afforded for producing publications, works of art, and especially bank-notes and checks. Iron electrotype plates are found to be almost indestructible in the process of printing, while copper soon wears out—much sooner, in fact, than wood. A late issue of *Engineering* gives in detail the experiments through which this important process has advanced to a condition of high practical value.

Mining Summary.

The following information is condensed mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

Monitor *Miner*, Jan. 3: Work is going on at both quartz mills as fast as possible under the circumstances.

Changed Hands..—Silver Mt. *Chronicle*, Dec. 30: Several valuable mines in Scandanavian Cañon, Silver Mt. Dist., have this week passed into the hands of English capitalists.

Schenectady (Tarshish) M. and M.—The mill is rapidly approaching completion. It would have been ready to commence work on New Years Day had it not been for the impossibility of obtaining a sufficient number of skilled mechanics. It is, however, expected it will be in running order early in Feb. The machinery consists of 20 stamps, 650 lbs each, which will work at the rate of 90 blows per minute; 6 amalgamating pans of a capacity of from 2,000 to 3,000 lbs to the charge. There are 3 settlers, 7 ft. in diameter, with clean-up pan, etc.—all driven by a 60 horse-power engine, with two fine boilers capable of generatiug steam iu considerable excesss of the present anticipated requirements of the mill. The roasting furnace in connection with the mill is on the revolving principle. The mine is lookiug well; much first-class ore is coming out of the lower tunnel, assays of which run from $100 to $1,000 per ton. It is expected this tunnel, with the 150 ft. level, will furnish sufficient ore to keep the mill running at the rate of 20 tons per day, without touching the large body of reserves in the upper works for some time.

AMADOR COUNTY.

Rich Strike.—Amador *Ledger*, Jan. 13: On Tucsday last, workmen in the third etope in the Kennedy, struck the richest rock ever yet discovered in that mine. The main ledge in tbis stope, is 9 ft. in thickness, and the whole body of rock equal to the best avcrage rock iu the country. In addition to the main ledge, on the day above stated, a strata of rock about 13 iuches thick was discovered on the foot wall of extraordinary richness—we were shown a piece of the rock from this strata, weighiug 3¾ lbs, literally filled with the precious metal, estimated at $40 in value.

Gold Brick.—We were sbown by P. Reichling's assayer, a gold brick of the value of near $8,000, the result of 16 days run of the mill, on rock taken from the Kennedy mine.

CALAVERAS COUNTY.

Thorpe Mine.—Calaveras *Citizen*, Jan. 6: Matters are progressing favorably with the Thorpe Mine, at Fourth Crossing. The battery is kept running night aud day, and about 40 tons of rock have already been crushed. The mine is flooded, but there is rock enough out to keep the battery going for 6 weeks or more. New hoisting works are being erected.

Sandy Gulch.—Calaveras *Chronicle*, Jan. 15: The mines, so far as the rich placers are concerned, arouud this camp are nearly worked out. But there have been several new quartz discoveries made of late. The latest discovery of a mineral character, was made hy C. Brown, who accidentally found a lead that will prove to he a rich and valuable mine. It is in the "Devil's Half Acre," a short distance from the Old Store. As soon as the roads are again in a passable condition, the necessary machinery for the development of the mine will be placed in position aud set to work. The main shaft is down 25 ft., and the lead from 25 to 30 inches in width, showing free gold in almost all the rock taken out. The old Woodhouse mine is being worked with renewed energy. From 25 tons of rock taken from the miue and worked at the mill of the proprietor, $1,400 was obtained. The owners expect to take out 500 tons of first-class ore this winter. The rock beiug takeu out is of excellent quality. The "Big Mine," just across the South Fork is getting along nicely. The shaft is down 200 ft. and ore of an excellent quality is being taken out of tbe levels heing run. The ledge is wide and well defined.

Gwin Mine.—Operations at the Gwin mine will he resumed next Monday.

Sluice Robberies.—The sluice hoxes of Domingo & Co. and Mike McGrath, engaged in mining operatious at Buckeye, were robbed on Saturday last. Domingo & Co. lost from 10 to 12 ozs. of dust. We have not learned how much McGrath lost.

NEVADA COUNTY.

Little Deer Creek.—Nevada *Transcript*, Jan. 14: The Murchie Bros. have started work in their hydraulic claims between Little Decr creek and the Red Dog road. They are running 2 hydraulic monitors, and employ 12 men.

The Murchie quartz mine near Little Deer creek, is also heing worked. They have about 40 tons of rich rock at the mill, but the roads are so had that they are prevented from hauling. The mine continues rich.

Pittsburg Mine.—The Pittshurg mine, has not been impeded in work in the least hy water, during the late storms. The mill is kept in constant operation and the rock which is heing taken out is first rate.

Banner Mine.—The mine is looking well and men are at work in the 400 ft. level.

Perrin Mine.—The Perrin mine on Wolf creek, below grass Valley is looking splendidly. They are taking out rock at the rate of 24 tons per day when the mill is kept at work. The rock is rich and tbe expense in working is light.

Location.—Fayette Battis & Co. have located 6 claims for mining purposes on the North Fork of the Diamond creek, below the F. Meister claims, in Washington township.

North San Juan.—Cor. same: The mines at this place, Manzanita Hill, Birchville, French Corral, Empire Flat, Kennebec Hill and Moore's Flat are all in successful operation, and reports say, all of the Co's. are doing well.

The American claims at Manzanita hill, withiu a mile of this place, are, and have been for months past, paying immmensely

At Columbia Hill, recently a company has been organized, to construct a tunnel from a point near the South Yuha river, about half a mile above Cooper's hridge, and extending from thence to the mining ground of the Co. about 2,000 ft. distant from the starting point.—When completed, this tunnel will drain all the mines at and uear Columbia Hill, Kennebec Hill and in those neighborhoods, for it is the intention of the Co. to commence the tunnel low enough to work that entire country.

Hydraulic.—Grass Valley *Republican*, Jan. 14: The Baltic Gravel M. Co., near Randolph Flat, are actively at work hydraulicing. They employ 7 men, and have an abundauce of water.

Quartz.—The owners of the Wyomiug ledge on Wood's ravine, 2 milee from Nevada, have 250 tons of quartz out ready for crushing. The rock it is said will average $25 a ton.

PLACER COUNTY.

Ophir.—Cor. Placer *Herald*, Jan. 13th: On the Greene mine, Green & Co , bave erected a douhle engine, one for hoisting the dirt and ore from the shaft, and the other for pumping purposes. Some time ago the Co. let a contract to parties to sink the shaft 100 ft. deeper. The contractors are getting along very well, and will complete their contract by early spring. The ledge in the shaft is of good size, looks well and will pay rich.

We will follow along the Green ledge and the next mine in operation is the original Peter Walter mine. This Co. bas erected steam hoisting workson their mine and have a 25 horse-power engine. The levels that are heing run are at the depth of 116 ft. from the surface, and they find no variation in the quality or quantity of the rock, it contiuuing to look well, the quartz sbowing free gold and plenty of rich sulphurets. The ledge is a good size, and in a short time the mine will be opened thoroughly. The Co. contemplate erecting a 10-stamp mill as soon as the weather will permit.

North of the Peter Walter some 300 yards is the Bellevue, origiually the Buckeye. This Co. have at their dump pile near 500 tons of ore that is No. 1. I have no doubt but what they will realize from this rock $15,000 in free gold, and prohably $5,000 more in sulphurets. They intend to crush this oar at the St Patrick mill, and will hegin ahout the 20th of tbis month. The Bellevue Co. are still raising rock to the surface.

The St Patrick mill contains 15 stamps, and with all the improvements, sufficient to save the gold and adequate pans to work the blanket washings and sulphurets. This mill is run by steam, and in connection with it the Co. havc a ledge called the Perchy that they are prospecting with a tunnel and shaft. The tunnel will cut the ledge about 130 ft. from the surface. The shaft is down to the depth of 75 ft., and they are running a level at this depth and finding a good sized ledge and good ore. The St Patrick mine is still in operation; they are running a bottom level with a good prospect. They are crushing ore from this mine at their mill, and judging from appearances, it is paying very rich. They have a large pile of ore at this mine which they will finish crushiug as soon as they get through with the Bellevue rock.

Nevada.

EUREKA DISTRICT.

Bullion.—Eureka *Sentinel*, Jan. 7: Our furnaces are doing excellent work, and turning out an immense amount of hullion daily. The Richmond, Eureka Cons., and Phenix have each made extraordinary fine runs for the past week.

Nearly Completed.—The new furnaces of the Richmond Co. are nearly completed and will in a few days he ready for active service.

Eureka Cons.—Four thousand tons of ore are now on the dumps and at the furnaces.

The Richmond.—As explorations are exteuded and depth attained, the same mammoth, unbroken mass of ore is everywhere met with. Within the last two weeks a winze 30 odd ft. deeper than the old or lower workings has been sunk, which demonstrates the continuity of rich smelting ore in unlimited quantities to that depth, and the end is not yet. Drifts have also hcen run at right angles with the general course of the vein, estahlishing the average width of the deposit at this point to he not less than 134 ft.

ELY DISTRICT.

Bullion Shipment for Dec.—Pioche *Record*, Jan. 4: During Dec. 203 bars of bullion, valued at $333,659.76 were shipped from this Dist. W. F. & Co. shipped since Dec. 31st., hullion valued at $18,680 07.

Red Cloud Ledge is on the mountain side about 700 ft. above the Washington & Creole mine. Tbe shaft is down 15 ft. deep. Last week a contract was let to sink 60 ft. deeper. After the work was commenced and the old shaft cleared, the contracters sunk about 8 ft., when a 4 ft. ledge was struck. The walls are hard and smooth, of quartzite, and pitch nearly perpendicular. An assay made from an average sample of ore, or what was supposed to be an average sample, gave $840.56 in silver and $50.23 in gold, making a total of $890 79 per ton. Work will be prosecuted from this time forward until the the miue is fully developed.

REESE RIVER.

Bullion from the El Dorado South.—Reese River *Reveille*, Jan. 6th: W. F. Leon Supt. of the El Dorado South Mine of Belmont, started the Stetefeldt mill on the 25th of last Oct., since which time up to Dec. 31st, he had shipped 107 hars of hullion, valued at $52,181.45. During a run of 25 days iu Dcc. his shipment amounted to 43 bars, of the value of $22,509.39. The Pacific Co. have shipped 16 bars of hullion valued at $14,513.39. Paxton & Co. shipped during 1871, 492 hars of bullion of the value of $309,910.50 and during Dec. 68 hars of hullion valued at $40,224.80. Twelve bars of bullion, valued at $6,050.47, were shipped from the Montezuma mill during Dec.

Oregon Mine. —Recent workings of ore from the Oregon Mine, gave the following yield of silver per ton; lot one, 5 tons, $680.19; lot two, 9 tons, $433.34; lot three, 7¼ tons $313.38.

Diana Mine.—Three tons of ore from the Diana Mine worked last week, returned $696.63 per ton.

Ophir Canon.—This once lively camp is very quiet, though some work is still being done.

WASHOE.

Sutro Tunnel.—Virginia *Enterprise*, Jan. 7: The Tunnel was yesterday in 2,670 ft.; ground hard. Sbaft No. 1 is down 55 ft.; ground good. No. 2 is down 58 ft., and is also in ground that works well. No. 3 is down 40 ft.; ground hard. No. 4 is down 45 ft.; ground is also bard.

The Savage last week yielded ore to the value of $14,035.74.

At Dayton, Janin's mill—running on tailings—has again started up.

The Yellow Jacket mill, Carson river, started up 20 stamps last Saturday. Other mills are still eugaged in repairing damages to flumes, dams, etc.

Eureka Mill.—Work upon the new Eureka mill, Carson river, is heing vigorously prosecnted. The frame is up and the huilding nearly inclosed. The battery timhers are framed and in place, and all the other timher-work is fast advancing toward completion.

Rye Patch.—Reno *State Journal*, Jan. 6: The Butte M. & M. Co. of that place have resumed operations, and the Alpha Co. have struck a rich hody of ore. The Butte Co. have heen offered $120,000 for their mill and mine.

The Mills.—Carson *Register* Jan. 10: The Morgan mill near Empire City, is now running 30 stamps on high grade ore from the Crown Point mine. Both the Brunswick and Mexican mills (56 and 40 stamps respectively), belonging to the same company, will be ready to start up early next week, the damages hy the late floods having heen repaired.

WHITE PINE.

Eberhardt & Aurora Co's Works.—White Pine *News:* A few days ago we visited the mines and works. In the Ward Beecher we first descended to the bottom of the open cut, a distance of 45 ft., where the ledge pitches east at an angle of 32°. Connecting with it is the Phillpots chamher, through which the ledge can be easily traced for a distance of 85 ft. In the east end of the chamher a large body of fair milling ore is in sight. We found a force of men at work making an opening preparatory to hreasting out. In the hottom of the chamber there are ahout 300 tons of ore hroken down. Retracing our steps from the chamber to the open cut, we entered another large chamher, running north and opened out for a distance of 240 ft., which brought us to the line of ground in dispute betwecn the English Co. and the Beecher Co. It is estimated that there are 5,000 tons of ore in sight above the floor of the chamher. The depth of the ore in the hottom has not heen determined. There is a fine showing of it in sight, and as in other parts of the mine, it dips to the east. From the south side of the opeu cut, a drift is pushed ahead south to connect with the Lady's chamber, and connection will he made with tbat portion of the mine in a few days. Visited the east and west drifts, running to tap the ore in the Phillpott's chamher, and found fair ore in sight. The next place examined was the raise (and drift) to tap the open cut in the south end of the Ward Beecher at the mouth of the Phillpott's chamber. Then, into a drift running south from the top of the Lady's chamber, for the purpose of opening out into the south drift. The south drift is in a distance of 130 ft. from the chamher. For most of the distance it cuts through a mass of low-grade ore. The recent strike was made at the end of the drift, and shows rich ore. The orc in the bottom looks fully as well as any other part of the chamher. Also, a fine showing in the east and south facings. The distance from Risdale chamber to the south line of the ground owned hy the Eberhardt & Aurora Co. is 220 ft., and the lengtb of the ground from the north to south line is about 1,400 ft. There are over 500 ft. north of the Risdale chamber untouched, and it is reasonable to suppose that the same streak of ore found in North Aurora runs through to the Risdale.

Great Valley M. Co. — The mines owned by the Great Valley M. Co. are at the foot of Babylon Hill, near Shermantown, and consist of Great Valley and Union mines, with a length of 2,000 ft. of ground. The location of the ground was made in April, 1868. A tunnel was started, and run west a distance of 200 ft. in ore. Fifty ft. from tbe end of the tunnel a shaft was put down and ore found. An air sbaft was sunk 125 ft. deep and they found a fine body of ore the whole distance down. Afterward a shaft 30 ft. deep was sunk on the side, and a ledge of mineral 5 ft. wide developed—making altogether a depth of 155 ft. in ore, from the top of the air shaft to the bottom of the 30-ft. shaft. Three other shafts are down on the line of tbe ledge, and ore found in all of them. The ledge is prospected for a distance of 1,000 ft., showing ore wherever the ledge is opencd. Five hundred tons of ore were extracted from the mine; 100 tons were disposed of at the Matteson Furnace, and 400 to the other furnaces in the Dist. It is estimated tbat 75 tons of ore can be extractcd daily from the present openings, and the nnmber of tons increased after further openings are made.

Original Hidden Treasure.—Work was suspended for a few days. Teams will he put on to ease the dumps during the coming week, if the condition of the roads will permit; and as soon as the dumps are cleared of rock the usual force of men will go on in the mine.

Silver Wave.—The Perkius shaft is down 60 ft. A new contract was let on the 25th of last month to sink 75 ft. deeper. The Lyford shaft is down 60 ft., and the incline is down to a depth of 25 ft. Now running east from the hottom. The formation in sight in the Chenoweth is black spar. Runuing cross-drift. Drift also running east from No. 4 shaft, with good indications ahead.

East Sheboygan. — Connections have all heen made, and the manager will soon have the Exchange shaft and original tunnel, also the Exchange incline and Regent

shaft connected. The manager claims that there is sufficient ore in sight to supply a 10-stamp mill for 3 years.

SECOND SOUTH EX. OF HIDDEN TREASURE. The drift running north from the foot of the Anchor incline is carried along npon the stratified spar wall, which dips easterly under the Edgar shaft, and carries the great ore gouge. At the depth of 60 ft. in the North shaft, on Nevada street, a drift has been started running in an easterly direction. Working 10 men and prosecuting work day and night.

SOUTH AURORA.—Work is pushed on in the tunnel without intermission. All the works show favorable indications of finding ore when the point aimed at is reached.

EDOAR.—There are 150 tons of ore on the dumps, which will be shipped to mill when the roads are in good condition. A force of 10 men are at work in the breast. The body in sight is about 50 ft. wide and increasing in width.

ICEBERG.—The heavy fall of snow on Treasure Hill set back work. The breasts show well as far as the mine is opened.

Colorado.

SHIPPED.—Colorado *Miner*, Jan. 4: The Stewart S. Reducing Co. shipped for 2 weeks ending to-day, 9 bricks valued at 6042.08, also 4 lead bars valued at $2502.44. Palmer & Nichol's shipments for the week amount to 2 bars valued at $2247.21.

Campbell & Clark shipped during Dec. 15 tons of rich smelting ore for and on account of owners. The ore was taken principally from the ground of the Clark S. M. Co., on the Terrible lode.

Baily & Nott shipped during Dec. for and on account of owners, 81,509 lbs. of rich smelting ore to Swansea, Wales.

There are 15 teams hauling ore to the Colorado & Boston Smelting Works, Black Hawk. The value of the monthly shipments of ore from Clear Creek Co. to the above works amounts to about $50.000.

PELICAN LODE.—We acknowledge that DO language, at onr command, can do justice to tho rich ore deposits of this great true fissure vein. The mine is being well opened by cross cuts, adits and winzes. Hardly any stoping has been done. The amount of ore in sight, in the mino, we will not undertake to estimate. Large deposits of valuahle ore are met with throughout the whole mine.

The discovery of the Pelican is on Sherman Mt., on the east hank of Cherokee Gulch. There are 4 adits in the vein aggregating in length 420 ft. The depth obtained from the surface in the gulch is 85 ft. The greatest depth obtained from the surfaco in the lower west adit is about 200 ft. This adit is cut in the gulch by a tunnel about 100 ft. in length. A tunuel, 100 ft. in, is now bcing driven 300 ft. in length, to cut the vein 110 ft. from the surface. A winze is heing sunk on the vein from the lower adit to intersect the line of the long tunnel where it will cut the vein. By the first of June the mine will be in condition to yield 20 tons of rich milling ore a day. The lower, middle and second adits are connected by air shafts or winzes. The mine is well timbercd.

The Pelican is a large true fissure vein. The walls are defiued with almost mathematical exactness. The north wall is porphyry and the sonth wall granite. The breadth of the vein hetween walls averages from 5 to 8 ft. The vein matters consists of argentiferous galena, copper and iron pyrites, gray copper, black sulphurets of silver, blende, and native silver. Among many assays we select the following: No. 1 2823 ozs. silver; No. 2, 1700 ozs. silver; No. 3, fine galena, 1782 ozs. silver; No. 4, blende, 428 ozs. silver; No. 5, gangue, 808 ozs. silver.

THE Eclipse tunnel has been driven into Griffith Mountain 490 ft. One large lode has been cut in this tunnel, and drifting will commence on it in a short time.

THE Matilda Fletcher lode, Democrat Mountain, is in a royal body of ore. Thero is in this mine, from 1 to 3 inches of ore, that yields from 4,000 to 5,000 ozs. in silver per ton.

TROJAN.—Central *Herald*, Jan. 3: The Trojan lode, Grand Island Dis., continues its steady yield of rich gold ore. The entiro width of tho 3 ft. crevice is composed of 7 oz. ore, with the exception of from 4 to 10 inches of smelting ore, worth from $100 to $150 per ton.

P. P. Peck has purchased 300 ft. on the Buckeye lode, Cariboo hill, Grand Island Dist., for $230, The crevice is 3 ft. wide and is largely composed of $100 ore.

SOME gulch mining is being done below Idaho at Grass Valley bar. Fair pay is beiug obtained by sevoral parties. Further down a party of Frenchmen are making money.

IN Clifton lode, 2 shafts are being sunk and a tunnel driven into the mountains. In one of the shafts the crevice had been taken out (as far as worked,) 5ft. wide, of fine looking ore, when a shot was put into the hanging wall at one side, which blew out a block of quartz 18 inches wide and ore still in sight. An English mining captain and 34 men are employed altogether in and about the lode. Quartz from this lode has yielded as high as 500 and $600 in silver per ton.

Central City *Register*, Dec. 27: The shaft on the Garrison claim on the Kansas lode, at the depth of 265 ft., has opened out into a very fiue crevice of oro 10 iuches in width. In the underhand stope, the width of the crevice is improving, and the ore in quality. Eastward, the next claim but one, D. L. Southworth is working. The prospect is more encouraging than at any time since the discovery of this property. In the shaft 105 ft. dcep, a small crevice of copper and iron pyrites is coming in that is very promising, and the indications are that it will soon open out into a large crevice of ore.

SAINT VRAIN.—Greeley *Tribune*, Jan 3: The St. Vrain mine opens so well that the supply seems inexhaustible.

ROBERTS, Murray & Co., are sinking a shaft for coal 5 miles northeast of towu, and they are now down 95 ft. The indications are said to be uncommonly good.

Idaho.

SHIPPED.—Silver City *Aralanche*, Jan. 6: W., F. & Co. shipped from this place during the year ending Dec. 31, 1871, gold dust valued at $45,128.38, and bulliou valued at $936,234.37. This amount exceeds tho treasure shipments for 1870 by $175,-288.26.

LOCAL RECORD.—The South Oro Fino Discovery is owned and worked by the Ida Elmore Co. It appears that Sup. Minear was authorized to purchase a mine for his Co., if he could find one to suit. So, after due consideration, he bonght this mine, for whieh he paid $22,500, and is now taking out about 25 tons of ore per day. Besides this, Sup. Minear has opened up a rich vein in the 7th level of the Elmore, and has let a contract in the 6th level to run the drift far enough north so as to be able to sink a winze from the 6th to the 7th level through the rich body of ore recently struck.

Ore of a splondid quality is being taken from the Golden Chariot, between the 7th and 8th levels south of the shaft. Sup. Davies informs us that he will have 500 tons ready for the Owyhee mill by the 15th inst.

The Miunesota shaft is down 230 ft., well and substantially timhered, and drifts are being run both north and south on a fine looking vein of ore. The ore taken from the shaft and drifts is boing worked at the Elmore mill. Some of the amalgam was assayed yesterday, showing nearly $5 per ounce, from which it is estimated that the ore is milling over $60 per ton. The Cosmos mill will soon start up and be kept running steadily on Minnesota ore.

The Mahogany ledge was cut yesterday at the 4th level, where a rich vein 2 ft. wide was struck, and, judging from the appearauce of the ore, it will mill from $60 to $75 per ton.

We learn that the South Chariot, adjoining the Mahogany, has a fine 2-ft. ledge in the 4th level, of ore that will mill from $35 to $40 per ton, and easily worked. The Sup. thiuks that the ore can he mined and worked in their own mill at from $18 to $20 a ton.

Work continues to be vigorously prosecuted in the Red Jacket tunnel, which is in about 150 ft. Mr. Wells had some of this ore assayed this week which went $812.59 per ton in gold and silver.

Mr. Fassett, Sup. of the Elmira (N. Y.) Co., is still drifting north on the Empire, and taking out some fine looking ore.

Minear & Hanks are in the Empire, taking out the richest kind of silver ore.

LOON CREEK.—There are only 31 white men and 35 Chinamen wintering at Loon creek, and all hands are at work.

FLINT.—Gilmore & Winchester went to Flint Dist. this week and brought back with them between 500 and 600 lbs of bullion for Warnkee & Co. Hanson & Co., of Twilight gulch, are having 30 tons of ore worked in Black's mill.

Montana.

BANNOCK.—Cor. Bozeman *Avant Courier*, Jan. 4th: The Blue Wing Dist. is yielding large bodies of very fine ore. A. Bessette is working 10 men on the Brick Pomeroy, which shows, as far as dovcloped from 5 to 10 ft. wide of quartz, worth 35 per ton on tho dump. Mr. B is working from 5 shafts.

The Saint Paul, also in this Dist., is one of the best developed lodes in the vicinity, and is owned by Merry & Brown, who have 5 shafts down and are working the lode at a depth of 110 ft., at which depth it retains its original width and richness of ore. This vein is about 5 ft. wide and the rock will yield about $30 per ton. The Dacota Swing, Kent and Wadhams lodes are all working with good bodies of paying ore in sight.

HOT SPRINGS DIST.—Cor. same: Prospecting and the development of mines in this locality progresses slowly but surely.

Loun & Mallory have leased Mr. Hydo's Mill at Sterling, and are crushing ore from the Red Bluff Lode. They are employing a new force of miners for that lode.

Baldwin & Dorr continue sinking the shaft on the Appalachian Lode. This mine improves. and the vein widens as work progresses. Mr. Bradley's Bradly Lode looks as well as ever. Hapgood & Goodwin have let a contract for sinking on the Bullion Lode. The contractors are now at work. Very rich oro has been taken from this mine.

SILVEN MINING.—Helena *Gazette*, Jan. 1st: Work is going on quite actively ou the silver lodes in different directious from Helena. We hear of several lodes being worked on upper Ten Mile, while the miners at Jefferson and elsewhere are generally as busy as the weather will permit, and there will he many tons of ore on the dump in May next. The Reduction Works will start up again on the 10th of Jan., by which time they expoct to have on haud something over 200 tons of ore.

GRIZZLY GULCH.—At this placo the diamond City mill has been leasod by Courtright & Harvey. The mill has 20 stamps and 2 arastras. The mine is 4 ft. in width, a tunnel has been run 113 ft., 20 miners are employed breaking the rock, which gives from $20 to $25 per ton in gold.

Utah.

FORWARDED.—S. L. *Tribune*, Jan. 10th: W. F. & Co. forwarded yesterday to New York 9 bars of bullion worth $11,108.43 from the Meadow Valley works.

THE SPARROW-HAWK, CAMP FLOYD.—Capt. E. H. Shaw is pushing this mine through with a purpose. He has 43 meu on the ground, and yesterday a 20 stamp mill for the working of the ore was shipped from S. F.

LION HILL.—To-day we were shown a specimen of ore from the Sunnyside mine, Lion Hill, Ophir Dist., it is a very interesting specimen to all interested in mines on Lion Hill; as it proves that the chlorides whicb are found at or near the surface, change into sulphurets with depth. In this case the change occurred at 100 ft. The Sunnyside mine is owned by W. Hussey, and its shaft is now the deepest on Lieu Hill.

S. F. Stock Exchange Board.

Mining stocks have been active and firm for the week past and the Board has held protracted sessions owing to pressure of business.

On January account $32,400 have been received from the Meadow Valley mine. The sum of $50,726 has been received from the Raymond & Ely mine—the bullion product up to the 13th inst. A motion to change the hour of session is under consideration by the Board. Owing to press of business it is the general wish to meet at 10½ instead of 11 A.M. The new Board spoken of in another column consists of 40 charter members. There are over 80 members belonging to the San Francisco Stock Board. Stocks to-day are still steady and advancing in prices.

Comparative Prices—Extremes. Advance and Decline.—S. F. Stock and Ex. Board.

	Jan. 11.	*Highest.*	*Lowest.*	Jan. 18.	*Adv.*	*Dec.*
Alpha	$—	21	19	26	—	—
Amador	—	—	—	—	—	—
Belcher	—	505	450	—	—	—
Buckeye	3½	4	3	4	½	—
Chollar-Potosi	39½	45½	38	45	5½	—
Caledonia	15	17	15	16	1	—
Cons. Virginia	19	29	18½	27	8	—
Crown Point	472½	520	455	—	—	—
Daney	—	7	6¾	—	—	—
Eureka Cone	24½	25½	23	25	½	—
Eureka	20	20	18½	—	—	—
Empire	—	—	—	—	—	—
Gould & Curry	120	128	110	128	8	—
Golden Chariot	21	21¼	17	22	1	—
Hale & Norcrose	145	150	142	170	25	—
Imperial	51	65	50	—	—	—
Ida Elmore	15	18	12½	17½	2½	—
Kentuck	—	157	143	165	—	—
Mammoth	—	60	45	60	—	—
Meadow Valley	17	21	15½	17½	½	—
Occidental	—	—	—	—	—	—
Ophir	39½	62½	39½	60	20½	—
Orig. Hid. Treas.	7⅛	7⅛	6¾	—	—	—
Overman	35	39	33½	41	6	—
Phoche	11	11	9¾	11	—	—
Raymond & Ely	98	98½	92	—	—	—
Savage	52½	61	51½	62	9½	—
Sierra Nevada	—	27	23	—	—	—
Silver Wave	—	—	—	—	—	—
Wash. & Creole	5	5½	4½	5	—	—
Yellow Jacket	62	63½	58	65½	3½	—
St. Patrick	46	46	46	—	—	—
Seg. Belcher	37	46	34	50	—	—

Latest Prices—Bid and Asked.

	BID.	ASKED.		BID.	ASKED
Alpha Cons	24½	25	Ida Elmore	16½	17
Amador	—	—	Imperial	67	68
Belcher	525	540	Kentuck	160	160½
Chollar-Potosi	44	44	Meadow Valley	17	17½
Crown Point	525	545	Ophir	58	58
Caney	—	—	Orig. Hid. Treas	—	—
Eureka Cone	24¾	25	Overman	40	40
Eureka	19	19	Savage	61¾	62
Golden Chariot	21½	22	Raymond & Ely	95	96
Gould & Curry	125	125½	Sierra Nevada	25	27
Hale & Norcross	165	165	Yellow Jacket	63½	64

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

ASSESSMENTS.

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT	DELINQUENT.	DAY OF SALE.
Albambra Hill M. Co., Nev., Dec. 9, 50c.	Jan. 13	Feb. 5*
Buckeye G. & S. M. Co., Nev., Jan. 9, $1.	Feb. 13, Mar 14	
Cherokee Flat, Butte Co., Jan. 3, $2.50	Feb. 6	Feb. 23
El Dorado M. Co., Cal., Dec. 7, 25c.	Jan. 24	Feb. 14
Ely Consolidated, Nev., Nov. 27, 50c.	Jan. 8	Jan. 30
Emerald Hill M. Co., U.T., Jan 11, 25c.	Feb. 19, Mar. 14	
Empire M. & M. Co., Nev., Jan. 5, $10.	Feb. 8	Feb. 26
General Lee S. M. Co., W. P., Dec. 5, 10c.	Jan. 10	Jan. 30
Hale & Norcross, Nev., Dec. 14, $5	Jan. 18	Feb. 7
Ida Elmore, Idaho, Dec. 30 $3.00	Jan. 31	March 4
Imperial S. M. Co., Nev., Jan. 5, $10	Feb. 8, Feb. 26	
Jack-of-all-M. Co., Eureka, Dec. 8, 25c.	Jan. 10	Jan. 29
Kincaid Flat M. Co., Dec. 11 $2.50	Jan. 17	Feb. 7*
Knickerbocker M. Co., Nev., Dec. 4, 50c.	Jan. 7	Jan. 26
Lemon, Nev., Jan. 6, 50c.	Feb. 10	March 2
Lillian Hall M. Co., Ely Dist., Nov. 18, 50c.	Dec. 27, Jan. 23	
Mammoth, White Pine, Dec. 13, 10c.	Jan. 18	Feb. 8
Meadow Valley, Ely Dist., Nov. 27, 50c.	Jan. 9	Jan. 31
Mina Rica M. Co., Cal., Jan. 16, 20c.	Feb. 19	March 11*
Monitor & Magnet, N. T. Dec. 4, 25c.	Jan. 23	Feb. 17
Mt. Jefferson M. & M. Co., Cal., Jan 8, 25c.	Fe 5	Fe 22*
Nevada Con. Borax Co., Nov. 29, 5 cts.	Jan. 10	Jan. 29*
Nevada L. and M. Co., Nev., Jan. 9, 4c.	Feb. 13	Mar. 4*
Ophir S. M. Co., Nev., Dec. 20, $2	Jan. 24	Feb. 14
Orig. Hid. Treasure, W. P., Nov. 24, $1.50	Jan 2	Jan 25
Overman, Nev., Nov. 20, $4	Dec. 25	Jan. 23
Phoche W. Ex, Ely Dist., Nov. 23, $1.50	Jan. 4	Jan. 27
Phoche S. M. Co., Nev., Dec. 18, $1.50	Jan. 25	Feb. 16
Pocahontas G. M. Co., Cal., Nov. 29, $5	Jan. 6	Jan. 30*
Quail Hill M. and W. Co., Dec. 19, $5	Jan. 23	Feb. 13*
Silver Wave, White Pine, Dec. 19, $3	Jan. 25	Feb. 23*
Spring Mount Co., Ely Dist, Nov. 27, 50c.	Jan. 7	Jan. 29
Succor, M. M. Co., G. H., Jan. 3, $1.50	Feb 6	Feb. 27
Tecumseh G. S. & C. Co., Dec. 5, $3	Jan. 9	Jan. 30*
Tallulah M. Co., Humboldt Co. Nev., Nov 29	$1, Jan 3, 30	
Union O. M. Co., Cal., Jan. 4, $1.00	Feb. 5	Feb. 26*
Washington & Creole, Nev, Nov. 27, 50c.	Jan. 5	Feb. 1

MEETINGS TO BE HELD.

Belcher Mining Co	Annual Meeting, Jan. 30
Black Diamond Coal M. Co	Annual Meeting, Jan. 24
Cherokee Flat Blue Gravel Co.	Annual Meeting, Feb, 3
El Dorado M. Co.	Annual Meeting, Jan. 23
Ely Consolidated	Annual Meeting, Jan. 24
Globe Mining Co.	Annual Meeting, Jan. 25
Keystone Con M. Co.	Annual Meeting, Jan. 23
Marble Falls M. Co.	Annual Meeting, Jan. 22
Meadow Valley, East Ex. Co.	Annual Meeting, Jan. 26
Phoche, West Extension Co.	Annual Meeting, Jan. 23
Spring Mount M. Co.	Annual Meeting, Jan. 22
Starlight G. & S. M. Co.	Special Meeting, Jan. 25

LATEST DIVIDENDS—(Within Three Months).

Belcher, $10	Jan. 10
Chollar Potosi, $1.	Payable Dec. 11
Chollar Potosi, $1	Payable Jan. 10
Crown Point, $10	Payable Jan. 12
Eureka Cons., $1	Payable Oct. 20
Eureka Gold M. Co., $1	Payable Jan. 6
Meadow Valley, $1.50	Payable Dec. 15
North Star G. M. Co., $3	Jan. 10
Raymond & Ely, $5	Payable Dec. 18
Yule Gravel M. Co., 50c.	Payable Dec. 5

—*Advertised in this journal.

San Francisco Metal Market.

[Corrected weekly by Hooker & Co., 117 and 119 Cal. street.]

PRICES FOR INVOICES

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

THURSDAY, January 18, 1872

IRON.—			
Scotch and Eaglieh Pig Iron, ₱ ton	$52 50	@	55 00
White Pig, ₱ ton	45 00	@	— —
Refined Bar, bad assortment, ₱ lb	— 04	@	— 04½
Refined Bar, good assortment, ₱ lb	— 05	@	— 05½
Boiler, No. 1 to 4	— 05	@	— —
Plate, No. 5 to 9	— —	@	— 05
Sheet, No. 10 to 13	— 05½	@	— —
Sheet, No. 14 to 20	— 06	@	— —
Sheet, No. 24 to 27	— 06	@	— —
Horse Shoes	7 50		
Nail Rod	10		
Norway Iron	8		
Rolled Iron	5		
Other Irons for Blacksmiths, Miners, etc.	5	@	6
COPPER.—			
Sheathing, ₱ lb	— 24	@	— 26
Sheathing, Yellow	— 24	@	— 25
Sheathing, Old Yellow	— 11	@	— 11½
Composition Nails	— 24		— —
Composition Bolts	— 24		— —
TIN PLATES.—			
Plates, Charcoal, IX ₱ box	12 00		— —
Plates, I C Charcoal	10 00		10 50
Roofing Plates	11 00		— —
Banca Tin, Slabs, ₱ lb	— —		— 45
STEEL.—English Cast, ₱ lb	— 16		— 17
Drill	16		17
Flat Bar	17		20
Plough Points	3 75		— —
Russia (for mould boards)	12½		— —
QUICKSILVER.—₱ lb	— —		— 65
LEAD.—Pig, ₱ lb	— 05½		— 06½
Sheet	— 08		— 8½
Pipe	— 9		— 10
Bar	— 08		— 09
ZINC.—Sheets, ₱ lb	— 10		— 10½
BORAX.—Refined	— 25		— 30
Borax, crude	— 5		— —

Leather Market Report.

[Corrected weekly by Dolliver & Bro., No. 109 Post st.]

SAN FRANCISCO, Thursday, January 18.

SOLE LEATHER.—The demand is still equal to the supply, and prices still continue firm.

City Tanned Leather, ₱ lb	26@29
Santa Cruz Leather, ₱ lb	26@29
Country Leather, ₱ lb	25@28

The market is well supplied with French stocks, and prices have a downward tendency. Heavy California skins are firm, with an upward tendency.

Jodot, 8 Kil., per doz	$80 00@	
Jodot, 11 to 19 Kil., per doz	76 00@	95 00
Jodot, second choice, 11 to 15 Kil. ₱ doz	60 00@	80 00
Lemoine, 16 to 19 Kil., ₱ doz	85 00@	
Levin, 12 and 13 Kil., per doz	68 00@	70 00
Cornellian, 16 Kil., per doz	70 00@	
Cornellian, 12 to 14 Kil., per doz	60 00@	68 00
Ogerau Calf, ₱ doz	54 00@	
Simon, 18 Kil., ₱ doz	65 00	
Simon, 20 Kil. ₱ doz	68 00	
Simon, 24 Kil. ₱ doz	72 00	
Robert Calf, 7 and 8 Kil	35 00@	40 00
French Kips, ₱ lb	1 00@	1 30
French Calf, ₱ doz	65 00 to 80 00	
French Sheep, all colors, ₱ doz	15 00	
Eastern Calf for Backs, ₱ lb	1 15@	1 25
Sheep Roans for Topping, all colors, ₱ doz	8 00@	13 00
Sheep Roans for Linings, ₱ doz	5 50@	10 50
California Russett Sheep Linings	1 75@	5 50
Best Jodot Calf Boot Legs, ₱ pair	5 25	
Good French Calf Boot Legs, ₱ pair	5 00@	5 00
French Calf Boot Legs, ₱ pair	4 00	
Harness Leather, ₱ lb	30@	37½
Fair Bridle Leather, ₱ doz	48 00@	72 00
Skirting Leather, ₱ lb	34@	37½
Welt Leather, ₱ doz	30 00@	50 00
Rat Leather, ₱ foot	17@	21
Wax Side Leather, ₱ foot	18@	20

There are 60,000,000 acres of wheat lands in California, of which only 2,600,000 are under cultivation.

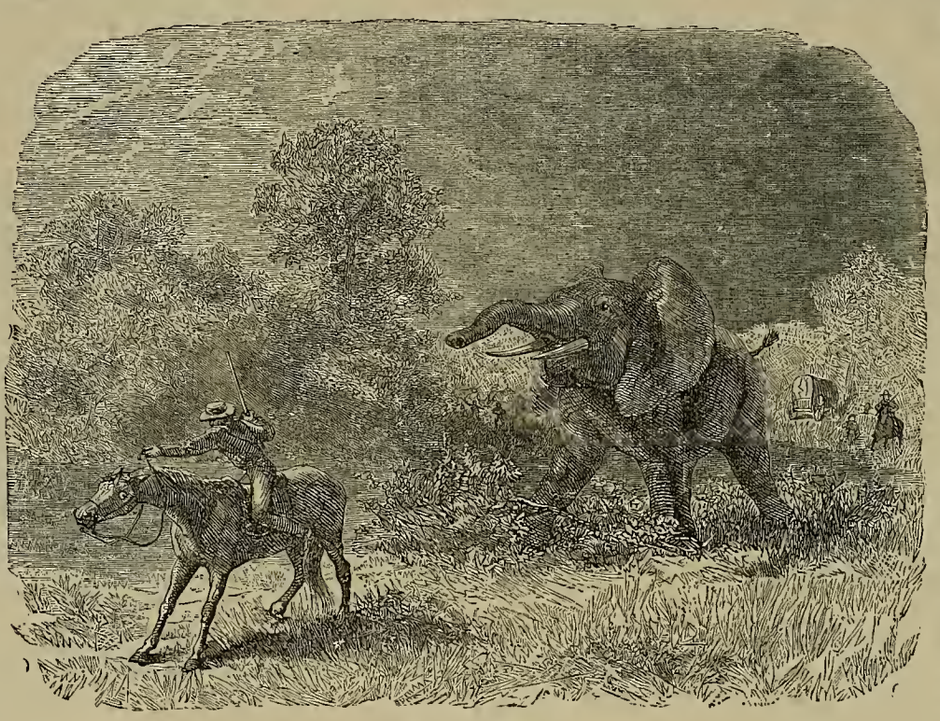
Elephant Hunting.

In this country when we wish to hunt for large game, the buffalo is supposed to fill the requirement; but in this respect African hunters have the advantage of us hy heing ahle to make an expedition against that giant of the forest, the elephant. Many of our readers have no douht seen this huge heast in a menagerie or a circus, where they are tame and docile and trained to perform various tricks; but all this is quite a different thing from meeting one in his native wilds, especially if in the situation of the man shown in our illustration; who, in addition to the danger from the proximity of the evidently enraged animal, has a haulky or frightened horse, which just at a critical moment, refuses to stir.

The elephant, even in a wild state, is one of the most wary of animals; in strength the mammoth of modern days, and most averse to human intrusion in habit. It is a reflecting, contemplative animal with strongly developed tastes for solitude and peace. Wheu they are wounded or coruered, however, they charge their assailants with great fury, and the approach aud attack requires considerable courage and presence of mind. When the hunters find an elephant they approach very carefully, and observe certain precautionary rules which only experience in the habits of the animal would cause to be followed. For instance, Du Chaillu informs us that the natives say you must never approach an elephant but from behind, as he cauuot turn very fast, and you have time to escape after firing. Great care must also be taken that the vines which are so fatal to the elephant do not also catch the huuters. When they charge, the person who wears hright clothing will be likely to get more than his share of the fuu, unless in a place of safety.

The natives of Africa hunt them in several ways. The forests iu some places are full of strong climhing plants, running to the tops of the trees, aud the natives twist and weave them together ingeniously in such a manner as to make a huge fence or obstruction not sufficient to hold the elephant, hut quite strong enough to check him in his flight and entangle him in the meshes till the hunters can have time to kill him. Once caught they surround him and put an end to his existence by discharges of spears, etc. The first motion of the animal on seeing an enemy is flight. He rushes ahead hlindly, but is brought up by the harriers of vines, which enrages and terrifies him, and he tears up everything within reach, but iu vain; for the tough vines, uowhere fastened, give way to his hlows, and the more he labors the more closely he is held.

Ano'her plan is to construct a *nghal* or inclosure, surrounded by a low fence, which, however, is sufficient to keep the elephants within, for even when enraged by a wound they hesitate to charge an assailant across an iutervening ridge, hut will hurry along to seek an opening. They are entrapped or driven into this enclosure and then caught. It seems strange that so intelligent an animal, will, with the utmost calmness, walk into this trap and remain confined within a fence not strong enongh to resist a calf; but it is nevertheless true.



ELEPHANT HUNTING.

White Gutta-Percha.—The *Journal of Applied Chemistry* gives the following method of preparing this, for dentist's use and for other purposes. Four ounces of pure gutta-percha are digested with five pounds of methyl-chloroform until the solution is thin enough to pass through filtering paper. It is then filtered (an additional pound of chloroform will facilitate this), and should then be clear and nearly oolorless. Alcohol is now added in sufficient quanity to precipitate the gutta-percha in a voluminous white mass, which is washed with alcohol, pressed in a cloth, and dried in tho air. It must finally he hoiled in water in a porcelain vessel for half an hour, and while still hot rolled into sticks. The chloroform can he separated from the alcohol hy adding water and the alcohol recovered by distillation.

Our Wool Product.

An important export of California is its annual wool clip, and whatever interests the buyers of our wools, is of equal interest to the producers.

McLennan, Whelan & Grisar's *Wool Circular* contains some very interesting matter to all connected with the wool trade on this coast. We learn from it that the receipts of California fleece for the year 1871 were 74,037 bales, or 22,187,188 lbs, and the total receipts from all quarters wore 79,791 hales, or 22,473,649 lbs. The wool was generally of short staple, and in many instances tender. With the exception of the Southern clip, which contained much less burr than in former years, it did not come up to the standard of 1870, though some extra choice lots were received. The *Circular* says that owing to a combination of causes the spring clip of this year was hought immediately on its arrival, and passed directly into the hands of consumers, represented in this market either by owners or ageuts of Eastern manufactories.

The Prices

Obtained were very high, the market having heen considerahly excited at the immediate opening of the season—an excitement which continued without intermission until its close, prices having steadily advanced from day to day.

The following facts will undeniably account for the great demand and rapid advance in the price of wools:

First—The great scarcity of medium wools in the Eastern market, as well in the hands of dealers as manufacturers; consequently, California heing the first source of supply open to fill the requirement, the buyers were eager to avail themsellves of it.

Second—The wool markets all over the world have considerahly advanced the prices for that article, as a necessary consequence the price of manufactured woolen goods has likewise increased.

The total value of the receipts of 1871 is set down at $6,605,132. The average price of spring wool is set down at 29c. per lb; fall wool at 25c.; Oregon wool at 40c. aud Foreign wool at 45c. The latter amounted to only $164,475 of the total amount of value.

The Receipts from Oregon, Etc.,

Are set down at 921,000 pounds and from foreign ports 365,461. The condition of Orogon shipments are reported not as good as in former years; some lots heing of tender staple and poor texture. Formerly, says the *Circular*, Oregon wool was characterized by freedom from hurrs, seed and tags; it was lustrous and well adapted for combing purposes. Since then the nature of this wool has completely changed, and with the exception of a few privileged counties, where the breeding has been better attended to, it does not any longer yield any combing or delaines.

Comparison with Former Years.

The receipts of California wool for the four years last past has been as follows:—for 1868,—12,987,527 pounds; for 1869,—13,677,720 pounds; for 1870,—19,472,660 pounds; for 1871,—22,187,188 pounds. Receipts from Oregon for the same period have been:—421,460; 1,039,460; 1,403,970; 921,000.

Frauds.

The *Circular* complains of frauds committed by shippers, such as corral dirt hidden in the middle of the fleeces, sand thrown in between layers of wool and wet fleeces packed among dry ones.

A Suggestion.

The *Circular* appeals to the good sense of our farmers to add a few head of sheep to their general farming stock, as is done iu Canada. These sheep will be a benefit to their farm in eating the grass which other stock do not consume, and giving the hest manure in return. These small herds can he better cared for than large oues, they are more easily kept clean, and their wool will always command a higher price than others. Long-wooled sheep especially prosper well in small bands.

Rain by Machinery.—The latest agricultural experiment in England is surface irrigation hy artificial rains. This has been tried at Stoke Park, the surface experimented upon hoing a tract of twenty acres in grass. Every night, except when natural rains made it nnnecessary, during the season of 1871, water has been applied in artificial showers. The apparatus consists of pipes laid in the ground, supplied from elevated reservoirs, into which the water is pumped by machinery. The following figures will show the result per acre: Interest (5 per cent) on cost of machinery and pipes, $7.50; superstructiou and fuel, $7.50; manure, other top dressiug, $67.50; cost of harvesting, $12.50; to'al expense, $95. The value of the product of each is stated as $200; the net profit is thus $105; Land of the same character and in the same tract, not so irrigated, netted only $45 per acre.

Volcanic Eruptions.—In the eruptiou of Vesuvius, A. D., 79, the scoria and ashes vomited forth, far exceeded the entire bulk of the mountain; while in 1660, Ætna disgorged more than 20 times its own mass. Vesuvius has sent its ashes as far as Constantinople, Syria and Egypt. It hurled stones, eight pounds in weight, to Pompeii, a distance of six miles, while similar masses were tossed up 2,000 feet above its summit. Cotopaxi has projected a hlock, 109 cubic yards in volume, a distance of niue miles; and Sumhawa, 1815, during the most terrihle eruption on record, sent its ashes as far as Java, a distance of 300 miles of surface; and out of a population of 12,000 souls, only twenty escaped.

Amendment of the Mining Law.

The following is a copy in full of the bill now before the Legislature authorizing summary removal of Trustees of mining companies, at a called meeting of shareholders:

An Act supplemental to an Act entitled an Act concerniug Corporations, passed 22d April, 1850.

The People of the State of Californa represeuted in Senate and Assembly do enact as follows:

Section 1. On petition of one-third of the shareholders formed for the purpose of mining to the County Judge of the county where said corporation has its priucipal place of husiness, verified by the signers to the effect thoy are severally the holders on the hooks of the company of the number of shares set opposite their signatures to the foregoing petition, the County Judge shall issue his notice to the shareholders of said compauy that a meeting of the shareholders will he held, stating the time, not less than five nor more than ten days after the first puhlicatiou of such notice, and the place of meeting within said county, and the object to be to take into consideration the removal of officers of said company, which notice, signed by the said County Judge, shall be puhlished daily in one or more daily newspapers published in said county for at least five days hefore the time for the meeting.

Section 2. At the time and place appointed hy said notice, thoso claiming to he shareholders who shall assemhle shall proceed to organize by the appointment of a Chairman and Secretary, and thereupon those claiming to he sharcholders shall present proof thereof, and only those showiug a right to vote shall take part in the further proceedings. If it appears that at the time appointed, or within one hour thereafter, sharcholders of less than one-half the shares aro present, no further proceedings shall he had, hut the meeting shall he *ipse facto* dissolved; but if the holders of more than one-half of the shares are present they shall proceed to vote, the Secretary calling the roll, and the members voting yea or no as tho case may be. The Secretary shall enter the same upon his book, and when he has added up the list and stated the result, he shall sign the same and hand it to the Chairman, who shall also sign the same and declare the result.

Section 3. If the result of the vote is, that the holders of a majority of all the shares of the company are in favor of the removal of one or more of the officers of the company, the meeting shall then proceed to ballot for officers to supply the vacancies thus created. Tellers shall he appointed hy the Chairman, who shall collect the ballots and deliver them to the Secretary, who shall court the same in open session, and having stated the result of the count in writing, shall sign the same and hand it to the Chairman, who shall announce the result to the meeting.

Section 4. A report of the proceedings of the meeting shall he made in writing, signed hy the Chairman and Secretary and verified hy them, and delivered to the County Judge, who shall thereupon issue to each person chosen a certificate of his election, and the petition and report, indorsed, with the date and fact of the issuance of such certificate, shall be delivered to the County Clerk, to he hy him filed in his office, and thereafter the persons thus elected officers shall be the duly elected officers, and hold office until the next regular annual meeting, unless removed under the provision hereof.

Section 5. For all services in these proceedings, the County Clerk shall receive $10 on the issuance of the notice, and $10 on the issuance of the certificate.

Section 6. All acts or parts of acts conflicting with this act are hereby repealed.

Section 7. This act shall take effect immediately.

Tea Culture.—Col. Hollister, of Los Angeles county is making extensive preparations for the culture of tea.

Popular Lectures.

Industrial and Agricultural Needs of the State.

[By Prof. Ezra S. Carr, of the Cal. State University, before the Mechanic Arts College, Mechanics' Institute Hall, S. F. Reported expressly for the Press.]

Lecture No. IV, Jan. 13, 1872.—The course of lectures before the Mechanics' Arts College was resumed on Saturday evening before a full class. Mr. Hallidie announced that the next lecture of the course would be delived by Professor Kellogg of the Chair of English Literature in the University. Prof. Carr announced as his subject the "Industrial and Agricultural needs of the State." He began by contrasting the present condition of the English laborers with those in America; and thought that the greatest proof of the power of free institutions lay in the amount of information possessed by American laborere in the face of the carclessness shown in their education, and if Europe was daily more and more preparing for a republican form of government, how careful should our Government be to secure the perpetuation of its freedom by a thorough education of its working classes.

The first great requirement in this land is the fullest and most liberal education of of the massee. It is not sufficient, in order to train a boy to vote intelligently upon the question of free trade, that he should simply understand arithmetic and grammar but that he should be liborally educated. The time is approaching when ecientific study of human nature will be a nocessity. Until the laws of life and the manner in which they affect social problems are learned and understood, legislation will remain a series of legalized experiments. A vital question is how shall we educate our young men so as to make more farmers, mechanics and producers. The lecturer gave a very graphic account of the causes which have led to the decline to the country and farm life in its social aspect, and said that one man, by leaving a rural home for the pleasnres of city life on the acquirement of riches, would unsettle the minde of many of his neighbors and render them diseatisfied with their lot. People must rely upon co-operation and community and begin to care more for neighbore than for acres. The people of the little settlement of Anaheim have profited by understanding this principle.

While drawing a vivid picturo of rural life and labor, he said that it was useleee to eulogize callings from which farmers' and mechanics' eons were turning in diegust. When they grew up they began to soe that the trades of their fathers kept them in a lower poeition in the social ecale than they wished to be, and they desired to become clerks and ahandon the business of their fathers as beneath them. He alluded to the fact that already in Californuia we are to-day looking to the lower clase of foreign immigration for manufacturers, mechanics and laborers in the field. We must learn, and at last are beginning to learn, that the farm and factory are to be the foundations of euccees in this State as in other ones. The lecturer gave a graphic account of the causee which led to the decline of country life, attributed it to defective education, and advocated æsthetical culture as its cure.

The prejudice against "book learning" on agricultural matters, and the old notion about "mother wit and plenty of manure," has passed away and had its day. Inventors, mechanics and newspapers are rapidly bringing about a proper acknowledgment of the benefits of science as applied to the affairs of every-day life, and in onlightening and improving the world. The increasing popularity of agricultural and mechanical colleges ie one of the best assurancee of a rapid change for the better. The lecturer followed with a highly interesting account of the agricultural and mechanical colleges of Europe, especially those of Prussia, where the government at the expense of hundreds of thousands of dollars annually maintains and supports schools and colleges devoted to the practical teaching of agriculture, mechanic and productive arts. Here thousands of scholars, from the sons of nobles to those of the poorest peasant, receive a liberal education at the expense of the government; and some of them do manual labor in the fields and workshops, and attend the schools during their leisure time.

Prof. Carr here reviewed the condition of the same institutions in this country, which are yet in their infancy, and gave a description of what our own State University intends to do, paid a glowing tribute to the Regents for their liberal spirit in throwing open the doors to all, without distinction of sex, and closed the lecture with an eloquent tribute to agriculture as the first foundation of all arts.

Useful Information.

Concord Axles.—For fifty years the name of Concord, N. H., has been familiar on every stage road as a great center for the manufacture of coaches, and, in many sections of the country, famous not only for its coaches, but also for its wagons and carriages of almost every description. Many shops throughout the country may claim to produce as finely finished work, but for durability and perfect action none have more justly deserved the enviable reputation they have acquired than the Concord manufacturers. One very important reason of the superiority of their manufacture has been the quality of the axles used. It is claimed by Messrs. D. Arthur Brown & Co., proprietors of the Concord Axle works, located at Fishorville, a village in the town of Concord, N. H., that the material used by them in the manufacture of axles is of a quality superior to that usually employed for thie purpose, and that by a process of manufacture peculiar to them, their axles wear longer, run truer, and carry a heavier load than any in market. The present firm commenced operations in 1864, the business of the establishment having been previously hogun in 1858. They are now manufacturing from 200 to 250 tons of finished axles, besides about 300 tons of etove and other castings per annum. Their goods are sold extensively throughout New England, in many of the Western cities, and largely in Californuia and along the Pacific Coast.

An Improved Crucible.—A crucible for melting metal has been invented, which consists in providing the ordinary crucible of plumbago or other substance with a flue or passage from the bottom to the top, for allowing the heat to act upon the center of the mass of metal contained in the crucible more directly than it otherwise can. This passage is surrounded by a shell or tube of the same material of which the crucible is made. The inventor also groovee, or indents, or conetructs the sides of the crucible, both inside and out, so as to form projections to interlock with the paste or clay or other substance with which the crucible is coated, to cause the coatings to be retained much longer than they now are, thereby preserving the crucible much longer, and reducing the cost of melting eteel or other metals.

The substitution of slate for boxwood in engraving is found to be specially adapted for engravinge in relief. It is etated that while blocke of slate are easily cut, they will wear as well as electrotypes, and furnish over one hundred thousand sharp impressions without loss of detail. The plates are not affected by oil or water, do not vary with temperature, and never become warped, which is the grand fault with box wood under certain conditions.

Raising Silkworms.—Carret, of Chambery, by a peculiar eyetem of warming a and ventilation, is said to have reduced the period of breeding silkworme to eighteen or twenty days. As an evidence of the advantages which eericulture hae derived from scientific research, M. G. Raulin states that an ounce of the egge furnished by M. Pasteur yield about three times as much silk as an ounce of the ordinary eggs.

A Big eel in a water-pipe stopped a three hundred horse-power engine in Lancaster Mills, Clinton, a few days since.

Good Health.

Doctors and their Fees.

Only quacks advertise "No cure, no pay." All honorable physicians charge for their time and trouble in proportion to their talent and reputation, no matter whether the patient remains sick, or gets better, gets worse, or dies.

Many physicians make a discrimination in regard to these charges, according to the wealth of the patient; and this appears no more than fair, as a poor man is unable to pay as much as a rich man. Not that his life is worth less; it may be worth more, for all that, as the poor man may perform useful labor, while the rich man may be a useless consumer of the goods of creation; but that ought not to cause a physician to charge a rich man less, as the best rule for them is, to let the rich pay for the poor, and to help the very poor for nothing, as all respectable doctors actually do.

The *Medical Gazette* reports that previous to the thirteenth century the law regulated the fee for doctors proportionally to the rank of the patient; so for curing a bishop or local chief, he had forty-two cows, and for a member of the lowest rank only six cows. This was for serious complaints; for slight complaints, it was less in proportion, and if no cure was performed, there was no pay.

Dio Lewis declares that our present system of employing doctors is all wrong, and advisee people to make contracts with them at $200 for each family, and a deduction of two dollars for each case of sickness. This is the Chinese system. There every family of note has its physician, who has a salary of a certain sum per head, to keep them all in good health. The amount of this salary is according to the social condition of the family and the reputation of the doctor. As soon as a member of the family is sick, his share in the salary is stopped, and not commenced again before his health is restored. It is seen that the doctors in China are not encouraged to protract the sickness of rich persone, as is the case with us.

The Use of Camphor.

When the mucous membrane of the nose, frontal sinuses, etc., is affected by catarrh, a strong solution of camphor frequently and for some hours snuffed up the nose, and five or six drops taken internally on a lump of sugar, at first for every ten minutes, then every hour, will usually put a stop to the affection. Ordinary cold and even influenza, if treated in this manner at the *very beginning* of the attack, are generally controlled by the same treatment.

Attacks of incessant sneezing and profuse running at the eyes and nose will generally yield to a strong solution of camphor diligently sniffed up the nose. In summer diarrhœa no remedy is so efficacious as camphor, if employed at the very commencement of the disease; later it is without effect. Its influence over cholera is equally remarkable. Dose: six drops of a strong alcoholic solution of camphor, given at first every ten minutes; afterward, as the symptoms abate, less frequently.

To Avoid the Ague.

Editors Press:—There are a few malarious districts in California where ague or chills and fever are more or less prevalent. A residence of 20 years in one of the most malarious districts of Michigan, and a close observation of cause and effect, convinced me that one of the best preventives to ward off the attack of this troublesome malady, is found in fortifying the stomach with a full, hearty breakfast, as soon after getting up in the morning as possible, and before taking hold of any of the severe labors of the day. W.

Treatment of Footsoreness.—The *Lancet* states that the Inspector-General has directed that every man suffering from feet blistered by marching is to be taken at evening parade to the medical officer, who should cause him to wash his feet, and then to pass a needle with a worsted thread through each blister, cutting off the thread a little distance outside the blister at each side, and leaving a portion in it. The part is then to be rubbed with common soap, the sock put on and wetted over all prominent points, and the soap again rubbed over them freely. When properly attended to, no man should be unable to march the following day on account of blistered feet, unless the cuticle has actually been removed, leaving a raw surface exposed.

Biliousness.

Persons inclined to biliousness should carefully avoid all mental disturbance or excitement at meal time, or just before or after it. It is wonderful with what promptness in some individuals the least mental excitement or disturbance will stop digestion in the stomach; eating too hurriedly; a little vexation because the dinner is not ready or because it is not cooked to suit; being engrossed in some perplexing thought or revolving some wild scheme while eating, are all so many injunctions on the stomach-work of sensitive bodies. Time to eat should be taken, and no more than on the sanctity of the family devotions, should anything else be allowed to encroach. We ought at that time to consign to a momentary banishment all petulance and bad tempers, and be, for the time, smiles and benignity all over.

The digestion of animal foods is not interfered with to nearly as great a degree by mental and nervous causes as that of vegetable origin; hence it is proper to eat quite largely of meats and milk, but they—the meats—should be carefully prepared with regard to digestion.

We cannot but believe that the lining of the stomach which induces many of these attacks, is brought about by too frequent meals. Many do not allow time for digestion and rest for the organism between the meals, a second eating of hearty food is brought for digestion, before the first is fairly disposed of. People ought to arise early enough to take an early breakfast, or else they should take a very light one, and the supper ought to be postponed until at least six hours after dinner.

For bilious attacks of spring we must regulate our diet to the changing of the season. Decrease the amount of fat producing, carbonaceous food consumed; eat less fat meat—better eat none at all; discard the ham—not the eggs, drop off the buckwheat cakes, and put away the syrup pitcher for another year, or use it very sparingly. Bring in instead of these—the eggs, lean meat, milk and vegetables, being always sure to have them cooked with most scrupulous care as to their digestibility. Avoid constipation, and keep the body well clad and protected against the chilling winds of the season.

Replanting a Tooth.—When the tooth is somewhat loose, and painful to bite on, with swelling at the gum, and suppuration, the tooth is taken out; all the diseased parts are scraped from the roots, and it is washed and disinfected in carbolic acid, but those portions of mucous membrane which are commonly attached to the neck of a tooth, and appear healthy, are not scraped away. The socket from which the tooth was drawn is also properly cleaned, and the tooth is put back in its former place, and in a number of cases takes root, and fixes itself firmly in the course of a fortnight, and then becomes as serviceable as the other teeth. This is a remarkable instance of vital force. By the small portion of living tissue left adherent to the tooth, attachment to the jaw is renewed; and though failures occur, there is reason to believe that as in other surgical operations, they will become fewer as the operators acquire experience. The teeth are so important to life and health, that whatever tends to preserve them should be encouraged.

In Fevers.—As long as the patient is able he should sit up out of bed, at least one hour of the day—longer, if he should not be raised while he is perspiring. The bed should be constantly made every day, the sheets and linen should be changed every two days, taking, however, the greatest care that they are dry even as tinder. Nothing more induces to protract a fever than keeping the sick constantly in bed, and withholding a constant and regular supply of fresh linen.

Healthful Effect of Atmospheric Pressure.—M. P. Bert has been experimenting upon the vital effects of varying atmospheric pressure. He finds that a sudden diminution of pressure to the extent of 15 or 18 centimeters speedily produces death, but if the diminution is gradual, the life of mammals may be sustained even under so low a pressure as 12 centimetres. The consumption of oxygen and the temperature of the body diminish with the diminution of pressure.

The cundurango, alleged to be a cure for cancer, is not a tree, as has been supposed, but a vine similar to the grape, and its fruit is about twelve inches long and four in diameter. The sap of the vine is the color of milk, and this is believed to contain the valuable elements of the vine.

Scientific Press.

W. B. EWER.....SENIOR EDITOR.

DEWEY & CO., Publishers.

A. T. DEWEY, GEO. H. STRONG,
W. B. EWER, JNO. L. BOONE.

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San Francisco:

Saturday Morning, Jan. 20, 1872.

Gold and Legal Tender Rates.

San Francisco, Wednesday, January 17, 1872.—Legal Tenders buying 91¾; selling, 92¾. Gold in New York to-day, 109.

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Park Commissioners' Report.—We have received from the hand of William Hammond Hall, Engineer and Superintendent of the Golden Gate Park, the first Biennial Report of the Park Commissioners. It is an elaborate document setting forth the contemplated improvements and the actual progress made in laying out and beautifying the grounds, the amount already expended and the halance on hand.

It appears that the eastern end of the Park and the Avenue Reserve have received the first attention from the engineer, and already give evidence of a master hand. In a few months, pleasnre grounds, lawns, conservatories and flower gardens will heautify the landscape, and carriage drives and avenues will meander throngh the Park, in the midst of natural shruhhery and around artificial lakes. We can even now congratulate our citizens on the prospect of a Park that will be second to no other in the United States. San Francisco has the money to make it so, and we have seen New York Central Park.

A New Trade.—Several months since an experimental shipment of doors and sugar pine lumher was made from this port to Melhourne. The last steamer from that port brought news of the result of the venture, which is sufficieutly favorable to warrant further and larger shipments of the same kind. Heretofore, Boston has almost monopolized the Australian market for doors, sash, blinds, and pine lumber, and it is a matter of considerable importance to find that San Francisco will henceforth be able to control a portion of this trade.

Notices to Correspondents.—The communication of C. H. S. will be answered next week. Will our correspondent C. S., who sent us a communication last week send us his address.

On File.—Communication from "Exile," and one from "W. C."

The State Geological Survey—No. 3.

In our last issue we gave some account of the general character and plan of the much needed map of Central California, and the progress made by the survey towards its completion.

During the summer and autumn of 1870, while Messrs. Hoffman, Craven and Goodyear were employed upon the general topographical and geological work demanded for the construction of this map, Messrs. Amos Bowman and W. H. Petee were engaged in a very different department of the work, and one which possesses a peculiar interest for the people of the mining regions. This was a careful, detailed and systematic study of

The Ancient Auriferous Gravel Deposits,

Which form our hydraulic and deep tunnel mines, together with such investigations as time and means would permit of the auriferous quartz veins, and the more detailed geology of the bed-rocks and the volcanic formations of the Sierras. In the course of the season, these gentlemen thus completed a minute investigation and careful survey of the region between the North Fork of the Americau and the Yuba rivers.

The expense of all this field work combined with the costs of office work, and of printing and engraving, which during that year were also large, ran considerably in excess of the regular $2,000 per month allotted to the survey. Hence it became necessary to largely curtail the field-work during the subsequent year of 1871. Nevertheless, Mr. Goodyear after finishing up his notes of the work of 1870, and making a full investigation and report upon the quicksilver mines of the State, again took the field in May, 1871, in order to continue the detailed survey of the gravel mines in the country to the southeast of the North Fork of the American. From that time until the 7th of December, 1871, he has been constantly engaged upon this work, and has extended his investigations southeasterly as far as the Mokelumne river.

The Character and Purpose of this Work.

The objects of this investigation of the auriferous gravel question are, first, to ascertain the definito location and the approximate extent and magnitude of the masses of auriferous gravel, and to acquire such reliable information as can be obtained respecting their past and present yield, as furnishing the only data from which we can form any trustworthy estimates of what they may he expected to yield in the future. Second, to lay down the gravel upon the map, on a scale of two miles to oue inch, and thus exhibit clearly to the eye its situation and extent, showing hy different colors the localities where its surface is uncovered and where the mass can be worked hy hydraulic, and the localities where it is deeply buried beneath heavy masses of volcanic matter, and can only be worked by tunnelling and drifting. Third, to determine its exact geological age, *i. e.*, when, and at what period it was, in the history of the formation of the mountains and valleys of California, that this gravel was accumulated and laid down, what trees then grew, and what curious animals then lived in the country. Fourth, to settle, if possible (and possible it is), the much vexed questions of where this gravel came from, how and by what means it has been spread so far and wide over the country, here perched upon the topmost crests of mountain peaks and ridges, there hnried a hundred fathoms deep, here but a single foot, and there a hundred yards in thickness, and presenting such endless variations, in fact, such seemingly chaotic confusion in all the details of its distribution and arrangement, as to have haffled with its riddles, not simply the miner, but the scientific world as well, for twenty years; how all these things were accomplished, whence came the gold that this gravel contains, and how was it concentrated there. And lastly, why did this gravel cease to accumulate, and what are the wondrous changes that have since been wrought in the whole face of the country, and what were the causes and the *modus operandi* of those changes?

These are the objects which this survey of the gravel is meaut to accomplish, and these are the questions which it is expected to answer. The work is not an easy one. Only those who are acquainted with the deep gravel mines can understand the complexity of the puzzle they present, and those who are most familiar with them can best appreciate the difficulties of the problem. It has never yet heen satisfactorily solved. The miner has worked and studied these mines for twenty years.

For 20 years California has been visited from time to time by leading scientific men from almost all parts of the civilized world, who have come, and looked at the gravel and gone away and theorized upon it. And almost every agency, that is capable of moving rocks, from salt water oceans to enormous fields of ice, has been called in, to account for the presence and distribution of the gravel. Yet this one problem has defied them all. It well illustrates, therefore, the value of two years of earnest systematic work devoted to a definite purpose by trained and skillful hands as compared with 20 years of cursory flying trips by even the ahlest men, when it is added that this two years' work of the survey has in all prohahility furnished the means at last for the true solution of this complex problem. We do not wish to be understood as saying that the survey has succeeded in unraveling all the intricate details ot this problem. This was not to he expected. It will yet take many years of careful and laborious investigation to accomplish this, if indeed it can ever bo done. But we believe that this two years' work has furnished the key by which alone the mystery can he solved; the means of developing the only general theory which can by any possibility account for all the complex phenomena. And this is more than 20 years had previously effected.

Conclusion.

The practical value of this map of the gravel when completed will he readily understood hy all. The value of the mass of detailed information which has heen gathered respecting not simply the gravel mines, hut also the quartz veins, the marhle, the slate, the granite, and the whole geology of that portion of the country, when revised and presented in clear and intelligible shape to the people, as it can he in a little while if the means are furnished, will be even greater still.

We have by no means exhansted this subject, and we may refer to it again hereafter. But we think that enough has already heen said to show that aside from all the purely scientific portion of the work, there is much of the deepest practical value, aud of no little importance to the people at large in the State Geological Survey of California. It is not simply in the hands of competent and ahle men, hut of earnest and practical workers too. Incomplete as it is, it has already saved far more to the people of this State than it has ever cost them, and its value when once completed will not only be great and lasting, but will be felt and acknowledged hy all.

We do not ask in conclusion, therefore, whether the Legislature are willing to incur the odium of the scientific world, as they would surely do hy the stoppage of this work now; hut we do ask in all earnestness whether the people of California can afford, in a practical and pecuniary sense, to have this great work stopped today, and all the material so nearly ready for publication, thrown away?

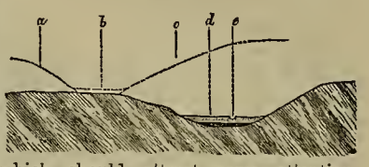
Hints to Miners—No. 7.

Formation of Deep Placers—Concluded.

Some of these descriptions and suggestions may appear trivial to persons not practically acquainted with gold mining, or who have never turned their attention to geological investigations, but they are connected with problems which mining managers have often to solve, or fail in the work they have in hand; and geologists find in these subjects as many interesting and difficult questions as in any hranch of science. "Smyth's Gold Fields of Victoria," from which this article is condensed, as before mentioned, is a work which should he better known than it is, heing one that contains a large amount of valuable information.

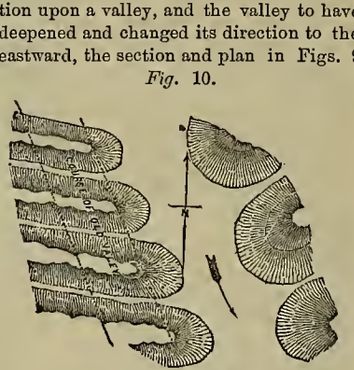
Some of the agencies supposed to have been busy in effecting the change of position of a main drainage course have already been mentioned, but there is another

Fig. 9.



which should attract some attention, namely, the tendency of hills to wear away more rapidly in proportion to the greater inclination of their sides, by the increased scour of the drainage water upon the steeper slopes, and this action would be probably accelerated where these slopos are most exposed to the prevailing wet winds. Well, supposing the several agencies named to have heen in active operation upon a valley, and the valley to have deepened and changed its direction to the eastward, the section and plan in Figs. 9

Fig. 10.



and 10 would probahly represent the effect of the alteration. In Fig. 9, *A* represents the old hill; *b*, old valley; *c*, old hill; *d*, new valley, and *e*, the existing watercourse. The newer valley would occupy a different position and the course of the old valley would be found to cross the summits of the newly-formed hill spurs. This and other irregularities in the direction of the alluvial deposits may be reasonably set down to some of the causes already explained.

A hrief recapitulation of some of the principal causes that seem to have been in operation in effecting the great changes of position of many of the valleys is as follows:

1. The greater disintegration of rocks that are more argillaceous in their composition than others in tho same watershed area.

2. The tendency of rocks to wear chiefly in the direction of the dip of the strata, through a more direct and penetrating influence of rains, frost and heat, upon the edges that are most exposed.

3. The more rapid disintegration of those hills that have the steepest incline, owing to the rapidity of the drainage, and the increased scouring action of the rains upou their slopes.

4. The diversion of the drainage from one valley to auother of less elevation, by the erosion of a channel through the dividing ridge lying between them.

5. The scouring action of drainage

waters from tributary gullies in a lateral direction across main valleys.

Much has been said and written respecting the position in which gold is found in the drifts. In some strata it is distributed throughout from the surface to the bed-rock—in other places it is seldom found in appreciable quantities except in the thin layer of quartz pebbles and drift immediately overlying the bed-rock. In many parts false bottoms occur; strata of clay and sand and drift are sunk through, for 15 or 20 feet, to the auriferous drift, which is taken out and washed. A miner perhaps ignorant of the usual mode of occurence of gold in the lead whore there is this arrangement of strata—breaks through the false bottom, and sinks a shaft down to the true bed-rock and finds there another auriferous layer.

How does it happen that the gold invariably finds it way to some stratum impermeable to the surface waters? That, as a rule, it lies on the bed-rock? We know that surface water—rain water is rapidly absorbed by the thin drifts overlying the bed-rock; that by this reason of the lithological character of the underlying rocks a covering of clay is soon formed on them that, in fact, they *puddle* themselves; and that the water derived from the surface finds its way along the course of the bed and through the drift, very much in the same way as it does in a running creek. Whatever influence, therefore, the surface waters in the drifts may have in determining the position of the particles of gold, it is certain that it does not continue to any appreciable depth in the bed-rock, and must cease as soon as an impermeable stratum is reached.

A Line of Steamers for the Transmission of Ores to Europe.

Mr. John Boyle, of England, is about starting a line of steamers to run between New York City and Cardiff, Wales, for the purpose of carrying the refractory ores of this State to that country for reduction. The Virginia *Enterprise* of Dec. 30, has made an extract from a letter to Mr. Louis Janin from Mr. Boyle in relation to the new enterprise. It will, perhaps, interest the miners of Eastern Nevada, where most of the smelting ores are produced: "The object of my visit to America is the establishment of a line of steamers between New York and the South Wales ports in the Bristol Channel. Cardiff is the port to which the vessels will sail, it being the only one in that part of the country at present capable of admitting first class steamers of the size we are building. However, we intend to carry from America at the same rate of freight to all the Bristol Channel ports, so that this line of steamships may be said to be a direct line from New York to Swansea, among other ports. The consignments brought to Cardiff for Swansea are to be immediately transhipped into our own coasting steamers and forwarded thither without further cost. I believe this fact will interest all engaged in the shipment of ores to Swansea, or England generally, and who have hitherto been sending them to Liverpool. This will no longer be necessary or expedient; and inasmuch as they are now beginning to smelt copper and silver ores at Cardiff, it seems likely that the course will come to be to consign direct to Swansea or Cardiff, the ores which are now sent to London, and thence round by sailing vessels to Swansea.

It is evident that the saving of this last item of cost, namely, the freight, 12s. 9d. from Liverpool to Swansea, will add considerably to the value of the ores, and tend to benefit those engaged in this business. I think if the American railways can be induced, in their own interests, to reduce their rate to a proper figure, the refractory ores may be taken profitably to Europe, and thus a new branch of mining operation and adventure be happily inaugurated. And in this, my line of steamers will be a valuable contributory part. In this view I am in communication, or shall be shortly, with that section of the railroads whose action at present is the greatest obstacle to the transmission of ores."

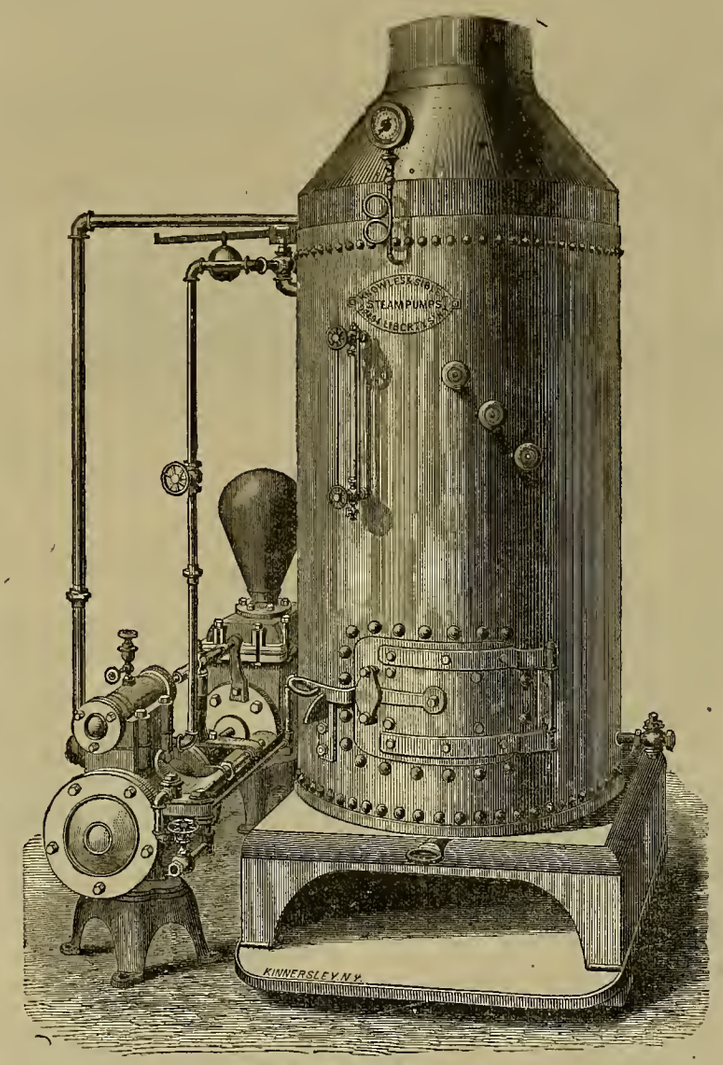
Academy of Sciences.—A meeting of the Academy of Sciences was held on Monday evening last, but no business of general interest was transacted.

Knowles' Patent Steam Pump.

We give, herewith, a representation of an old and well-tried portable steam pump—compact, effective and durable, and at the same time a very simple machine for forcing water from springs or wells to hotels, private residences, railway stations, etc. It is also specially adapted to irrigation purposes, raising water for stock, or for any other purpose for which water is required to be raised to a great hight. Several of these machines have already been sold in this State for irrigation purposes.

The machine is portable, calculated to be placed at or near the point from which water is to be taken, and force it to any distance that may be required.

Its simplicity is such that very little skill is required to operate it; it has no cranks, fly-wheel or dead-points, and is always ready to start as soon as steam is turned on.



KNOWLES' PATENT STEAM PUMP.

It is made in regular sizes, so that all parts of any one machine of a given size will fit in its place in any other machine of the same size; thus in case of wear or accidental breakage, an order to the agent in this city by mail or telegraph can be promptly filled without the necessity of visit in person or the assistance of a machinist to adjust the broken part.

The headquarters of the Company are at 92 and 94 Liberty street, New York. One of the proprietors of this paper recently visited the warehouse in that city, and had the pleasure of a personal inspection of the extensive business done by the firm in this line, and of the admirable order and system with which everything is accomplished. The company is said to have one of the largest stocks of pumps in the country—embracing all sizes, and calculated for every conceivable character of work.

The pump herewith shown took the highest premium at the two great Mechanics' Fairs in the country in 1869—the Massachusetts Fair at Boston and the American Fair at New York.

The pump was also exhibited at the late Fair of the Mechanics' Institute in this city, where, after a trial of steam pumps, by a Committee of Five of the most thoroughly practical machinists on this coast, it was awarded the first premium over all competitors—the committee reporting that it lost but 11¼ per cent.; while some pumps which were tested lost as high as 40 per cent.

It also received a diploma and medal at the last State Fair at Sacramento, which evidences of merit may be seen at the company's offices in this city.

The Central Pacific Railroad has 19 of these pumps in use along the line of the road for fire engines and for pumping water for shop and station use.

A. L. Fish, at No. 9 First street, is the agent for their sale in this city.

California Brandies.

The *Wine Dealers' Gazette* for January, commenting on the values and qualities of California Brandies, undoubtedly comparing them with those of other countries, arrives at a favorable conclusion in relation thereto, and adding a cheering word for the producers; it says: A few of them understand their business well, and make an article of brandy that will command a sure and profitable market after they shall have had time to gain the reputation which they deserve. Many circumstances give our State peculiar advantages for the production of brandy, and our people will not neglect a resource so important. When a more liberal policy has lightened the burdens and vexations now imposed on the distillers, when experience and study have improved their skill, and wealth and reduced interest enable them to ripen their brandy before selling, will drive the best French cognacs from the markets of the Western world.

The Overland Tea Traffic.—In 1870 only 1,700,000 pounds of tea passed over the Central Pacific Railroad; while 15,000,000 pounds passed over that road during the year just closed.

Soap.—The soap trade is improving, in view of the prospect of an early advance in the article on account of the recent advance in sodas and high price of rosins.

Quartz in Granite.

A good many practical miners are prejudiced against quartz ledges that are found in granite and pronounce always in favor of those located in slate formation. They say that their general experience is that although many rich ledges exist in granite formation, that they are apt to pinch out and become poor as the depth increases. This prejudice has discouraged many owners of ledges from fully developing their properties, and generally as soon as they showed signs of decrease in width, as all ledges do in places, the mines would be abandoned.

As a practical illustration of the fallacy of this prejudice, as a general conclusion, the Grass Valley *Republican* cites the instance of the Pennsylvania Mine which paid well at the surface, but began to lessen in yield as it went down. Old practical miners at work in the mine shook their heads when questioned about the Pennsylvania, and said it was "petering out" like all mines in granite. The mine was considered by thorough practical men, who had worked in it for years, as property that would never pay for working. But, there were a few men acquainted with it that believed that by woking 100 or 200 feet deeper through the "horse" or barren quartz, better ore could be reached. Mr. Harry Helm after spending about $10,000 in sinking and putting his incline down to a depth of nearly 500 feet from the surface struck one of the best paying ledges in Nevada County. The levels run since Mr. Helm sold out disclose a continuous lead with as perfect wall rock as was ever seen in a quartz mine. The rock pays with great evenness, and yields from $40 to $50 per ton.

In the vicinity of Nevada City the mines are mostly in granite, and many of them paid largely for the first hundred feet from the surface, but when much deeper than that would either pinch out or the ore would decrease in value. The developments in the Pennsylvania go to disprove the generally preconceived theory that "granite ledges" do not carry gold to any great depth, and the *Republican* suggests that some of the other mine-owners follow the example set them and sink deeper on their mines instead of giving them up.

Whelpley & Storer's Pulverizer.

We recently visited the Mechanics' Mill Building, corner of Fremont and Mission Sts. to witness the operation of the Whelpley & Storer Pulverizer. This Pulverizer is constructed solely for the reduction of sand or gravel to dust and cannot be used as a crusher. It consists of a series of paddles which revolve in an iron drum or cylinder and generating vortices of air which reduce the gravel and sand into dust by the mutual attrition of the particles. A suitable feeding device is provided, and by means of a fan blower the dust is carried to a receiving chamber as fast as produced. We believe that this is the first time this machine has been put into actual operation on this coast although it has been long used successfully in the Eastern States for pulverizing ores, manganese, bone, plaster, paint stuffs, shellac, grains, etc. A breaker is used in conjunction with the pulverizer so that all the materials shall be less than three-fourths of an inch, when fed into the pulverizer. The machine has been successfully employed to pulverize coal and feed it to the furnaces of steam boilers, with, it is said, a saving of about thirty per cent. of the fuel. The small machine now here is intended for this purpose, but a larger one for quartz pulverizing will soon be set up, when our millmen can inspect it. We hope in a future issue to illustrate the machine when we shall give a more extended notice of its working.

DOMESTIC ECONOMY.

Cooking and Architecture.

Perhaps oue of the greatest treats that a cook could enjoy is to be served with a dinner cooked by some one else. The reason of this is that the coustant smell of cooking nauseates the stomach, making it, by the sympathetic action of the several nerves of the system, disinclined to receive what it has so long anticipated through the action of the senses. In some instances the smell of dinner will be perceivable in other parts of the house to a greater extent than in the kitchen. To a delicate person this is sufficient entirely to destroy the appetite, and it is due solely to defective construction.

The cook is too often blamed when the architect is in error; and, while few know where to assign the fault, fewer still know how to remedy it; but it may be taken for granted that the evil will not disappear from amongst us until the art of house construction is based upon a more scientific principle than it has hitherto attained. Art and decoration and the convenient arrangement of accommodation occupy in the present day far too much of the consideration of the architect; whilst sanitary arrangements are neglected, and the healthfulness of buildiugs suffers in consequence.

In order to arrive at a true appreciation of the causes that lead to the kitchen being a nuisance in the house, instead of, as it should be, the meaus of imparting pleasure and comfort, we must consider first what is a smell and how it is conveyed. A smell, then—and here we are referring, it will be understood, to a smell that ought not to exist—is matter in a wrong place, and consequently it is dirt; and not only is the smell of cooking when it pervades a house, dirt, in a scientific sense, but it is so, absolutely.

The smells arising from cookiug, consist of minute particles given out from food of all kinds, owing to the partial decomposition which takes place duriug the application of heat and which are carried off and mixed with the surrounding air by steam or other vapors arising therefrom. With a properly constructed kitchen range and flue, these will all be conveyed up the chimney, and carried away from the house. In such a case they are harmless and become immediately, so to say, deodorized by admixture with a prepouderatiug amount of atmospheric air.

When, however, they are permitted to escape into the house, they do not meet with a sufficient quantity of air to render them inocuous; and, upon condensation of the vapors by which they are conveyed, they will settle upou the interior walls aud gradually cover them with a coating of grease and vegetable matter. These, if not coustantly removed, will accumulate, and in time decompose, giviug off still more objectiouable and unhealthy smells, but which are not so noticeable in consequence of the more powerful odors arising from a contiuuance of that evil from which they first had their origin.

It will repeatedly be found that the smell of cooking is stroug in other parts of the house and especially upon the floor immediately above the kitchen, whilst the kitchen itself is apparently free—or almost so—from the inconvenience; and the reason of this is, upon a little consideration, made perfectly clear and intelligible.—*Food Journal.*

Powders, Perfumes and Flavoring.

A charmiug recipe for scent powder to be used for wardrobes, boxes, etc., far finer than the mixtures sold at shops, is the following: Coriander, orris root, rose leaves and aromatic calamus, each one ounce; laveuder flowers, two ounces; rhodium wood, one fourth of a dram; musk, five grains. These are reduced to a coarse powder. The sceut on the clothes is as if all fragrant flowers had been pressed in their folds.

A perfume for uote paper said to be that used by the Queen of England is made of powdered starch, one half ounce; ottar roses, teu drops. Put this in bags and keep in the desk with paper.

All delicate flavors may be improvised by keeping the delicate substance in deodorized alcohol. How deodorized? filtering through animal charcoal or bone black in powder, the black may be used many times over; a thick flannel bag with wire on the top will answer for a filter. Fill it with the black dust and pour the alcohol in it, leaving it to settle through. Have wide month bottles with glass stoppers ready, and fill with alcohol; then fill with powdered lemon peel, peach leaves, almonds, slices of pineapple, raspberries or fresh cherries, and she will have a finer assortment of flavors than any manufacturer will furnish her. If she wishes, however, flavors which are out of reach, it is best to use compounds of which she is not ignorant.

Banana may be imitated with oil of jasmine and a very little tartaric acid.

Strawberries with a strong tincture of orris aud a very little acetic ether—one ounce of the tincture and oue eighth of ether.

Stroug tiucture of orris root resembles raspberry.

Pineapple is made of butyric ether, the acid itself coming from the transformation of rancid butter by a chemical process.

Very little of these preparations is needed to give the desired flavor.

Four ounces of the tinctures mentioned will supply flavor enough for constant use during an eutire summer.—*Harper's Bazaar.*

COOKING HAM.—The late Gen. Winfield Scott, an acknowledged authority in the culinary art, was of opiuiou that few cooks knew how to cook a ham, because they did not boil it until soft enough to be eaten with a spoon! A great artist once told the writer never to serve a ham under oue year old; it was theu to be soaked all night in soft water, and, if possible, running water; it was theu to be put on the fire in a large pot of cold water, and slowly boiled at least twenty minutes for ever pound it might weigh; and as for skinning a ham, he held it to be an outrage, a sacrifice to mere appearance, which no sensible man should be guilty of. If your ham is to be served cold, as is always done iu Europe, it should be souzed in snow or ice-water immediately after coming from the pot, because the sudden cold arrests the flow and escape of the juices.

COOKING STEAK.—A lady correspoudeut of the Ohio *Farmer*, who knows, advises—First, get tender steak; no matter what part it is from, so it is tender; let it be three fourths of an inch thick. Cook it at the last moment, when every other dish is ready to be set on the table. Use a wire broiler if you can get one. Have a hot fire and when it is crisped on one side, turn it over and crisp it on the other. If fat drops and blazes, throw a pinch of salt on the coals. Don't *do anything else* while it is cooking. Have your plate hot and a lump of butter melting in the bottom. Put butter on the upper sides and eat it in five minutes after cooking. More steak is spoiled by slow cooking thau by any other fault.

Mechanical Hints.

A NEW ZINC PAINT.—M. Artus, connected with the Belgian Zinc Company, has prepared a zinc white, made up with silicate of potassa or soda and used to paint zinc and other objects. The cement is something in the nature of a cement or artificial stone, and will withstand the action of the air, sun and water. It can be employed to advantage ou metal roofing, also on plaster, brick and wood. Its chief value will be in rendering wood, paper and tissues uninflammable, and for this purpose ought to be generally known. The value of the mixture for cements will also attract attentiou to it, and we shall probably hear of its extensive use as a constituent of artificial stone. The heat of rooms under roofs painted with this mixture was found to be 10 degrees less than under the painted metal.

SALT WATER IN STEAM BOILERS.—Engineers usiug salt water in their boilers should be provided with a *Salinometer*, having four made points measured on the scale, one for fresh water, one for sea water (water containing 1.32 of salt) one for water containing 2.32 of salt aud one for water containing 3.32 of salt. When the specific gravity has iucreased from the mark 1.32 to 2.32, it is a proof that the proportionate quantities of salt and water is such that the amount of salt is double that of sea water. This is considered the limit; and wheu this point is passed, it is time to blow off water. As a saturated solution of salt in water contains 37 per cent. of salt, or about one-third, it is clear that engineers blow off long before the point of saturation has beeu reached.

PAPER BOX MANUFACTURE.—There were iu 1840 but five paper-box manufactories in this country, with an aggregate business of $20,000 per aunum. Single establishments now turn out millions of dollars' worth of goods annually, and it is said that an average of seventy-five new shops are started every year.

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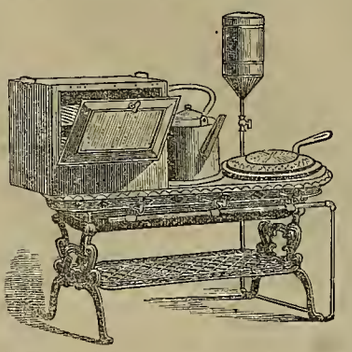

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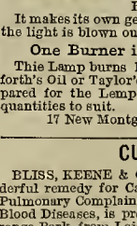

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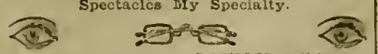

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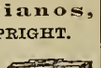

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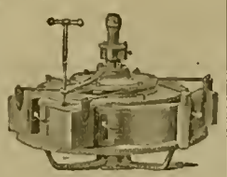

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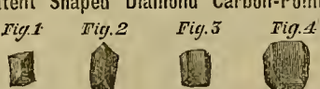

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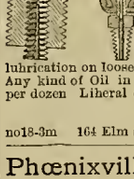

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Travelers' Guide.

CENTRAL PACIFIC RAILROAD.

OVERLAND TRAINS.

Express Daily, via Oakland.	Express Daily, via Vallejo.	Dec. 6, 1871.	Express Daily, via Vallejo.	Express Daily, Oakland.
LEAVE.	LEAVE.		ARRIVE.	ARRIVE.
7.00 A M	8.30 A M	....San Francisco...	7.20 P M	8.20 P M
7.35 A M	.....	....Oakland	.....	8.00 P M
7.50 A M	.....	.... San Jose.....	.....	8.30 P M
8.35 A M	.....	....Niles.....	.....	7.05 P M
11.27 A M	.....	....Stockton.....	.....	4.22 P M
.....	10.30 A M	....Vallejo	5.30 P M	.....
.....	12.50 P M	...Davis.....	3.10 P M	.....
1.15 P M.	2.00 P M	....Sacramento	2.30 P M	2.35 P M
ARRIVE.	5.15 P M	....Colfax	10.20 P M	LEAVE.
	12.45 A M	....Reno	2.10 A M	
	9.10 A M	....Winnemucca.....	4.15 P M	
	12.00 M	....Battle Mountain.	1.25 P M	
	4.40 P M	....Elko.....	8.45 A M	
	6.20 A M	... Ogden	5.20 P M	
	ARRIVE.		LEAVE.	

Down — Read — Up

San Francisco and San Jose.

LEAVE.	LEAVE.		ARRIVE.	ARRIVE
.....	3.00 P M	....San Francisco...	10.40 A M	.....
7.10 P M	11.05 A M	....Niles	8.35 A M	5.30 P M
8.30 P M	5.30 P M	...San Jose.....	7. 0 A M	4.10 P M
ARRIVE.	ARRIVE.		LEAVE.	LEAVE.

San Francisco, Stockton and Modesto.

LEAVE.	LEAVE.		ARRIVE.	ARRIVE.
*4.00 P M	7.00 A M	....San Francisco..	8.30 P M	*12.40 P M
8.10 P M	11.05 A M	....Lathrop.....	4.45 P M	8.10 A M
9.20 P M	5.30 P M	....Modesto.....	.....	7.00 A M
8.30 P M	11.27 A M	....Stockton.....	4.22 P M	7.45 A M
ARRIVE.	ARRIVE.		LEAVE.	LEAVE.

Sacramento, Marysville and Tehama.

LEAVE.	LEAVE.		ARRIVE.	ARRIVE
*8.45 A M	2.35 P M	....Sacramento	1.05 P M	*4.45 P M
10.25 A M	3.25 P M	....Junction.....	12.15 P M	3.25 P M
1.50 P M	5.15 P M	....Marysville.....	10.20 A M	12.00 M
8.00 P M	8.35 P M	....Tehama.....	6.50 A M	5.30 A M
.....	9.30 P M	....Red Bluff.....	6.00 A M	.....
ARRIVE	ARRIVE.		LEAVE.	LEAVE.

OAKLAND BRANCH.—LEAVE SAN FRANCISCO, 7 00, 8 10, 9 2 , 10 10 and 11 20 a. m., 12 10, 1 50, 3 00, 4 00, 5 15, 6 30, 8 0 9.20 and *11 30 p. m. (8 20, 11 20 and 3 00 to Oakland only).
LEAVE BROOKLYN, *5 30, 6 40, 7 50, 9 00 and 11 00 a. m., 1 30, 2 40, 4 55, 6 10, 7 40 and 10 10 p. m.
LEAVE OAKLAND, *5 40, 6 50, 8 00, 9 10, 10 00, and 11 10 a. m., 12 00, 1 40, 2 50, 3 50, 5 05, 6 20, 7.50 and 10 20 p. m.
ALAMEDA BRANCH.—LEAVE SAN FRANCISCO, 7 20, 9 00, and 11 15 a. m., 1 30, 4 00, 5 30 and 7 00 p. m. (7 20, 11 15 and 5 30 to Fruit Vale only).
LEAVE HAYWARDS, *4 30, 7 00 and 10 45 a. m., and 3 30 p. m.
LEAVE FRUIT VALE, *5 25, 7 35, 9 00 and 11 20 a. m., 1 30, 4 05 and 5 30 p. m.

CALIFORNIA PACIFIC RAILROAD.

Leave S. Fran.	Leave Vallejo.	Arrive at Calistoga.	Arrive Marys'le.	Arrive Sacra'to.
8.30 A M	10.30 A M	*1.30 P M	*4.00 P M	1.30 P M
*4.10 P M	5.45 P M	8.15 P M	10.25 P M	8.40 P M
†8.30 A M	10.35 A M	1.00 P M	5 15 P M	.....
Leave Sacra'to.	Leave Marys'le.	Leave Calistoga.	Arrive Vallejo.	Arrive S. Fran.
*7.30 A M	6.00 A M	7.50 A M	10.15 A M	12.15 P M
2 30 P M	*11.30 A M	*2.15 P M	5.30 P M	7.30 P M
....	†10.45 A M	3.00 P M	5.20 P M	7.30 P M

Sacramento, Davis and Marysville.

Leave S. Fran.	Leave Sacra'to.	Leave Davis.	Arrive Wood'ld	Arrive Mar'ville
8.30 A M	*11.45 A M	12.50 P M	1.25 P M	4.00 P M
*4.00 P M	7.15 P M	8.05 P M	8.35 P M	10.35 P M
8.30 A M	2.30 P M	†3.10 P M	3.38 P M	5.15 P M
Leave Mar'ville	Leave Wood'ld.	Leave Davis.	Arrive Sacra'to	Arrive S. Fran.
*6.00 A M	7.35 A M	8.15 A M	9.00 A M	12.15 P M
*11.30 A M	2.30 P M	3.10 P M	4.00 P M	7.30 P M
†10.45 A M	12.30 P M	3.10 P M	1.30 P M	7.30 P M

SAN FRANCISCO & N. PACIFIC R. R.

Leave			Arrive
.....	*2.00 P M	....San Francisco. ..	*11 00 A M
.....	4.35 P M	....Donahue.....	8.45 A M
.....	5.00 P M	....Petaluma.....	8.20 A M
.....	6.00 P M	....Santa Rosa.....	7.30 A M
Arrive.	6.45 P M	....Healdsburg	6.45 A M

Arrive
.....
.....
.....
.....
Leave.

CAL. P. R. R. CO.'S STEAMERS.

Leave.	Leave.		Arrive.	Arrive.
*3.00 P M	*3.00 P M	....San Francisco. ..	*10.00 P M	*8.00 P M
6.00 P M	6.00 P M	....Benicia.....	8.00 P M	6.00 P M
.....	2.00 A M	....Stockton.....	2.00 P M	.....
2.00 A M	.....	....Sacramento	.....	12.00 M.
Arrive.	Arrive.		Leave.	Leave.

*Sundays excepted. †Sundays only.

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Mining Matters.

The *Commercial Herald* in its annual review of mining matters says that there can be no question but every thing wears a most cheering aspect, and that the product for the coming year will prove to be unusually large. When we take into consideration the entire situation—the immense gains we have now made in the business of mining; the improved processes and machinery lately introduced, coupled with the great number of new reduction works erected, and the certainty of ample water supplies the approaching season, we find here an aggregate of recently acerning advantages that warrant us in predicting for the current year a yield of the precious metals equivalent to eighty-five or ninety millions of dollars, and should nothing transpire meantime to mar the preseut prospect, there would be little ground for surprise should the product reach a hundred millions hy the end of the year.

Everywhere new ore-crushing mills have been erected, the most of them of large capacity, and uearly all capable of doing better work than the average of those before put up. Improved furnaces have been built for roasting the rebellious ores and a great number of smelting works constructed in the base metal districts. In the ditches and reservoirs built in this State the past year, our water-supplying facilities have been increased fully twenty per experienced—snch aid having, in fact, never cent. while capital the, most powerful auxiliary of all, has come to our assistance, with a freedom and readiness never before before been so fully deserved. With all these helps, and the many new discoveries being made and rich mines constantly developed, we feel confident, that, with no untoward turn of events, there will be gathered from the mineral regions west of the Rocky Mountains a hundred million dollars with in the next twelve months.

Dividends, Profits, Etc.

With this free production, the profits arising from mining operations the past year have been correspoudingly large, leading to liberal investment in stocks and properties of this kind, causing the latter to advance steadily, and, in some cases, with extreme rapidity. Many of the older mines, which had for a long time been worked with little or no profit, have been rescued from the assessment and restored to the dividend-paying roll. Others, which had never before contributed anything toward the cost of their development, have begun to yield pay-ore, and even afford in same cases handsome returns; while still another class, that had heen struggling for years with an adverse fate, their stock depressed to mere nominal figures, have advanced many hundred per cent., and that without undue inflation, there being, to all appearances, a good margin for them to further appreeiate on their merits.

Several new mines, some of them only discovered, or at least brought to a productive condition, within the year, have already yielded large and profitable returns, sufficient, in some instauces, to have reimbursed their purchase money, with cost of plant and other improvements. This has been the case with a number of mines in Nevada and Utah, while almost all the early locations on the Comstock Lode have so improved in appearance or actual ore production as to greatly enhance their valne. The Crown Point and Belcher grounds, which, a little more than one year ago, could have been bought for less than one hundred thousand dollars, are now selling at rates that would aggregate more than three million dollars each. Nor are these rates at all extravagant, such large hodies of high-grade ore having been developed in these mines as fully warrant them. Already these companies are paying euormous dividends, and it is qnite probable that their net profits will amount the current year to several millions.

Mining Accidents.

Geo. W. Rogers, working at the Belcher mine, had his leg broken on the 8th inst. by the collision of two cars on a switch, whereby one of them was thrown upon him.

John Ryan fell from a scaffold at the North Star mill last week, and severely injured his back and spine.

John McClafferty fell into a shaft of the Big Gun claims, at Michigan Bluff, recently, and died from the effects of injuries received.

W. W. Clark, while working in his claim on the north side of Roach Hill, was suddenly swept out by a land-slide which started from the surface at the back part of the claim and passed through where he was standing holding the pipe. He was carried over a high precipice, down a steep ravine which leads into the North Fork of the American river. The body has not been found. Mr. Clark was 49 years of age, and from the State of Illinois.

John Larimer, proprietor of Larimer's mill, while adjusting somethiug in the battery, had his left hand badly crushed by one of the stamps falling on it.

New Incorporations.

Hercules S. M. Co.—Jan. 10, 1872. Capital stock $3,000,000 in 30,000 shares. Trustees: Henry Raymond, C. P. Hall, C. L. Roe, John Bisanz, Julius Ordway.

Pioche Tunnel Co.—Jan. 8. Capital stock $3,000,000 in 30,000 shares. Trustees: Geo. Hearst, F. A. Benjamin, Samuel Linktou, E. Skerritt, H. C. Kibbe.

Central Hydraulic M. Co., Jan. 12. Capital stock $1,200,000 in 12,000 shares. Trustees: W. H. Knight, Sam. B. Drury, H. C. Lee.

Union Hydraulic M. Co.—Jan. 9. Capital stock $3,000,000 in 30,000 shares. Trustees: Dexter Tafft, Edmund Green, R. E. Brewster.

South Emma M. Co.—Jan. 10. Capital stock $3,000,000 in 30,000 shares. Trustees: J. E. de la Montague, Delos Lake, B. F. Sherwood, M. Mayblum, Cornelius O'Counor.

Oakville Quicksilver M. Co.—Jan. 18. Capital stock $300,000 in 3,000 shares. Trustees: E. N. Boyntou, S. Hutchinsou, O. P. Southwick.

Floral Sprino Water Co.—Capital stock $200,000 in 2,000 shares: Trustees: J. R. Wilson, W. M. Subbock, F. F. Coffin, M. J. McDonald, C. H. Hobbs.

May Henrietta First North Ex. Co.—Jan. 10. Capital stock $2,000,000 in 20,000 shares. Trustees: Orville Strong, J. B. Bidleman, S. D. Woodhull, Geo. D. Nagle, Samuel Purdy.

Moreau Machine Factory,—Jan. 6. Capital stock $500,000 in 5,000 shares. Trustees: Isaac Jessup, W. B. Isaacs, Samuel Hill, A. Rosenfield, J. W. Stow.

Meetings and Elections.

Amador Mining Co.—Jan. 15. Trustees: D. D. Colton, M. S. Latham, A. K. White, Fred. A. Hill. Subsequently David D. Colton was chosen President; Milton S. Latham, Vice President; Fred. A. Hill, Secretary; John A. Steinberger, Superintendent.

Raymon & Ely M. Co.—Jan. 15. Trustees: Al. Bull (President); W. H. Raymoud, C. J. Brenham, L. A. Booth aud A. K. P. Harmou. Andrew J. Moulder was retained as Secretary and C. W. Lightnes as Supt.

San Francisco Gas Co.—Jan. 15. Trustees: Peter Donahuo (President), J. A. Donahue Vice-President); John Parrot, J. D. Walker and Charles E. McLane. J. G.Eastland, was continued as Secretary.

Gold Hill M. and M. Co.—Jan. 16. Trustees: John H. Turney (President), P. G. Venard, L. Imhaus Friedberg and P. Sabatie. Richard Wegener was chosen Secretary and H. Huguet, Supt.

California State Telegraph Co.—Trustees: Geo. H. Mumford, James Gamble, Goo. S. Ladd, H. H. Haight, W. C. Ralstou, Chas. E. McLane and F. McCrellish. Subsequently G. H. Mumford was chosen President; H. H. Haight, Vice-President; Geo. S. Ladd, Treasurer and Secretary; aud James Gamble, General Supt.

Consolidated Virginia M. Co.—Trustees: Edward Barron (President); S. Heydenfeldt, J. C. Flood, William O'Brien, B. F. Sherwood; Secretary, D. T. Bagley; Superintendent James G. Fair.

Fine Metal From Base Ores.—The bar of gold and silver bullion of which we spoke in our last issue as extracted hy the Paul Process—simple amalgamation, from ores wherezinc, lead and arsenic were present, proved by Mint assay to be .989 fine, lacking only 11-1,000th of being chemically pure.

With 1872

Commencos volume XXIV of the Scientific Press. Its life of nearly 12 years, we verily believe, has saved more to the Pacific States, and imparted more profitable and practical knowledge to personal readers than any other journal in this new and still developing field. We wish to increase our usefulness. We want more subscribers added to our already large list. The publication of such a first-class paper is expensive. We shall make the Press worthy of double its present circulation this year.

Every old subscriber who can feel the value to himself and the community of a journal that seeks its patronage through articles instructive, elovating, and interesting, and without trash or sensatiou, we earnestly solicit to renew his own subscription and to speak a good word for the Press to others. The commencement of a new year and volume is a good time to

Send Us Your Subscriptions.

Jan. 1, 1872.

Old Land Marks.—We were shown this week an ancient map of North America, published in England in 1755, upon which we cannot find "our own country"—so to speak. The engraving and printing is finely executed; but the geographical outlines of coasts, lakes, rivers, etc., are terribly at fault with our latest surveys. We are reminded by looking over this map that our land was not at that date a "gridirou" of railways, though we have become so accustomed to them, that it seems strange how peoplo could ever have done without them. This map was found, with an old newspaper announcing the death of General Washiugton, aud a number of other antique publications, in a trunk left by his ancestors to J. H. Blethen, Jr., of this city.

Contributions to our Cabinet—No. 551.—Specimen from Ella Copper Mine, Railroad District, 28 miles south of Elko. Character of ore carbonates; mine worked by shaft 75 feet deep and tunnel 140 feet long; width of vein 21 feet at first level. Ore shipped to San Francisco and sold to manufacturers of blue stone. They have out now 200 tons of choice ore and will continue to ship as fast as means of transportation will admit; A. J. Roulstone, Supt.

Japanese Silkworm Eggs.—Hon. Frederick Watts, Commissiouer of the Agricultural Department at Washington, has been pleased, on the recommendation of Senator Cole, to forward to Secretary Johnston, of the California Cotton Growers and Manufacturers' Association, a lot of Japanese eggs. They are the *Bombyx Mori* variety. Amateurs and professional silk breeders can have some of these eggs, if timely application shall be made either to James Dale Johnston, 107 Sansome street, or to President Ellsworth, at the salesrooms of the California Silk Manufacturing Company, Market street, near Sansomo.

New Book on Mining, Assaying, Etc.—We have received a volume from the pen of J. S. Phillips, mining engineer, entitled "The Explorers', Miners' and Metallurgists' Companion;" Dewey & Co., San Francisco, publishers. It is a book of over 600 pages, and contains a practical exposition of the various departments of exploration, mining, engineering, assaying and metallurgy. It appears to be an excellent work, and must prove of great use.—*Daily Call, Dec. 13th.*

Daily Record,

By the U. S. Army Signal Service, for the week endiug Wednesday, January 17, 1872.

Place of Observation.	Date	Hight of Barometer.	Thermometer.	Rel. Humidity.	Direction of Wind.	Vel. of Wind. Miles p. Hour. Force of Wind red. to Beaufort's Scale. Approx'tely.	Amount of Lower Cloud. Rainfall since last Report.	State of Weather
San Francisco	Thurs...	30.14	54	80	S.	33	High. 4-4	.14 Lt. Rain
	Friday..	30.1	51	87	E. E.	6	Fresh 4-4	Threat'g
	Saturday	30.19	54	83	Calm		4-4	Hvy Fog
	Sunday..	30.17	54	93	Calm		4-4	Cloudy
	Monday.	30.16	49	99	N.	13	Fresh 4-4	Foggy
	Tuesday.	30.23	50	93	N.W.	11	Fresh 1-4	Fair
	Wed'day	30.19	52	83	N. E.	10	Fresh	Clear
San Diego.	Thure....							
	Friday ..							
	Saturday							
	Sunday..							
	Monday.	30.00	12	81	E.	3	Gentle	Clear
	Tuesday.	29.64	39	90	Calm		4-4	Cloudy
	Wed'day	30.05	7	78	N. E.	3	Gentle	.5 Clear
Virg'a, M.T.	Thurs....							
	Friday...							
	Saturday	30.24	37	80	Calm		4-4	Cloudy
	Sunday..	30.32	35	80	N. W.	6	Fresh 2-4	Fair
	Monday .	30.33	31	79	N. E.	6	Fresh	Hazy
	Tuesday.	30.03	34	79	Calm		4-4	Threat.
	Wed'day	30.33	26	76	N.	8	Fresh	Clear
Corinne.	Thurs...							
	Friday..							
	Saturday	30.08	24	72	S.	4	Gentle	Clear
	Sunday.	30.04	41	48	W.	25	Brisk 4-4	Cloudy
	Monday.	30.31	19	8	Calm			Clear
	Tuesday.	29.97	35	91	Calm		4-4	Cloudy
	Wed'day	30.13	23	99	N.	26	Brisk 4-4	.30 Lt. Snow
Cheyenne.	Thurs...							
	Friday..							
	Saturday	30.14	23	86	Calm			Clear
	Sunday..	30.00	32	74	S.	6	Fresh 2-4	Fair
	Monday..	30.36	28	77	S.	5	Gentle	Clear
	Tuesday.	30.04	28	82	N. E.	3	Gentle 2-4	Fair
	Wed'day	30.16	28	94	N.	12	Fresh 4-4	Lt. Snow
Denver.	Thurs....							
	Friday..							
	Saturday	30.19	22	86	N.W.	7	Fresh	Clear
	Sunday..	30.34	15	82	S. E.	4	Gentle 4-4	Cloudy
	Monday..	30.18	31	68	N.W.	20	Brisk 4-4	Cloudy
	Tuesday.	30.3	13	81	Calm			Hazy
	Wed'day	30.23	26	75	S.	4	Gentle 4-4	Cloudy
Omaha.	Thurs....							
	Friday...							
	Saturday	30.12	33	68	N.W.	7	Fresh 4-4	Cloudy
	Sunday..	30.55	11	83	Calm			Clear
	Monday .	29.52	33	93	W.	11	Fresh 4-4	Cloudy
	Tuesday.	30.34	13	79	N.W.	9	Fresh	Clear
Davenport, I	Wed'day	30.48	12	79	Calm			Clear

Sacramento.

[By T. M. Logan, M. D., Secretary State Board of Health.

Jan. 10, 1872. Rainfall for the season to date..15.457 inches
" 17, " " from Jan. 1 " " ...0.970 "

Total for the season up to Jan 10, 1872.....16.451 inchs.

Remarks.—The indications of approaching fair weather, pointed out in last week's report, are being fully realized; and a moderate northerly wind with a steady rise of the Barometer would lead to the conclusion of its continnance for a while. It will be observed in our published tables that prior to the 1st of Jan. we have rec'd 12.421 inches of rain. It is not probable, according to the theory broached in this paper last year, will be more than the amount subsequently to the 1st. of Jan., which would make the total for the season about 24 inches. On this I think we may safely calculate, as we have already received 16.421 inches, four inches of which has fallen this month.

Our Agents.

Our Friends can do much in aid of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

Wm. F. Spencer—California.
W. H. Murray—General Traveling Agent.
C. H. Dwinelle—Special Corresponding Agent.
I. N. Hoag—Sacramento, General Agent.
F. M. Shaw—San Diego.
L. P. McCarty—California.
M. B. Starr—Pacific Coast.
A. C. Knox, City Soliciting and Collecting Agent.

Our Printed Mail List.

Subscribers will notice that the figures found on the right of the pasted slips, represent the date to which they have paid. For instance, 21sp70 shows that our patron has paid his subscription up to the 21st of September, 1870; 4jy72, that he has paid to the 4th of January, 1872; 4jl73, to the 4th of July, 1873. The inverted letters (ɟɟɟ, etc.,) occasionally used are marks of reference, simply for the convenience of the publishers.

If errors in the names or accounts of subscribers occur at any time an early notice will secure their immediate correction. Please notify us if you are not properly credited within two weeks after paying.

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Mining Companies

Should advertise their Meetings, Assesements, and Sales, in the Scientific Press. Ratee more than one-half less than daily publications. Stockholders should take the hint and request their managers to truly economize by advertising in a Mining Journal, where all noticeemay be seen by cheaply purchasing and examining a weekly. You will thus save money and uphold a journal which upholds your interests.

COMPLETE VOLUMES

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MARAVILLA COCOA.—No breakfast table is complete without this delicious beverage. The *Globe* says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoas, but we doubt whether any thorough success had been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma, they have produced an article which supercedes every other Cocoa in the market. Entire solubility, a delicate aroma and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homœopaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers, Original Homœopathic Cocoa and Soluble Chocolate Steam Mills—Brick Lane, London. Export Chicory Mills, Bruges, Belgium. fe25-1y

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Besides the studies of the public schools, Algebra, Geometry, Latin, Greek, German, French, Spanish and Book-Keeping are taught.

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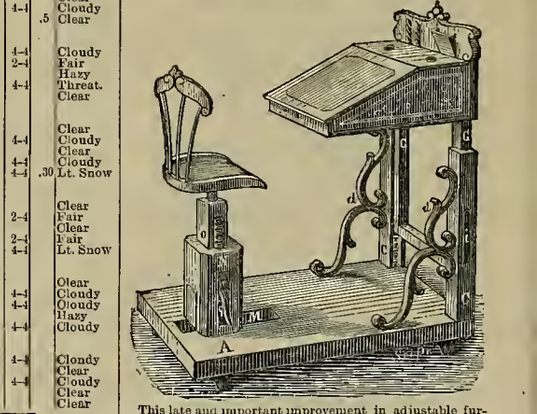

This late and important improvement in adjustable furniture for schools, halls and other purpoeee, is now offered to the public on liberal terme. All its superior points of usefulness and merits can only be realized upon witnessing its actual operations. Address Wiley Watson, Visalia, Tulare Co., Cal., for further information. 2v24-26

BETTS'S CAPSULE PATENTS.

To prevent INFRINGEMENTS, NOTICE IS HEREBY GIVEN, that BETTS'S NAME is ON EVERY CAPSULE he makes for the principal merchants in England and France, thus enabling vendor, purchaser, and consumer, not only to identify the genuineness of the Capsule, but likewise the contents of the vessel to which it is applied. The Lord Chancellor, in his judgment, said that the Capsules are not used merely for the purpoee of the ornament, but that they are serviceable in protecting the wine from injury, and insuring its genuineness.

Manufactories:—1, Wharf Road, City Road, London, and Bordeaux, France.

Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the Scientific Press we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

Alhambra Hill Mining Company—Location

of works, Alhambra Hill, Pluto District, White Pine county, Nevada.

Notice—There are delinquent upon the following described stock, on account of Assessment (No. 1) levied on the Ninth day of December, 1871, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No of certificate.	No. shares.	Amount.
Amreas Fisher.....	not issued,	253	$126.50
R. Beverly Cole.....	" "	253	126.50
R. Mayrisch.....	" "	253	126.50
C. F. Schmidt.....	" "	253	126.50
R. Steinhelmer.....	" "	253	126.50
J. Hausmeister.....	" "	253	126.50
D. H. Jackson.....	" "	506	253.00
L. Schumacher.....	" "	161	80.50
J. Naptually.....	" "	161	80.50
D. B. Arrowsmith...	" "	161	80.50
John Shoenbar.....	" "	161	80.50
Thos. J. Reed.....	" "	80½	40.25

And in accordance with law, and an order of the Board of Trustees, made on the Ninth day of December, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction by Maurice Dore & Co., at No. 327 Montgomery street, on the Fifth day of February, 1872, at the hour of 12 o'clock M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

HENRY G. LANGLEY, Secretary.

Office—612 Clay street, San Francisco, Cal. jr20-4w

Caution—Eagle Quicksilver Mining Company—Location of works, Santa Barbara County, Cal.

Notice is hereby given to the public not to purchase or negotiate for the following named shares, designated by the names of the delinquent owners in the Eagle Quicksilver Mining Company. They were duly advertised and sold in full at public auction, as by law, and the articles of agreement provided, by John Middleton and Son, Auctioneers, on Monday, the 8th day of January, 1872, for delinquent assessments thereon and accruing costs of advertising and expenses of sale, and will not be transferred by said company.

Names.	Shares sold.
Bush, A. F	1
Pioche, F. L. A	2
Pearson, H. H	1
Townsend, James B	2
Sinclair, Peter	1
Williams, Mrs. Sarah	1

WM. H. WATSON,
Secretary of Eagle Quicksilver Mining Company, Room 5, No. 302 Montgomery street, San Francisco, Cal.
January 8, 1872. ja13-3t

Kincaid Flat Mining Company—Location

of works, Tuolumne County, State of California.

NOTICE.—There are delinquent upon the following described Stock, on account of Assessment levied on the 11th day of December, 1871, the several amounts set opposite the names of the respective Shareholders as follows:

Names.	No. Certificate.	No. Shares.	Am't.
F. Vassault	93	50	$125 00

And in accordance with law, and an order of the Board of Trustees, made on the 11th day of December, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the Secretary's Office, No. 220 Clay street, San Francisco, California, on Wednesday, the 7thday of February, 1872, at the hour of 10 o'clock A. M. of said day, to pay said delinquent assessment thereon, together with costs of Advertising and expenses of sale.

R. H. CORNELL, Secretary.

Office, No. 220 Clay street, San Francisco, Cal. j203t

Mina Rica Mining Company—Location of

works, Auburn District, Placer county, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 16th day of January, 1872, an assessment of Twenty (20) cents per share was levied upon the capital stock of said company, payable immediately in United States gold and silver coin, to the Secretary at the office of the company, room No. 2, 418 California street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Monday, the 19th day of February, 1872, shall be deemed delinquent, and will be duly advertised for sale by public auction, and unless payment be made before, will be sold on Monday, the 11th day of March, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

GEO. R. SPINNEY, Secretary.

Office—Room No. 2, third floor, 418 California street, San Francisco, California. ja20-5w

Mount Jefferson Milling and Mining Company—Location of works, First Garote, Tuolumne county, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 8th day of January, 1872, an assessment of Twenty-five cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the company's office. Any stock upon which said assessment shall remain unpaid on Monday, the 5th day of February, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before the hour of 2 o'clock P. M., will be sold on Thursday, the 22d day of February, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. W. CLARK, Secretary.

Office, 418 California street, San Francisco. ja13-4w

Nevada Consolidated Borax Company---

Location of Works: Columbus and Fish Lake Valleys, Esmeralda County, State of Nevada.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the 29th day of November, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. of Certificate.	No. of Shares.	Am't.
Charles Myrtetus	15	3571	$178 55
Charles Myrtetus	16	3571	178 55
Charles Myrtetus	22	250	12 50
Charles Myrtetus	55	1220	61 00
Charles Bell	1	5955	297 75
Charles Bell	26	2000	100 00
Charles Bell	27	200	10 00
Charles Bell	28	100	5 00
Charles Bell	29	625½	31 26¾
Charles Bell	30	2000	100 00
Charles Bell	31	200	10 00
Charles Bell	32	2000	100 00
Charles Bell	33	20	1 00
Charles Bell	61	2161⅔	108 08⅓
S E Holcombe	24	250	12 50
S E Holcombe	35	4167	208 35
S E Holcombe	59	729	36 45
F W Fratt	25	250	12 50
F W Fratt	62	41	2 05

And in accordance with law, and an order of the Board of Trustees, made on the 29th day of November, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the company, 420 Montgomery street, Room No. 1, (3d story) San Francisco, Cal., on Monday, the 29th day of January, 1872, at the hour of 11 o'clock A. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

J. L. SANFORD, Secretary.

Office, No. 420 Montgomery Street, (Room No. 1) 3d story, San Francisco, Cal.

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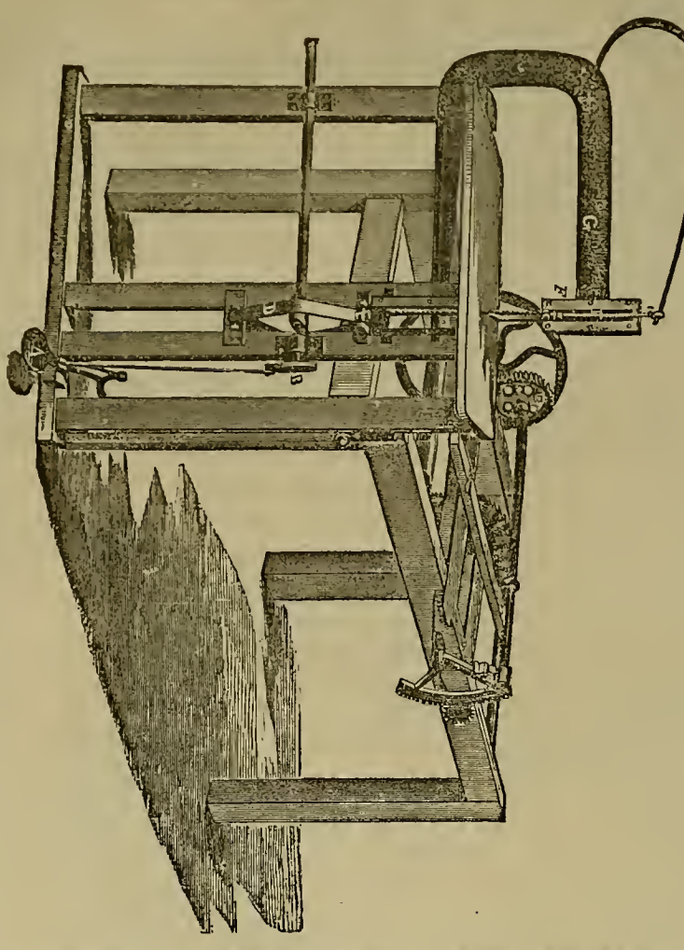
HAND SAWMILL AND JIG SAW

For Carpenters' and Woodworkers' Use.



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For every well regulated shop, where time and labor-saving is appreciated. Examine it in operation.

Price Low—$125 for both Jig and Circular Saws. W. I. TUSTIN, Agent,

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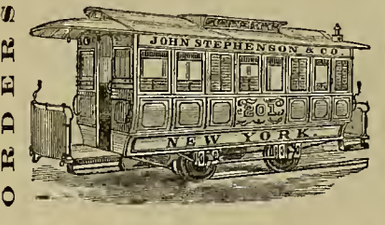

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3v2-3m-eow Oakland Cal.

Nevada Land and Mining Company—Location, Spruce Mountain, Antelope and Clifton Districts, Elko County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 9th day of January, 1872, an assessment of four cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the company's office, Room 5, No 302 Montgomery street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Tuesday, the 13th day of February, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 4th day of March, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

By order of the Board of Trustees.

WM. H. WATSON, Secretary.

Office, Room 5, No. 302 Montgomery street, San Francisco, Cal. ja13-3w

Quail Hill Mining and Water Company—Location of works, Salt Springs Valley, Calaveras County, Cal.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 19th day of December, 1871, an assessment of Five Dollars per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, 409 California street (upstairs), San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 23d day of January, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 13th day of February, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. F. CRONISE, Secretary.

Office, 409 California street, San Francisco, Cal. d24-4w

Silver Wave Mining Company---Location of works, White Pine Mining District, White Pine county, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 9th day of December, 1871, an assessment of Three Dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the Company's office. Any stock upon which said assessment shall remain unpaid on Thursday, the 25th day of January, 1872, shall be deemed delinquent, and will be duly advertised for sale, at public auction, and unless payment shall be made before, will be sold on Friday, the 23d day of February, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. J.W. CLARK, Secretary

Office, 418 California St. San Francisco. De30-4w.

Union Gold Mining Company---Location of works, Howland Flat, Sierra county, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 4th day of January, 1872, an assessment of one dollar (*$1*) per share was levied upon the capital stock of said Company, payable immediately in United States gold coin, to the Secretary, at the office of the Company, Room No. 22, Merchants' Exchange, California street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the 5th day of February 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before will be sold on Monday the 26th day of February, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

ALFRED K. DURBROW, Secretary.

OFFICE—Room No. 22 Merchants' Exchange, California street, San Francisco, Cal. ju4-4w.

J. S. PHILLIPS, M. E.,

Examiner of Mines, Consulting Engineer, Mineral Assayer, Analyst, Etc., Etc.

Author of "The Explorers', Miners', and Metallurgists' Companion."

Inventor of the Explorers', Miners', Millers', and Smelters' Friend, the Prospectors' "WEE PET" Assaying Machine, etc., which obtained a Gold Medal at the San Francisco Mechanics' Institute Fair of 1869.

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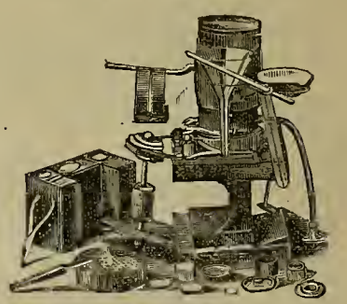

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This Trap, as may be seen, is of simple construction and not likely to get out of order, and very durable.

It is Very Efficient

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A DIVIDEND, Free of Federal Tax, of 10 per cent. per annum on all deposits for the six months ending December 31, 1871, has been declared, payable immediately. By order of the Board of Directors.

ja13-2w CYRUS W. CARMANY, Secretary.

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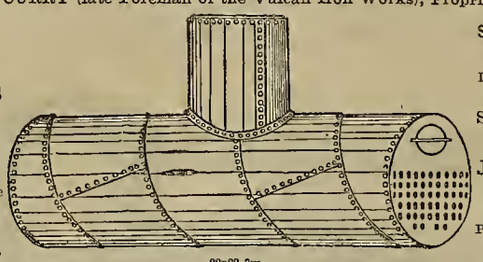

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WM. H. TAYLOR.....President.
C. E. McLANE.....Vice President.
JOSEPH MOORE.....Superintendent.
LEWIS R. MEAD.....Secretary.

24v17-qy

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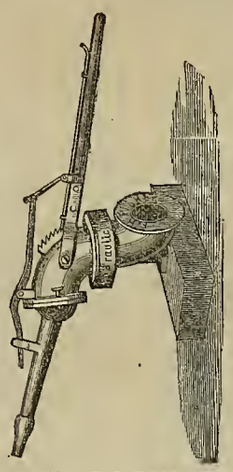

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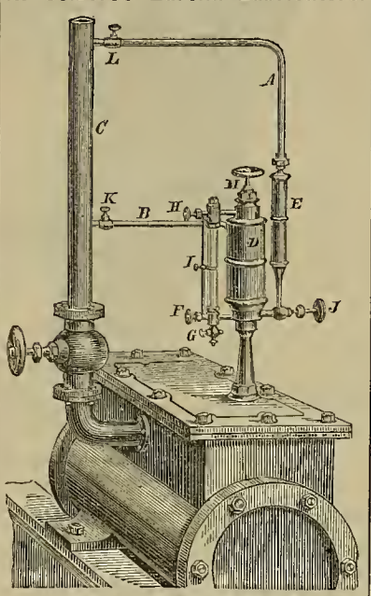

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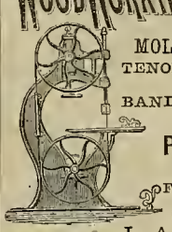

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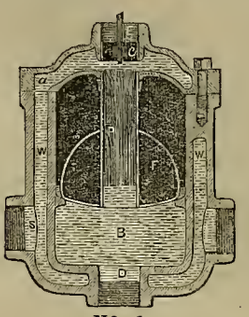
CRAIG & BREVOORT'S
Patent Condenser for Steam PUMPS, &c.



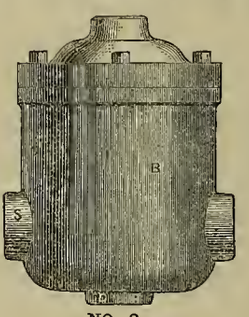
NO. 1.

The annexed engravings represent a Condenser intended to be attached to the ordinary steam pump, thereby bringing it within the class of low pressure, or more properly speaking, of condensing engines; the steam, when it has done its work in the cylinder, instead of being exhausted into the atmosphere, is conducted to the condenser, on its entry into which, it meets the water drawn by the pump, and is immediately condensed.

The Cut No. 1 represents a vertical section of the Condenser, and No. 2 an elevation.

The flange D is bolted to the suction orifice of the pump, and the flange S to the pipe leading to the well, or whatever source of supply the pump may have; W is a water jacket surrounding the main chamber of the condenser, B, and with which the suction pipe, S, communicates, permitting a free circulation of water within the jacket and into the hollow cover or top through the series of openings, one of which is shown at A, and from thence into the body of Condenser, B, through pipe P, carried by float F; the pipe P also acts automatically as a valve to enlarge or contract the space through which the water enters it, by which means the possibility of the condenser being at any time flooded is avoided. The pipe P, it will be observed, also acts as a guide to float F.

The valve, O, (shown in Cut No. 1), which is raised or lowered by means of screwed stem—shown coming through elbow in Cut No. 2—is for the purpose of increasing or decreasing the flow of water according to the capacity of the pump to which it is attached.



NO. 2.

The exhaust pipe from steam cylinder is screwed into cover at E; the exhaust steam is thus thrown directly into contact with the water entering the condenser on its way to water cylinder of pump through D. A vacuum being of course immediately formed, acts on the exhaust side of the steam piston, aiding it in its work. If at any time it is desirable to run the pump without the condenser, it is only necessary to turn the three-way cock, which is placed in the exhaust pipe, into such a position as to cause the steam cylinder to exhaust into the atmosphere; when this is done the pump is perfectly free from the condenser, and acts as if it were not attached. This condenser is specially useful for pumps running in mines, or any other position where trouble is experienced in getting rid of the exhaust steam. Address H. L. BREVOORT,

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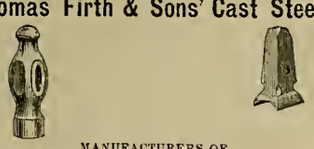

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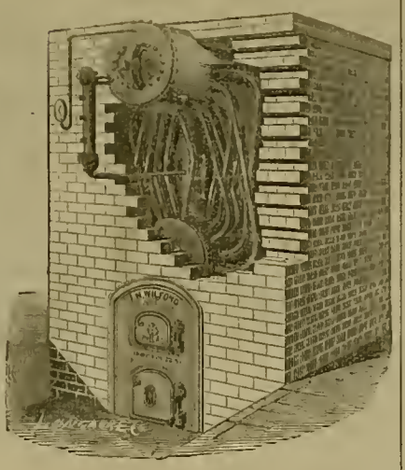

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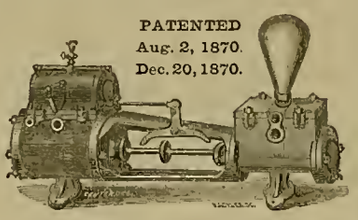

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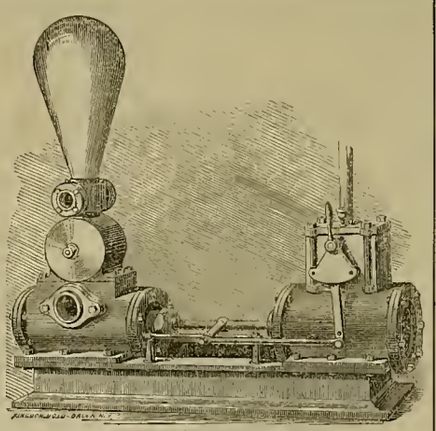

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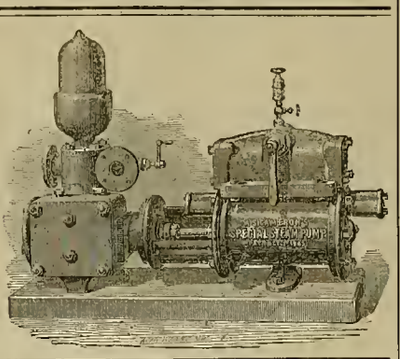

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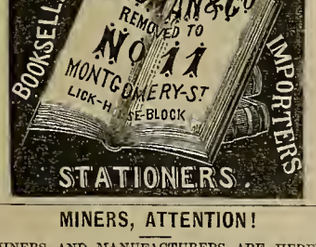

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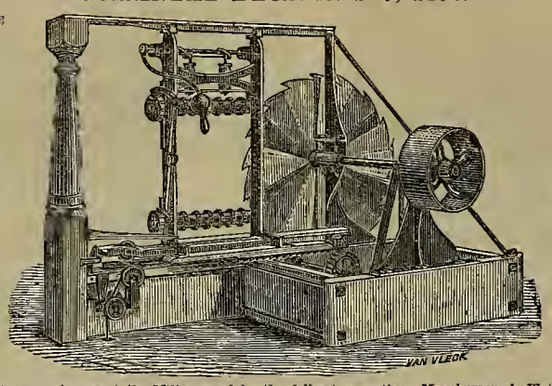

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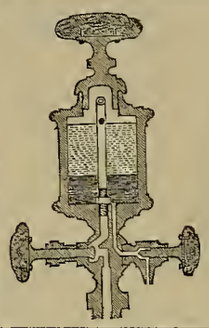

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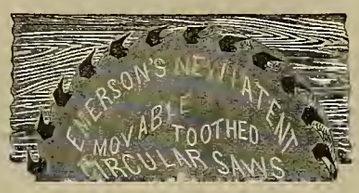

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As soon as signed and returned to us with the fees then due us, it will be sent straightway to the Patent Office at Washington.

When the invention consists of a new article of manufacture, a medicine, or a new composition, samples of the separated ingredients, sufficient to make the experiment (unless they are of a common and well-known character), and also of the manufactured article itself, must be furnished, with full description of the entire preparation.

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MINING BUREAU

—OF THE—

Pacific Coast.

Sacramento City Office at Vice-Consulate of France.
San Francisco Office, 331 Montgomery street (Stevenson's Building), Room 32, Third floor.

J. BERTON, President.

E. P. HUTCHINS, Secretary.

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SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,

Mining, Mechanic Arts and Inventions.

BY DEWEY & CO., Patent Solicitors.

SAN FRANCISCO, SATURDAY, JANUARY 27, 1872.

VOLUME XXIV. Number 4.

The Line of Steamers for Carrying Ores to Europe.

The paragraph going the rounds of the press with the above caption, and which we published last week, avows the purpose of establishing a line of steamers for transporting ores containing the precious metals from the Pacific Slope to Swansea, for treatment. The simple proposition of establishing a line for such a purpose ought to arouse the capitalists of San Francisco from their lethargy in regard to the great, but neglected mineral resources by which they are surrounded. Whether the project will be accomplished or not, and, if accomplished, whether it will prove profitable or not, is not the question. The fact is patent that the mining eye of England is upon our mineral wealth—that in England they have better appreciation of that wealth than we have at home.

During the past two years English agents, familiar with the business of metallurgy, have visited our shores and discovered the immense mineral wealth which lies dormant from our want or knowledge how to realize. They are prepared to purchase our mines and our ores, and are doing both. Ores shipped to England may, and no doubt do, realize more for their owners than they would if worked upon the spot; yet none but the richest ores will warrant the cost of transportation. What is to become of the poor ores, of which we have an unlimited quantity? If we cannot treat the rich ores to advantage, we certainly cannot the poor. There is now more or less ore which goes to Europe, forwarded at low rates, because it is taken in return vessels as ballast, that would remain where it was, were it not for this advantage.

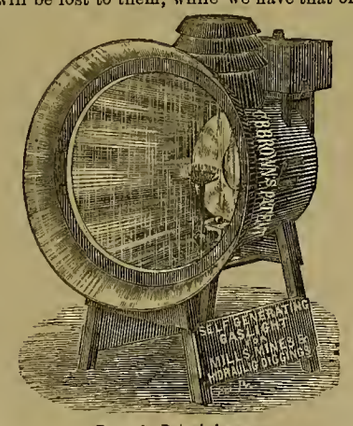
To forward ores from Utah, Montana and Nevada by rail to New York, and then run a special line of steamers to carry them to Europe, as proposed, would be an expensive business, and of course none but the richest could be sent. If there is trade enough to supply a line of steamers to Europe, there is surely capital enough at the different points west of New York to erect works to do the business, and skill enough to make it more profitable to work the ores here.

In practical metallurgy, the English are probably ahead of the world; while in the United States the business is as novel as was that of treating gold-bearing quartz twenty years ago, in California. Why is it that the capitalists of the States on the Pacific Slope, many of whom have made their fortunes from the mines, and who still continue in the business, do not secure the aid of English metallurgists of experience to instruct the thousands of young men in our midst who would gladly avail themselves of such facilities?

Is there not enterprise and public spirit among our millionaires to prompt them to advance the money necessary to secure the greatest want of our coast—metallurgical works upon a scale worthy of the object in view? Such works could be made self sustaining, if not profitable, after they were once under way, while they could be made to afford practical instruction to those having the intelligence to learn, and the willingness to labor.

The only works of importance in our midst are kept inviolate from the public eye, and although it is probable that the processes there used are nothing more than are common in English works of the same class, even the doubtful advantage of merely looking on is denied us. There must be a reason for this, which it is not to the advantage of the proprietors to be made known.

We suggest that immediate steps should be taken to ascertain whether a staff of practical English metallurgists cannot be secured, with the purpose of establishing such works on this coast as we have spoken of above, with the two-fold object—profit to promoters, and instruction for those who need it—a very large class. When this is done we shall have no need to even think of shipping ore, for the advantages the English possess in experience will be lost to them, while we have that of being near by the most extensive scope of mineral country in the world.



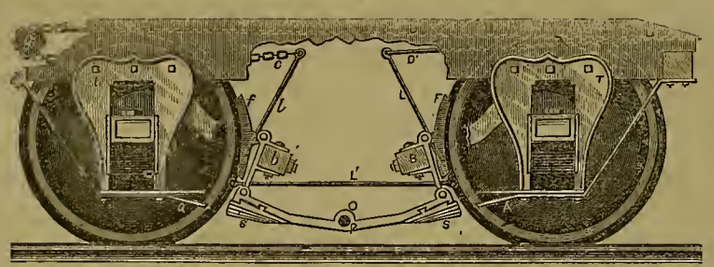
Brown's Patent Lamp.

All ores shipped to Europe must be first-class, and every one familiar with mining operations, knows that it takes a large number of tons, in the aggregate, to furnish one ton of sufficient value to pay for shipping to Europe. That we could support a line of steamers, however, no one doubts, our mineral fields are certainly broad enough, but our opinion is that outside of an exceptional lot, we should do the work on this side of the Rocky mountains. If this line is established we will have to close our mouths for evermore, and not boast of enterprise, skill in working ores, capital, etc. Either we are mistaken in the enterprise of our people or that line will have to look to some other branch of business for support.

Track Car Brakes.

We herewith give an illustration of a new track and wheel brake combined, that has been in operation for several months on the Philadelphia & Erie R. R., where it is said to have given general satisfaction. The men that work it every day state that they can stop a train in much less time and with greater ease than with any brake in use.

All the brakeman is required to do is to "put on the brakes" in the usual way. The moment the shoes *F*, *f*, come in contact with the wheels, their friction therewith tilts the oscillator, o, with the *rear* track shoe *s*, on the rail, retarding the train to an amount about double that applied by the man at the wheel. When backing, the friction motion changing, the oscillator is reversed and what was the forward end (now becomes the rear) is now put upon the rail, the same as above described.



PATENT TRACK CAR BRAKES.

It is so simple that it can be applied to any style of track, by using the same appliances for working (by hand or by steam) that are found on all cars; the chains, levers, wheel-shoes and brake-beams being the same as in the ordinary brake. The only difference being that instead of being suspended from the truck frame, the brake-beams are hinged to a bar oscillating at its center pin, *P*, said bar or oscillator having shoes, *s*, *s*, at each end flanged the same as the wheels, for friction on the track.

The brake is held to the truck by the bolt pin *P* passing through the frame bars, *A*, *a*, and into a corresponding bar on the inside of the track, holding the brake in its proper position, with the assistance of small springs for relieving it. It will be seen that the device is a combination of the forces of the wheel and track brake, and the power thus augmented will, it is claimed, stop a train in much less time than the methods now in use, and with less pressure against the wheel; in fact, it is desirable the wheel should have a lively motion as it imparts more frictional force to the track brake, which latter being in a dragging position has no rigidity, but holds back on a train upon the correct principles of a car brake.

The manufacturers guarantee all they claim, and will fit up a train complete on any road in California, without any detention to the cars, and, if they do not give satisfaction, ask no pay, and will restore their old brakes free of cost. M. W. Griswold & Co., 104 Chamber St., N. Y., are the manufacturers and patentees.

Brown's Mill, Mine, and Hydraulic Lamp.

Passers up Montgomery street last Monday evening were somewhat astonished at the sight of a new and peculiarly mounted light in front of our business office on Montgomery street. The light referred to is the one represented in the accompanying engraving, and is the invention of C. B. Brown, Esq., of Placerville, Cal. The object of the inventor in constructing this lamp was to render it available, more especially for lighting up the banks at night in our hydraulic mines, against which the miners are "piping;" but it can also be used in the tunnels and other parts of mines and in quartz mills.

The lamp or lantern as constructed is about two feet in diameter across its largest end, and somewhat resembles in shape the old-fashioned coal scuttle bonnets which our grandmothers used to wear. The lamp is mounted upon a low trestle or frame, and the whole can easily be moved about from place to place as required. The light used is produced by a gasoline burner on the inside of the lantern, which is fed with gasoline from the box or fountain seen above it at its rear end. Just back of the burner is a reflector, and the entire inside of the lantern is made of a bright reflecting material so as to employ the light produced to the very best advantage.

One of these lamps when placed at a distance of 200 feet from the bank, will light up a bank surface 250 feet in length and 100 feet in hight, and that to a much better advantage than any other light heretofore tried. The expense of maintaining the light will not exceed five cents per hour, thus saving to the miners two or three hundred dollars per year in this one item alone.

Mr. Brown holds letters patent covering the invention and is preparing to introduce the light in all of the mining districts in the State. For further particulars address C. B. Brown, Placerville, Cal.

MINING CORPORATIONS.—The Assembly, on the 23d inst., passed the bill in relation to mining corporations which we published in our issue of Jan. 13th, but it has been amended so that a majority of shareholders can call a meeting at any time and that two-thirds of the stock can oust the Trustees. Another amendment was added which provided that one-third of the shareholders may at any time compel the Trustees by vote, to render statements and exhibit the books of the company. It now goes to the Senate.

CORRESPONDENCE.

Eureka District, Nevada.

EDS. PRESS.—Although little writing has been done for this district, it having grown to its present importance as a mining locality through its gradual development by persevering prospectors, and nothing like the White Pine excitement has ever been awakened in regard to it, yet it may be confidently asserted that no other region has ever beeu explored on the Pacific slope, which has yielded so large a return for so small an outlay of capital and labor, as has the one named iu the caption of this article. Exteusive mining operations were not eommenced in Eureka until after the White Pine fever had subsided, and its disappointed victims had begun to seek in other localities the mineral wealth they had hoped to obtain there.

The First Discoveries

In Eureka, however, were made in 1865, and a mining district then organized; but it was not until the rush to White Pine had brought a great number of adventurers to this part of the State, that its merits as a field for successful mining began to be known. The few prospectors who entered the district in 1865 were discouraged hy the "base" eharacter of the ore at first encountered; and, while "chloride" was all the rage, and White Pine the center of operations, the extensive miuing ground of Eureka, only 38 miles to the northwest, lay almost wholly uuoccupied. The failure to realize profitahle returns from the base ores of White Piue caused a scattering of prospectors in all directions. Many went to Utah, others to Pioche, while a eonsiderable uumber turned their steps to Eureka. To these latter, and the few who remained from the first discoveries. is the present importance of the district due.

Smelting Operations.

Capital was soou attracted by the numher and richness of the mines, and in 1870 the first successful smelting operations were performed, with very inferior works. But these were supplanted hy more efficient ones, until now the furnaces of the Richmond Consolidated, Eureka Consolidated, Phœnix, Jackson, Buttercup, aud the Roslin works are capable of turning out immense quantities of metal from the ores of the district, which are of easy reductiou by the smelting process.

Eureka may challenge any other mining district to exhibit a mineral deposit of the extent and richness of

The Richmond Mine,

Ruby Hill. Although the property was sold to an English company for $750,000, the value of the ore in sight at the time greatly exceeded that amouut, and some of the trustees of the Americau company were even in favor of repudiating the act of their ageut in making the bargaiu for the sale of the mine. The sale was made, however, and the mine and reduction works transferred, at the figures named. Large as this amount is, negotiations have beeu peudiug for some time, for a second sale at the enormous price of $2,000,000. If this amount should be obtained, it will be the largest ever paid for a mine in the United States.

Prominent Mines.

The Buckeye and Champion mines, belonging to the Eureka Consolidated Compauy, of San Francisco, are also on Ruby Hill, and are nearly of equal value with the Richmond.

These, with the Empire, Lexington, Otho, and Jenny Lynch, belonging to the Phœnix Company, keep five furuaces in operation constantly; and the Richmond and Phœnix companies are hoth about to add two new furnaces to their reduction works.

The Buttercup and Roslin Works

Are at present idle; but the former, with the mines of the company, have been recently sold, uuder attachment, to George Hearst, of San Francisco, aud the Roslin furnace and mines are houded to a company proposing to purchase them for $250,000. The mines of the Roslin company include the Hamburg, Union, Fanuy B., and others.

Mining Tittes.

A large number of the mines of lesser uote have heen, and many still are under bond to various individuals and companies who propose to purchase them. Such are the General Lee, Wide West, Bullwhacker, Valeutine, Byron, Excelsior, Gaslight, and others. Many of the parties agreeing to purchase have since declined to do so unless they can derive title from the United States. This is especially the ease with English eompanies; and the reason assigned is the recent aunouncement of Commissioner Drummond, that only citizens of the United States can convey titles to mines. Other parties, American as well as English, now insist that a patent shall be obtained from the Governmeut by those iu possession, before a sale shall be concluded. This will therefore soon be done by the owners of all our really valuable mines.

Orange Mine and Lemon Mill.

The deepest mine in the district is the Orange, which is now heing worked at a depth of 300 feet, with ore valued at $200 aud $300 per ton. It is situated on Prospect Hill, upou which also are the Elise, Hamburg, Union, Lemon, and other valuable mines. The last uamed, belongs to the Lemon Mill and Mining Co., receutly incorporated in San Francisco, whose mill uear the town of Eureka is nearly completed and ready for work.

Mines on Prospect Mountain.

The highest hill in the district, kuown as Prospect Mountain, which lifts its Devouian cliffs to an elevatiou of 8,500 feet, is full of valuable miues, in a more or less forward state of development. One, called the Valentine, already meutioned, was lately honded at $25,000; hut the hond was allowed to fail. The mine has, however, since beeu taken at the figures uamed. The Golden Gate is another valuable property, in which large bodies of ore are encountered within 8 and 15 feet of the surface. It has a shaft down 80 feet, and a large quartz veiu, four feet in width, has just beeu uncovered at that depth. The ore assays from $65 up to $125 per ton. The X. Y.Z., belonging to the South Eureka mining company, of San Fraucisco, is on the same mountain, and is heing vigorously prospected. There is more ore in sight than can be moved from the mine, on account of the preseut depth of snow on the mountain. The "Fourth of July" is auother promising miue, owned hy four eitizens of Carson, and having a well-defined veiu of silver-bearing quartz, enveloped iu strata of argillaceous oxide of iron, white aud grey carbonates of lead, arseniate of lead, etc. The ledge aud orehearing strata are at present five to six feet in width.

The Diamond and Antelope mines are also well developed, and show large bodies of ore. The Diamond was discovered and opened by two returned Arizona miners, oue of whom is upwards of 70 years of age. He is still working upon another location near hy, while the drifts of snow upon the mouutain side are from three to five feet deep. His uame is Bridge; and he has a prospect of bridgiug over 25 years more of the present century with the remainder of an active and useful life. The Enterprise Nos. 1 and 2, are also valuable properties.

One peculiarity of all the

Ores of Eureka

Consists iu the large percentage of gold which they contain, and which, for lack of mills, has beeu suffered to run off in the slag of the furnaces, to a very wasteful degree. The construction and operation of the Lemon Mill, and of that at Pinto, 8 miles distant, will remove this difficulty in part; $80, and sometimes $100 in gold, is the yield from a ton of ore. The same ore will frequently work up to au essay of $150 and $200 in silver, and contaius but a comparatively small percentage of lead. By roasting out the latter, the ore is rendered extremely profitable for milling. The Piuto Mill has a roasting furnace attached, and the Lemon Co. contemplate erecting one also.

Milling and furnace ores exist together, or iu close proximity, in the same mines throughout Eureka district. In this particular the miueral development is wholly different from White Piue. In the latter district the base ores have a range of hill to themselves, while chloride silver is mostly confined to Treasure Hill. Furthermore, the gangue is also different. For while both free aud base ores in White Pine seem to he always indicated and invested by calc-spar, with a very small showing of quartzite, in the minee of Eureka there is a notable absence of the spar, and a corresponding increase in the size, and a uniformity in the course of the veins of quartz. In fact, the quartz is the silver-bearing rock of the district, although the investing eoatings or strata of haser ore, consisting of arseniates and carbonates of lead, with occasioual accretions of galena; and the oxides of iron also contain both silver and gold in paying qauntities.

Geology of the District.

The mountain ranges of Easteru Nevada, south of the Humholdt river, trend due south. But those portions of eaeh range, iu which aro situated valuahle mineral belts, are posited in a different manner. At least, this is the case with White Pine and Eureka Districts. For the hills comprised in these two ore-belts, lying respectively in the Ruhy and Diamond ranges, form an acute angle with those ranges, with a course or bearing northwest and southeast. And the veins of ore-bearing rock, with their accompanying strata, have a strike corresponding to the same direction. It would appear from this, that these mineral belts are of a later date in their formation and upheaval than other portions of the ranges in which they lie. They seem like immense dikes, intruded into and dividing these ranges into several parts.

The entire leugth and breadth of the Eureka belt is an enormous network of quartz veins, imbedded in strata of earthy and base minerals, the whole inclosed in limestone and calcareous shale. Wherever au opening has heen made, upon indicatious of ore, either in the shale or limestone, aud the exploratiou contiuued to a suitable deplh, quartz has been invariably uncovered. The veius dip in all directions, according to their situation and with every possihle slope to the horizon. But their course is always northwest and southeast. The depth, length, and hreadth of the strata, bearing the earthy ores surrounding the veins, vary in the diffesut openings. In the Richmond, Buckeye, Champion, Tip-top' Marcellina and othors upon Ruby Hill, they appear in immense deposits or fields, hundreds of feet iu extent, and thousands of tous have becn extracted therefrom, and reduced to the metallic state by smslting. As mauy tons of the silver-bearing quartz remain to be reduced by the mills. In the General Lee, Lexiugton, Empire, Wide West, Newport, Meredith and others upon Empire and Adams Hills, the quartz is mostly in limestone, the shale heing very limited in extent. These veins are composed of milling rock, and the earthy strata are small. Iu the Bullwhacker serics, with whieh this oxtraordinary mineral helt terminates on tho uorthwest, the Otho, the Jeuny Lynch, and the Bullwhacker, are in an immense bed of shale, and yield large quautities of galena as well as a great deal of the earthy orcs. Yet these last named mines are a little more than a mile distant from Empiré aud Adams Hills, just mentioned.

At the southeastern end, eomprising Prospect Mountain—Ruby Hill being situated in the eenter of the district—the quartz aud earthy ores are found together in beds of shale which alternate with cliffs of limestone. The shale is sometimes comminuted aud cemented together very compactly by the oxides aud a little clayey matter. Boulders of limestone are also iutermixed. The presence of ore is indicated by floating pieces of quartz, accompauied by the peroxide and protoxide of iron; also by the dissemination in the surface soil of the arseniate of lead, which is of a brilliant straw or lemon yellow color. There is also some galena found in the limestone, as well as antimonial sulphuret of silver. But these ores are more plentiful on the southeastern and southweetern end of Prospect Mountaiu, comprised in Secret Cañon and Spring Valley Districts. Free ore is also abundant in Secret Cañon, with only just enough base metal to need a chloridizing roasting. This may he obtained at the Pinto Mill, near by.

The numerous quartz veins and the ahundancs and variety of the ores of Eureka and neighhoring districts, show that the country rock is an older formation than the dolomite of White Pine. It is truely a cavern limestone; for immense caves have been fouud in the Orango and other mines, the floors of which were covered to a great depth with earthy ores, rich in silver. Oue was barely entered, not explored; for it seemed to have no limit as to sides, top, or bottom. We shall know more of it by-and-hy, as explorations proceed.

Yield of Ores.

The results of mill and furnace work show that the ores of all descriptions found in Eureka will yield from $40 in silver up to $500 per tou; and from $10 to $80 aud even $100 in gold. A lot of ore from the Silver Lick miue, having been previously carefully assayed by sampling, and found to contain at the rate of $80 per ton in gold, was sent to the Manhattan mill, at Austin, to be reduced; but the mill made only return of the silver obtained from the ore, and ignored the gold altogether. How much the ore of the Comstock lode will yield even $80 in silver? Yet the mills on that lode will work ore at a profit when it eontains only $8 per ton. The infereuce against the return above given is obvious enongh. Miners will not continue to send their oro to custom mills to be reduced at such ruinous rates.

Climate, Etc.

The climate of Eureka is not so severe in winter as that of White Pine. Only the high hills and uorthcrly exposed points are subject to deep snows. The town itself, which is 2,000 feet lower than Treasure City, is at this time entirely free from snow. It lies iu a cañon among low foothills, a short distance east of Diamond valley, which is a broad plain of 20 miles or more in width. Heavy rains have thoroughly soaked the plain, so that the roads across it are very difficult to travel at this time. Freighting from Palisade is eonsequently very costly. All this is changed in the summer season, and the ensuing summer will be a brisk season for Eureka District.

M.

Mines Near Radersburg, M. T.

EDS. PRESS:—The Left Hand lode is a true fissure vein, with a crevice averaging about 20 inches in width. It crosses the line of stratificatiou at right angles, dips 70 degrees to the south, runs due east and west, and crosses the Keating lode at right angles at a point about 250 feet from its discovery shaft, at a depth of 60 feet.

The Left Hand lodo is developed to a depth of 150 ft., at which point it showe a 2-ft. crevice. Levels are being run east and west from this point. The upper portion of the lode for 200 feet by 50 feet deep, has been stoped out and crushed, the ore returuing about $35 per ton.

The Keating Lode

Rune north aud south with tho lines of stratification; it pitches about 70 degrees to the west. Keating & Blacker are ruuning about 70 men, having levels run and have out about 300 tous of rock and are now increasing their working force.

Mr. Allen has put on a new force on the

Allen Lode.

His six-stamp mill, the only one runuiug in camp, is crushiug at the rate of 80 tons per week. Out of his thousand ton dump, the quartz averages about $15 per ton. The Davis mill now being thoroughly overhauled, will soon commence crushing this quartz.

Other Mines.

The Rica, Hidden Treasure, and a seore of other mines are being devcloped this winter; they all show free gold and look promisiug. The Jaw-hone lode near St. Louis, on Indian Creek, has just made a run of fifty tons of ore; it yielded ahout $25 per ton, and was crushed at the Diamond Mill. A large mill will be put up here this coming spring by the Clancy Co., and a company is being formed upon consolidated interests on the Iron Clad lode, which we understand will put up a mill, and steam hoisting works on their lode.

The new impetus in quartz-mining taken in connection with the certainty of an abundance of water, on account of the unprecedented fall of snow, promises that the coming season will be one of great prosperity in this and adjoining camps.

W. C.

HOW TO SELECT PEOAN NUTS FOR PLANTING.—The Memphis *Farmer*, in recommending the pecan tree for cultivation says: Select best Texan pecans, largest and thinnest shells, and plant in December, January, or February. By trausplanting carefully every two years (cut off tap root first year), for two or three times, they will fruit in eight or ten years, and when 15 years old will bear a bushel each; when fully matured, one or two barrels of the best, worth generally $20 to $30 per harrel. Plant, say 30 feet apart, aud leave to your children a snng income.

BISMUTH IN SAXONY.—It appears that that country produces 32,000 lbs. of the metal annually, and that, since hismuth is as yet nowhere produced in any considerable quantity, Saxouy rules the market of this article.

MECHANICAL PROGRESS.

Titanic Iron and Steel.

Considerable attention was drawn, three or four years since, to the manufacture of a very superior iron made from an admixture of titanic iron ore, with other more common ores of iron. Numerous experiments were made in this direction in the production of the mixed iron as above, of iron from the titanic ore exclusively, and of a steel, the latter more generally known as "Mushet's Special Steel." Extensive works were put up in England for the manufacture of these superior qualities of iron and steel, but the difficulties encountered in the reduction of the titanic ores (or sands as they generally occur) seem for a while to have operated as an effectual discouragment to the expenditure of money for this purpose by capitalists.

We have lately, however, seen some evidences of a renewal of efforts in this direction, by a new company, located at Sheffield. This movement, according to *Engineering*, appears to have resulted from the successful persistency with which Mr. Mushet has advocated the use of titanium in the production of high class iron and steel. The extraordinary strength and toughness of Mr. Mushet's titanic steel as shown by Dr. Fairbairn's experiments, was the subject of remark in these columns at the time of those experiments being made public. "More recently" says the journal above named, "we gave from personal observation some particulars of the remarkable properties of Mr. Mushet's new non-hardening special steel. Now that the manufacture of these steels has passed into the hands of Messrs. Samuel Osborn and Co., they will doubtless be still more extensively used. When speaking some time ago of the non-hardening special steel, we directed attention to its endurance when used for tools in machines driven at higher speeds than usual, and, at the present time, when with the shorter hours of labor it has become more than ever an object with engineers to get as much work out of their lathes and planing machines as they can in the shortest space of time, this point is worthy of notice."

In view of the growing importance which must soon attach to this description of iron ores by means of its peculiar adaptability to the manufacture of steel, and its almost entire freedom from sulphur and phosphorus, it may be interesting to know, that while English ironmasters are thus far almost entirely dependent upon the distant island of New Zealand for their supply, they occur abundantly in the United States.

The principal deposits of titaniferous iron ores in this country are in Northern New York, Missouri, Tennessee, North Carolina, Virginia, and Maryland.

The deposits in the northwestern part of North Carolina, owned or controlled by a Philadelphia company, have been found by a recent survey to extend in almost a continuous line for over 300 miles. The deposits, which affects the form of a nearly vertical vein, has a thickness of from 4 to 10 ft. The per cent. of titanic acid varies, but is about 10 on an average. The supply of ore may be considered as inexhaustible, and charcoal is abundant everywhere. Bituminous coal-fields will be soon reached by projected railroads.

Titanic iron ore in the form of sand is found on the ocean beach to the westward of this city (San Francisco), and a company was organized some few years since to take up and work this deposit.

THE IRON INTEREST OF THE UNITED STATES—EFFECT OF FREE TRADE UPON IT. Klucpfel, a German writer of much distinction, and well versed in the iron trade, has written a carefully considered series of articles for a German periodical, in which the conclusions arrived at are, that if the present tariff were done away with and free trade substituted; 1st, the production of cheap pig metal of inferior quality would be impossible east of the Alleghanies, owing to the lack of cheap ores and the cheapness with which the metal could be obtained from England. Besides, the production of malleable iron would only be possible to a slight extent, owing to the cost of coal. On the other hand, the production of a large amount of foundry iron, as well as forge pig, might be possible. The foundry iron could be used in the vicinity of the the works, while the forge pig could be sold to the Pittsburg, etc., rolling mills. 2d, it would be impossible to produce considerable amounts of pig metal in Western Pennsylvania, owing to the lack of ore. On the other hand the production of wrought iron and cast steel from pig metal imported from other places could be done on a large scale. 3d. The same conditions would be true for Northern Ohio as for Western Pennsylvania, while it is probable that a small district exists in Southern Ohio where blast furnaces and rolling mills could be profitably worked. 4th. The production of all kinds of pig metal could be carried on profitably in Michigan, Wisconsin, and the other States bordering on the Great Lakes. 5th. The same is true of Eastern Missouri.

Fire-Proof Buildings.

The Providence *Journal* publishes the following extract of a letter from the Sculptor Powers to a friend in Rhode Island. It furnishes some valuable and timely hints with regard to the construction of fire-proof buildings:—

But it may be asked, "Is it possible to make a city fire-proof?" I answer, yes, and without any great extra expense. To prove this, I have only to say that although there have been frequent fires in the city of Florence during the thirty-four years of my residence in it, not one house has been consumed, except a theatre, and that was not entirely destroyed. Rooms, full of goods, have been heated like ovens by ignited calicoes, straw hats, etc., but as the floors above and below were all covered by thin brick tiles, the goods burned without ventilation. And as there was no flame, a smell like that of a coal pit soon gave the alarm, and the fire was soon extinguished by no other engine than a squirt holding about a gallon, which discharged a well-directed stream through some aperture. I once beheld some firemen marching to a fire in Florence. First were three men with picks, next four men with buckets, then three men with highly polished brass squirts on their shoulders; all marching with an air of pomp and importance! The fire was at the residence of Mr. Clevenger, the American sculptor, and had been burning 24 hours on the end of a joist just under his fire-place. He had smelt something like a coal-pit for some time, and at length perceived smoke rising from the brick floor. On going below he found the room full of smoke, and a rush-bottomed chair just under the joist was partially consumed. But the joist was not yet burned off, and why? Because the fire was bricked down. It could not rise and burst into flames.

The secret of fire-proof building, then, is this: It must be made impossible for the flames to pass through the floors or up the stairway. If you will have wood floors and stairs, lay a flooring of the thickest sheet-iron over the joists, and your wood upon that; and sheath the stairs with the same material. A floor will not burn without a supply of air under it. Throw a dry board upon a perfectly flat pavement and kindle it as it lies if you can. You may make a fire upon it and in time consume it, but it will require a long time. Prevent drafts, and though there will still be fires, no houses will be consumed. The combustion will go on so slowly that discovery is certain in time to prevent any great calamity. But the roofs, how about them? Slate or tiles? Zinc melts too easily. I believe that hard-burned tiles, if flat, would stand the frost at home; and if so, they constitute the best roofing. My house has no joists. All the floors are of tiles resting on arches. One of these arches was made over a room twenty-five feet square, by four men in four days. The brick are about one and one-half inches thick, and laid edgewise, with plaster of Paris. There was no framework prepared to lay them on unless you would so term four bits of wood which a man could carry under his arm. And yet this arch is so strong as to be perfectly safe with a large dancing party on it. I never have heard of one of those floors falling, and they are absolutely fire-proof. Of course light arches like these would not do for warehouses. It would pay, I think, to send out here for an Italian brick-mason who knows how to build these thin but strong arches for dwelling houses. I know that there is a prejudice at home against brick or composition floors. "Too cold in winter," it is said. And so they are, if bare, but cover them with several thicknesses of paper and then carpet them, and no one can discover the slighest difference between their temperature and that of wood floors. Who doubts this let him try the experiment with the feet of the thermometer. The truth is that the brick of composition floor is no colder in itself than the wood—the thermometer attests this—but it is a better conductor. I do not insure my house, as I know that it is not combustible.

SCIENTIFIC PROGRESS.

A Substitute for the Spectroscope.

E. Lommel has devised three very simple instruments called the *erythophytoscope*, the *erythroscope*, and the *melanoscope*, which can be advantageously used, instead of the spectroscope, for the detection of substances by their colors and colored flames. Two colored plates of cobalt blue and dark yellow oxide of iron glass are laid upon each other, and, by inserting them in black pasteboard, with a slit for the nose, something like a pair of spectacles is made of them. The combined glasses are only transparent for the ultra red, for yellow green, for blue green and blue rays; and they cut off all other colors. Substances, known to possess these colors or to impart them to the flame of a spirit lamp or Bunsen burner, can be detected by viewing them through such spectacles. The *erythroscope* consists of a cobalt glass and ruby glass, which only admits the ultra red, beyond Fraunhofer's line B, to pass. The third combination, called the *melansocope*, consists of a dark red and clear violet glass which only allows the middle red tints to pass. Anyone who possesses the facility of alternately using the right and left eye, could employ two combinations at once and thus cover nearly the whole length of the spectrum. For the use of students in laboatories, we should think that the simple arrangement described above could be frequently employed to advantage for the detection and separation of a large class of bodies which give characteristic colors to flames; and, by practice, the learner would soon be able to assign the true position to each color nearly as well as if he used the scale usually attached to the spectroscope.

Olive Oil as a Purifier of Carbonic Acid.

In the manufacture of carbonic acid for mineral waters and soda fountains, in consequence of impurities in the limestone employed for the evolution of gas, certain disagreeable empyreumatic oils and offensively tasting gases are apt to go over; and, unless separated in some way, they will impart an unpleasant flavor to the mineral water. To obviate this difficulty, E. Pfeiffer suggests saturating pumice stone with olive oil, and passing the gases through it in the usual way. The oil absorbs the bad gases, and can be regenerated for subsequent use by heating it to expel the absorbed impurities. After becoming quite impure, it is still suitable for the manufacture of blacking or for applicaton as a lubricator. It is said that Mallett employed this method to absorb the hydrocarbon products in his process of obtaining ammonia directly from coal tar. As much of our limestone contains organic matter, which gives a peculiar smell to carbonic acid made from it, this method of purifying the gas by passing it through olive oil is worthy of trial.

TO DEODORIZE KEROSENE OIL.—The odor of a substance is in most cases adherent, like color or any other physical property, and not accidental or extraneous. Where, as in the case of kerosene oil or the lighter petroleum naphthas, the substance is a mixture of many constituents, it is difficult to decide which of them is the objectionable one, and so long as this has not been determined, we can devise no rules for getting rid of it, or for destroying it in any other way. Practically, therefore, we are unable to deodorize the products, and especially the lighter ones of the distillation of petroleum; but we may conceal them in the same way as formerly the disagreeable odors incidental to sick rooms and even to ordinary apartments were hidden by the liberal use of strong smelling liquids or the fumes of incense. The best adapted fluid for this purpose is, perhaps, the artificial oil of bitter almonds or mirbane oil; a little of it will go a great way in disguising the odor of petroleum effectually, and as it has a very high boiling point, it will accomplish its purpose most durably.—*Druggist's Circular.*

SEPARATING FIBRES.—In a recent number of the *Moniteur Scientifique* a paper was contributed by Dr. E. Kopp, on the "Means of Detecting and Separating Silk, Wool, and Vegetable Fibres from each other" by hydrochloric acid. The practical bearing of this discovery was exemplified by the immersion of several so-called pure silk ribbons and other fabrics in the acid, when the silk was dissolved, leaving the adulterated material intact. Somewhat similar experiments were made last year by Mr. John Spiller.

Recent Progress in Chemistry.

I wonder what Sir Humphrey Davy would have said to any one who talked about stellar chemistry. That great man, in ridiculing the idea of lighting London with gas, triumphantly asked the fanatics who proposed such a wild scheme, whether the dome of St. Paul's was to be the gasometer? Yet we cannot imagine Regent street illuminated, or rather darkened, with dips again, and to us stellar chemistry has a real meaning. Who will venture to bound a science which reaches far away through space, and with unerring accuracy tells us the composition of distant worlds and distant suns? What can be more humiliating to our small intelligences than the reflection that a distant star will photograph its spectrum on a sensitive surface with the ray of light that left it when the oldest man in this room was a boy? What would the great father of British chemisty have said, had he stood in the lecture room of the Royal Institution, where his great discoveries were made, and seen the burning hydrogen extracted by our great countryman Graham, from a meteorite, the heat and light of another world; or could he look with Leckyer on the burning flames of hydrogen, which dart up from the sun to a hight of 50,000 miles, or could he read the flashing telegrams which run so rapidly round our world, that all our notions of time are completely upset, and we actually receive intelligence to-day which was sent to-morrow? Excuse the apparent absurdity; it only shows how powerless language is to keep up with human progress. Had he lived with us, he would have seen a large city dependent entirely for its communication with the outer world by a marvellous kind of photography, so minute that it enabled a pigeon to carry a proof sheet of the *Times* under its wing.—*E. C. C. Stanford.*

DETERMINATION OF SULPHUR AND PHOSPHORUS IN IRON.—The presence of the least trace of phosphorus and sulphur in iron will destroy it for many purposes, and a correct and easy way of detecting these substances is therefore of importance. K. Meineke dissolves the finely pulverized iron in chloride of copper, separates the reduced copper by treatment with an excess of chloride of copper and common salt, filters through a layer of asbestos, brings the insoluble portion adher ing to the asbestos into a breaker glass and oxidizes hy strong nitric acid and chlorate of potash; then he evaporates with hydrochloric acid and determines the sulphur by baryta, as sulphate, and the phosphorus by molybdic acid in the usual way. The novelty of this method is in the substitution of chloride of copper for the chloride of iron employed by other chemists, and its advantages are said to be in the greater facility with which the various liquids and solutions can be filtered. It also yields more accurate results than the former methods.

A NEW LIQUID FIRE.—Guyot says that when bromine and flowers of sulphur in excess are mixed together in a close vessel, and filtered through asbestos, a reddish, oily fuming liquid, hyposulphurous bromide, SBr_2, is obtained. When treated with ammonia, it soon begins to boil violently, evolving copious white thick fumes. The same action takes place when the bromide is mixed with carbon disulphide, but the heat evolved is not sufficient to inflame the CS_2, unless a fragment of phosphorous be previously dissolved in it. A liquid made of this mixture, and containing phosphorus, the author proposes to call "the new Lorraine fire." Rectified petroleum may be substituted for the disulphide.

MAGNETISM.—A. Casin, after describing a new method of measuring magnetism, (the method not given in the journal before us), gives the following law for the magnetism of electro-magnets: "When the core of iron fills exactly the coil of an electro magnet, the quantity of magnetism is independent of those parts of the core which are beyond this coil."

A NEW PROCESS.—*Comtes Rendus* contains a posthumous paper by E. L. Rivot, for a new process for treating gold and silver ores, the main feature of which consists in causing the steam to act at a high temperature on the mineral sulphides.

CLEANING GLASS VESSELS, which have contained petroleum, may be effected by milk of lime, which forms an emulsion with petroleum, and by chloride of lime, which destroys the smell.

MINING SUMMARY.

THE following information is condensed mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

ACACIA.—Alpine *Chronicle*, Jan. 13: The Exchequer Co. are running on with the old Acacia tunnel, to strike the 140-ft. level of the Exchequer mine. This will drain the mine and enable the Co. to run out their ore more expeditiously.

MONITOR MILL.—Monitor *Miner*, Jan. 13: This mill will be ready and go to crushing quartz on Monday next.

AMADOR COUNTY.

DRYTOWN.—Amador *Ledger*, Jan. 20: The new discovery made by D. Worley, looks remarkably well and gives flattering evidence of future value. Other strikes have been made in the vicinity that bid fair to prove valuable and lasting.

Preparations are being made to resume work on a number of quartz lodes in the neighborhood.

BUTTE COUNTY.

GOLDEN BAR.—Butte *Record*, Jan 13: On the 10th inst. the Supt. of the Spring Valley M. Co., of Cherokee, brought down a bar of bullion weighing $8,600.

THE Miners are all busy at Cherokee, the storms having supplied every ravine with a sluice head of water.

CALAVERAS COUNTY.

DISCOVERY.—Calaveras *Chronicle*, Jan. 20: On Saturday of last week F. Barney, of Mosquito Gulch discovered a very promising quartz ledge near that town. The lead shows over 3 ft. wide on the surface and the rock prospects handsomely. Work is to be commenced immediately.

PETTICOAT.—Exceedingly rich rock has recently been struck in the Petticoat mine at Railroad Flat. The sinking of the shaft to a depth of 350 ft. was completed sometime since and a level commenced. A large, well defined lead was developed, but the rock contained no gold. One day this week, the explosion of a blast disclosed quartz in which free gold is plainly visible.

ZACATARA MINE.—Work will shortly be resumed upon the Zacatara mine near West Point, idle for 2 years.

GOOD HOPE.—A level has been run 30 ft. on the pay chimney without getting through it. The ledge is 3¼ ft. wide and all the rock contains gold. Ashbury & Smith, have made arrangements to have 100 tons of quartz crushed in the old Vance mill.

GRAVEL MINING.—At the What Cheer mine, work is being pushed forward vigorously with satisfactory results. The incline, with its connecting level, is about 700 ft. in length, in addition to which a number of "drifts" have been run across the channel at various points. The gravel looks well and prospects good.

In Shaw's great hydraulic claim operations have not been commenced in earnest yet, but quite a number of hands are engaged ground sluicing. Next Monday water will be turned on through the pipe.

Brackett & Co. are taking out gravel of unprecedented richness. The yield of the mine for the past 2 weeks was $1,000—a net profit of over $600. The claim is worked through a tunnel, the gravel obtained being crushed in a 5-stamp battery. Fifteen men are constantly employed and work is pushed ahead with vigor. A little further up the gulch we encountered the tunnel claim of Bates & Co. These gentlemen have been "off the lead" for some time past and suffered considerable inconvenience from water; recently, however, they have succeeded in getting rid of their aqueous difficulties, "struck it" again and are taking out pay gravel.

In Corral Flat Champion & Co. have commenced bailing out the water that drove them from their "diggings" a short time since.

At Sport Hill, Moser & Co.'s hydraulic is in full blast and doing good execution.

In the same locality Johnson & Co. are busily engaged in their tunnel claim and getting fair returns.

GWIN MINE.—The water is being taken out from the shaft in the lower mine and it is expected that the "Alexander" battery will be put in motion next week.

INYO COUNTY.

NEW BLOWER.—Inyo *Independent*, Jan. 13: The Swansea furnace has just been fitted with a new fan or blower, of increased size and power.

NEW TUNNEL.—The Wittekind boys have started in a new tunnel, to tap a large body of exceedingly rich ore, which has been opened below their present working level. It will intersect the ledge about 120 ft. in depth and be 200 ft. long.

THIRTY STAMPS.—The Eclipse new mill is being run with a full battery of 30 stamps, with very favorable results.

MONO COUNTY.

RICH ORE.—Reno *State Journal*, Jan. 20: The Auburn mill has worked 22 tons of ore for A. Mack, taken from one of his mines in Hot Spring dist. which yielded $700 per ton.

NEVADA COUNTY.

LOCATIONS.—Nevada *Transcript*, Jan. 20: Grannan and others have located 800 ft. of Daisy Hill ravine, in Grass Valley dist., from Sebastopol Gulch up the ravine to the road. C. E. Olney and others have located 2,100 ft. on a quartz ledge, near Frenchman's Bar, on the South Yuba river in Nevada township.

RICH STRIKE.—On Wood's Ravine Philips & Molar found several quartz specimens, and among them a piece worth $97, and another worth $100. J. Schmidt struck a pocket in his father's ranch on the ravine, from which he has taken out $600.

BIRCHVILLE. — At Birchville the Red Rock Tunnel Co. are at work. This Co. is running 500 inches of water and will clean up in a week or so.

HUNT'S HILL.—Every Co. is at work in the vicinity of Hunt's Hill and every man is employed.

FRENCH CORRAL.—All the Co.'s at Kate Hays Flat and French Corral have started up and have plenty of water and good prospects.

COMMENCED WORK.—We hear of a general activity among miners throughout the Co. In nearly every camp the word is, all our Co.'s are running, with plenty of water and good prospects.

BLUE TENT.—Three Co.'s are at work at Blue Tent, running a large amount of water, and having a splendid prospect.

SAN JUAN HILL.—Co.'s are at work on San Juan hill, just beyond the limits of the town of San Juan. Davis & Boun and Davis & Co. have been washing some time; and Denniker & Co. are fitting up for work at the lower end of the hill. They are building a flume and will be ready to commence work in a week.

QUAKER HILL.—All the claims at Quaker Hill are in splendid running order and more men employed than ever before. Jacobs & Sargent have in operation 4 of the largest size monitors which are washwashing off the ground at a very rapid rate.

SCOTT'S FLAT.—Ashburn & Baker, in whose claims an extensive cave occured 2 years ago, filling up their diggings, are now putting up a new flume to avoid slides hereafter. They are engaged in building a ditch to bring water out of Central Cañon.

Thos. Holmee, whose operations were stopped a short time since by a slide in his claims, has started up in a new place. He has rich ground and big pay..

AT WORK.—Gentry & Co. on Oustomah Hill, have commenced washing in their claim. They have abundance of water and a prospect for a splendid season.

THE MANZANITA CLAIMS.—These claims are being run to their full capacity and employment is given to about 20 men.

RICH ROCK.—Grass Valley *Republican*, Jan. 21: We saw two pieces of rock from the Seven-Thirty mine yesterday. One piece weighing 15 ounces, was estimated to be worth $100. Thirteen tons of rock from their incline crushed at the Gold Hill Mill, yielded $504.

NEVADA QUARTZ LEDGE.—The incline on the Nevada quartz ledge at Sogg's mill is down 100 ft., and the rock is good—growing better as they progress downward. The incline is down 74 ft. below the bed of Deer creek.

NEW YORK HILL MINE. — We notice some fine specimens of rock from the New York Hill mine at the bank of A. Delano. The rock is from the fourth level of the mine, where they have a splendid ledge from 18 inches to three ft. wide.

NORTH STAR.—Grass Valley *Union*, Jan. 21: This mine is doing well. The skimmings from the batteries from the 6th of Jan. to the 18th, yielded $7,100.

IDAHO.—The run of the Idaho mine and mill for the last week was a good one. In the six working days, with 15 stamps, gold to the value of $10,000 was taken out.

PLACER COUNTY.

DISCOVERY.—Placer *Herald*, Jan. 20: We have been shown some talcose and quartz rock taken from a new and unexplored vein not far from here, which shows sulphurete and free gold in plenty. The ledge is about 18 inches wide.

ECLIPSE.—This mine is east of the St. Patrick and south of the Greene, about two miles west of here, and is generally known as the Patterson. The main shaft is down 75 ft., and 60 ft. from the surfaces a level is being run, from which over 50 tons of rock have been taken, showing finely in free gold. This rock will mill from $30 to $40 per ton.

GOLD YIELD.—Auburn *Stars and Stripes*, Jan. 18: A few days ago there was a crushing at Pugh's mill, of quartz from the ledge of W. H. Puffer & Bro., on the south side of Auburn ravine, a short distance below Newcastle. The yield from 50 tons of rock, just as it came from the ledge, was 126 ounces of retorted gold, valued at $15 per ounce.

PLUMAS COUNTY.

NICE "SLUGS."—Plumas *Herald*, Jan. 13: D. Bushman, at work near the head of Blackhawk, one day last week, picked up a piece weighing about six ounces, and another worth about $17.

SAN BERNARDINO COUNTY.

TIN MINE.—Butte Co. *Record*, Jan. 13: N. W. Clark, formerly a resident of Butte Co., but for the past two years a dweller in San Bernardino Co., has discovered there a tin mine.

The mine shows a face of 33 ft. in front, and cut in two places 150 ft. apart, a front of 22 ft. Some of the ore that was tested, yielded from 20 to 40 per cent. pure tin.

SAN DIEGO COUNTY.

BULLION.—San Diego *Union*, Jan. 11: About $400 was taken up by W. F. & Co's. Express. The mills have resumed work, and large shipments may be loooked for shortly.

JULIAN.—Cor. same: Our four quartz mills in Banner and this dist. have been kept crushing quartz nearly all the time for the last month.

Wilson & Leuzarder's steam stamp mill will soon be ready for business. They will commence work on the Helvetia mine, which they have bought, and from which they will be able to get quartz sufficient to keep their mill running.

SOLANO COUNTY.

QUICKSILVER MINES. — Vallejo *Chronicle*, Jan. 20: The Vallejo Quicksilver Mines, on Brownlie's ranch, have received considerable detriment from the late storms. One of their tunnels which has caved in several places, and it will be impossible to get timbers upon the ground to shore it up at present. This Co. smelted 20 flasks of quicksilver in their furnaces last week at one charge.

TRINITY COUNTY.

DOUGLAS CITY.—Cor. Trinity *Journal*, Jan. 13: The Portuguese miners on Smith's Flat are all busy at work.

On the western side of Reading's creek, near its mouth, Jesse is making good use of the high water eluicing away his top dirt.

Still further up Reading's creek, Butcher & Stigger are making fair wages on the west side. Above, Butts & Abbott have enlarged and extended the old "Treat Ditch," and are almost ready for work. In Clement's Ranch are located the celebrated claims of Smith & Wallace.

On a branch of Reading's creek, Scars is said to have a good-paying claim.

Nevada.

EUREKA DISTRICT.

NEW YORK CANON.—Eureka *Sentinel*, Jan. 17: In the Golden Gate shaft at a depth of 80 ft. a fine well defined ledge of free quartz was struck one day last week. The ore is strongly impregnated with a greenish-colored chloride of silver, and assays on an average about $125 per ton. Surrounding the milling or crystallized quartz, which is 5ft. in width, is a mass of decomposed carbonate ore susceptible of easy reduction by the ordinary smelting process. A drift has been cut along the ledge for 13 ft., with constantly improving prospects. The Fourth of July mine, is also improving in appearance. During last week, at a depth of 75 ft., a splendid vein of high grade ore was disclosed, and a large amount of ore was being brought to the surface. Assays have been obtained ranging from $80 to $125 per ton.

RUNNING FINELY.—The furnaces of the Cons. Co. are running finely, and bullion is being made at a rapid rate.

RICHMOND WORKS.—The furnace in course of erection will soon be in condition to add their quota to the already large amount now being produced there.

WILL STEAM UP.—The Lemon mill will get up steam for a trial run in a few days.

PROSPECTING. — During the pleasant weather of the last few days the hills have been full of prospectors.

ELY DISTRICT.

BULLION.—Ely *Record*, Jan. 18: W. F. Co. shipped since Jan. 4th bullion valued at $165,818.20.

YEARLY SHIPMENT.—The shipment for the year is about $4,000,000.

ASSAYED.—J. Cahill during the week assayed bullion valued at $52,778.06.

ELY DIST.—With only 75 stamps, our shipment of bullion for the quarter ending Dec. 31st, 1871, was $1,203,542.83.

CHAPMAN MINE.—On Friday last we visited this mine and examined all of its workings thoroughly. The shaft is 200 ft. deep, following the ledge, which is nearly perpendicular for that depth, and the ore is about 18 inches wide on an average. At the depth of 50 ft. a drift was run on ore, connecting the Chapman and Chapman No. 2 shafts. At the 200 ft. level a drift has been run east along the ledge for 28 ft. At this point the ledge is well defined, with good walls, and the ore is of high grade, giving a pulp assay of $200 per ton. The ledge is much wider at this point, a chamber having been opened which shows the ore to be fully 4 ft. in width. The Supt. has commenced to grade for a whim, which will be erected at once. The shaft is to be newly timbered.

INGOMAR.—This mine is on Panaca Flat, northwest of the old Panaca location. A fine vein of ore—the Lightner ledge—was struck in the drift on the 14th inst.

RICH STRIKE.—The Meadow Valley Co. struck a rich deposit and a large one too, in the 600 ft. level, east of No. 7 shaft, on Tuesday night. The mine is looking well in every department, and the large quantity of ore at the mill and the body struck, make this mine a good claim to invest in.

BULLION STOLEN.—On Thursday last 3 bars of bullion were stolen from the Salt Lake stage at Desert Springs station, while the driver and passengers were in the house eating supper. Two of the bars were found next day about a mile from the station.

NEWTON BOOTH.—They are drifting for the ledge from the lower level.

PAGE AND PANACA.—On the 15th inst. a fine body of ore was struck in the east drift running from the 155 ft. level. The ledge is about 4 ft. wide, with a pay streak of about 30 inches.

THE mines of the dist. are steadily improving in character of ore and extent of deposit as the work progresses. The Creole shaft of Raymond & Ely mine, shows a large ledge of very high grade ore. The Burke mine looks well although no ore is being hoisted at present. The Lightner shaft is steadily improving in every respect. The mill is constantly running on first class ore. The American Flag, Alps, Chief of the Hill and Meadow Valley are still hoisting the usual amount of ore. Page and Panaca, Newton Booth, Lafayette, Justice, Silver Chief and Chapman mines are energetically at work sinking, timbering and preparing for steady work.

ALPS is being worked by a full force of men. The ledge is larger at the lower level than ever before, showing over 6 ft. of fine milling ore. The Chicago mill is now running on ore from the Alps.

PACIFIC TUNNEL NO. 4.—This claim has been sold for a good round sum. The claim is directly west of the Chapman, is a true fissure vein and over 2 ft in width. Two hundred tons of ore on the dump together with the showing along the ledge, speaks for itself. Sufficient ore can be extracted to run a 10 stamp mill steadily.

HUMBOLDT.

BULLION.—Unionville *Silver State*, Jan. 20: Amount shipped from the Arizona mine, since our last issue, was $5,802.

WORK RESUMED.—Work has recently been resumed on some mines, several miles south of town, which were located several years ago.

DUN GLEN.—The new mill, recently built by Sprague & Co., at Dun Glen, is in operation, and the machinery working entirely satisfactory.

GOOD NEWS.—Humboldt *Register*, Jan. 20: From Battleville, Galena dist., we learn that the Nevada Butte M. Co. are going to start up their mill, and put a large force of miners to work on the Butte and Trinity mines immediately.

REESE RIVER.

MOHAWK MINE.—Reese river *Reveille*, Jan. 8: The following are the returns from the last working of ore from the Mohawk mine at the Manhattan mill; 3½ tons—first class—$2,536.92 per ton; 10½ tons—second class—$543.52 per ton; 21½ tons—third class—$194.78 per ton. The whole produced a net profit of $13,723.45.

STETEFELDT MILL.—The manufacturing of bullion has been suspended for a short time at the Stetefeldt mill in Belmont, owing to the breakage of the water jacket on the furnace.

WASHOE.

BELCHER MINE. — Virginia *Enterprise*, Jan. 20: This mine has never looked better than at present. Throughout a length of 320 ft. every stope, crosscut and opening of any kind on the great pay deposit, shows

magnificent ore. The north winze being sunk on the 1,100 level, is down 135 ft. It descends at an angle of 40 degrees and is all the way in ore of exceeding richness—ore average assays of which are from $150 to $200. On the 9th level of the old mine, where the ore body has been cut through, the pay ground is found to be 30 ft. in width and very rich.

KNICKERBOCKER MINE.—Work is progressing favorably on the new Knickerbocker shaft. It is being substantially timbered, and is divided into 3 compartments. A drift will be started for the ledge when the shaft shall have attained a depth of 500 ft.

SUTRO TUNNEL.—The Sutro tunnel is in a distance 2,687 ft. The ground in the face of the tunnel is very hard. Shaft No. 1 is down 34 ft. the ground works well. Shaft No. 2 is down 70 ft. the ground is favorable and some water is coming in. Shaft No. 3 is down 45 ft. in very hard ground, as in the case in shaft No. 4, which is now down 44 ft.

A LARGE amount of prospecting is at present being done in the Yellow Jacket mine. Little ore is being raised.

BELCHER AND CROWN POINT BULLION.—We yesterday saw upon the counter of the Bank of Cal. silver bricks from the Belcher mine valued at $50,188.20; also, Crown Point bricks to the value of $23,341.79, making a total of $73,529.99.

OVERMAN MINE.—The new shaft of the Overman M. Co. is down 446 ft.

JULIA MINE.—Work is progressing favorably. Their main shaft is down 500 ft. and the rock through which they are sinking is favorable in appearance. When their shaft shall have attained the depth of 1,100 ft. they will drift for their lead. They expect to be ready to drift in about 90 days. They have a belt of vein matter about 200 ft. in width, in which to look for ore deposits.

DANEY MINE.—Gold Hill *News*, Jan. 18: Work progress well, as usual, in this mine with fine prospects ahead. The drift for the ledge at the 500 ft. level in 100 ft. from the shaft, and the rock works well. At the 400 ft. level the main drift cut the ledge at 270 ft. from the shaft, and the drift north from it is 95 ft., following the ledge in fine looking quartz assaying from $6 to $10 per ton. The prospects for finding a good body of pay ore are better than for a long time.

ALPHA MINE.—Reno *State Journal*, Jan. 20: The Alphn M. Co. at Rye Patch, have just struck an extensive chamber of very good milling ore in their mine. It mills $70 per ton.

Arizona.

MINES AND MINING.—Prescott *Miner*, Jan. 6th: The quartz miners of Yuma and Mohave Co.'s are busily engaged, getting out ore. Yuma Co. will soon have another mill, that which Mr. Borger is bringing out, to work ore from the Constantia mine, near Ehrenberg. The miners of Castle Dome are still taking out ore and shipping to S. F.

In Mohave Co., a 5-stamp mill is being run.

In Yavapai Co., the Vulture Co.'s 40-stamp mill, near Wickenburg, is still busy freeing gold from its matrix. At Bradshaw every lick struck upon the Tiger, and Lorena lodes exhibits ore of wonderful richness.

In Pine Grove Dist., Jackson & Co., have been doing well, and have struck an abundance of water to run the mill 14 hours every day.

J. Rush has about made up his mind to place his little mill on the Hassayampa, at Walnut Grove, and to work ore from the Josephine and other lodes, which we know are rich in free gold.

Placer miners are still making something, on Lynx Creek and the Hassayampa.

The Benjamin and its "sister" silver lodes, near Prescott, are growing better as fast as developed.

Colorado.

SHIPPED.—Georgetown *Miner*, Jan 11th: Baily & Nott have shipped since our last issue 15 tons of smelting ore on account of owners.

Gen. F. J. Marshall, of the Marshall S. M. Co., sent forward last week, 2 car loads of smelting ore to Swanzea, valued at about $16,750 in coin.

Campbell & Clark have shipped on account of owners, since our last issue 10 tons of rich smelting ore.

Palmer & Nichols have shipped since our last issue, one silver bar, 900 fine, valued at $1,785.41, coin.

The Stewart S. Reducing Co. have shipped for the week, 4 silver bricks valued at $2,744 06 coin, and also one lead bar valued at $528.17 coin.

MONTEZUMA.—A fair ore vein has been struck in the Napoleon, and a great deal of native copper is found intermixed with the ore and vein material. Work on the Silver Wing lode is steadily progressing. All the machinery for mill of Boston S. M. Association, has been transported from Breckenridge to St. Johns. The mill of the St. Lawrence S. M. Co., amalgamating, and the mill of the Boston S. M. Association smelting and amalgamating, will be completed at an early day in the summer of 1872.

CENTRAL CITY *Register*, Jan. 3d: The stoping ground of Harper's claim on the California, 300 ft. from the surface still holds out, and is producing a very fine grade of mill and smelting ore, 2½ ft. in width. Mr. Harper has leased a claim to A. M. Jones, adjoining him on the west, and started a drift last Tuesday to open up this property. The breast of the drift discloses a view of the celebrated California ore over 2 ft. in width.

NICHOLS & Co. have loased and started the mill on the Cons. Gregory Co., at Black Hawk and are running it on Kent Co. ore.

THE Holbrook property, adjoining the Romine claim on the west, has been leased to Arden, Briggs & Co., who have commenced sinking, and are taking out a very fair grade of ore that is paying from 5 to 6 ozs. per cord. The shaft, 120 ft. in depth, is well timbered and in excellent condition for working. The lessees purpose sinking 30 or 40 ft. deeper, when they will commence drifting. This will give a stope something over 100 ft. in depth.

ITEMS.—Central *Herald*, Jan. 10th: During Dec. the Lenvitt lode yielded nearly $11,000. The crevice is from 4 to 6 ft. in width and the ore is very easily mined. Assay give from $100 to $400 per ton. The greatest depth reached in the mine is 200 ft. B. S. Bnell has just leased the ground on either side of that worked by Mellor. There is a very large quantity of ore in sight, and the prospects are that the past unusual yield will continue for a long time to come....The Kansas Co. are meeting with fair success on the property purchased of Hardesty on the Kansas lode. Last week's return gave a retort worth $1,000. ....Capt. Philip's claim on the Jones is paying well.....Waterman's Enreka 20-stamp mill is crushing Sndeberg ore for N. Young & Co. and for Kenwing & Quail, their ore being from a lode just south of the Gardner, on Quartz hill.....The Stevens 14-stamp mill at Black Hawk, is running on quartz from the Cincinnati, and from the Rob. Emmet. The former is not paying as well as formerly, but the latter has the appearance of being very valuable. ....Cave & Mollor have again came into rich pay on the Gregory Second, and keep 5 stamps employed at the Mellor & Borum mill. The remaining 15 stamps are crushing Leavitt ore....Mead's mill is crushing ore from the Gunnell, Burroughs and Roderick Dhu lodes.

Idaho.

LOCAL RECORD.—Silver City *Avalanche*, Jan. 13: The North Oro Fino Discovery continues to yield 25 to 30 tons per day—which is worked at the Owyhee Co.'s mill. A. P. Minear, is running it in connection with the South Oro Fino, belonging to the Ida Elmore Co. The latter mine is yielding about 25 tons of ore daily. Mr. Minear is also working the North Oro Fino Co.'s ground through the same shaft, and has let a contract to run the 3d level drift in the Discovery claim to the line, which will break through into the 2d level of the North Oro Fino, where there is already a large body of ground opened.

The 7th level drift of the Ida Elmore is in about 40 ft. on the rich body of ore lately discovered in that portion of the mine. Some of the ore will be worked in the Co.'s mill next week. The 6th level drift, in the same mine, is also being driven north.

Stoping is actively going on in the 8th level of the Golden Chariot, where the vein is over 2 ft. wide and the ore of excellent quality. Next week there will be 500 tons ready for the mill.

The Minnesota mine bids fair to be one of the best mines in camp. Drifts are being run both north and south as fast as possible on a good vein of ore, which is easily worked in both the mine and the mill. Ten stamps of the Elmore mill have been running on Minnesota ore for the last 2 weeks. It pays about $60 per ton chiefly.

The Mahogany is turning out richer ore from its 4th level than was ever before seen in that mine. Drifts are being driven both north and south on the 4th level, also a winze from the 3d level down.

There is quite an exciement about the ore in the 4th level of the South Chariot, which is very rich. The ore from that drift will be worked this week.

In the War Eagle mine a winze is being sunk from the 2d to the 3d level, about 100 ft. south of the shaft through a rich chimney of ore.

Montana.

PHILLIPSBURG.—Deer Lodge *Independent*, Jan. 13: Brown & Co. are working 11 men on the Cordova ledge. They have an 8-ft. ledge of good ore. The St. Louis & Montana M. Co. have let a contract to run a tunnel to the Camanche ledge. Brown & Co. have a body of ore 10 ft. wide in the Eastern Camanche that is considered fair milling ore. Col. Lyon has started up his furnace on Speckled Trout ore. The smelter works well. The ore smelted so far pays $150 per ton. Estell & Holland have about 200 tons of first-class ore ready to haul to the mill.

MILL CREEK.—The Fry lode 1½ miles above the Pioneer Tannery, on Mill Creek, has been opened to the depth of 20 ft. and shows a well defined lode of gold-bearing quartz, from 7 to 11 ft. thick. A large quantity of ore has been taken out. The ore already milled has paid $45 to the ton.

J. How is running the Oro Cacho mill, Summit Co., on rock from the mine of the same name, with favorable results.

JEFFERSON MINES.—Helena *Gazette*, Jan. 8: Bell & Co. are at work on their lode, the "El Dorado," and have been taking first-class ore out of both shaft and tunnel, and still there is a large body of ore in sight. The "Minnesota" is being worked by the owners, and, is considered to be the best lode in the dist. There are quite a number of miners in camp prospecting and running tunnels, trying to tap lodes they have discovered heretofore. Among the latter, are Dr. Brooks & G. Gregorie, whose tunnel, running to one of their late discoveries, bids fair for galena soon. J. Halford is running a tunnel for the "Self Supporter" with fair prospects of a good "streak".

Utah.

BULLION.—Salt Lake *Tribune*, Jan. 11: W. F. & Co. forward to-day to New York, 17 bars from the Raymond & Ely works, worth $51,134.57. On the 16th, (same paper Jan. 18,) they forwarded to same place from Meadow Valley works, 7 bars, worth $9,087,81, and on the 18th. they forwarded 4 bars, 316 lbs., valued at $5,172.89 from the Pioche S. M. Co., also consigned to New York.

N. P. WOODS shipped from the 12th to the 15th of Jan., about 17 car-loads of base bullion to Omaha, one car-load going to Chicago.

COLUMBIA DIST.—The mines that are being worked are the Chimney Corner, Gold Eagle, Champion, and the Washington.

Chimney Corner is down on an incline 35 ft., showing bunches of chloride ore which appears to be very rich in silver.

Gold Eagle has been lying idle for some time owing to a conflict of titles. The original owners have, however, resumed work at their discovery shaft with the view of sinking and drifting through to the Augusta which is about 150 ft. south of the original discovery of the Golden Eagle.

Champion Co. have tapped their ledge at a depth of 35 ft. in their tunnel, exposing a large body of gray carbonate and apparently rich in silver.

The Washingtons are improving as work progresses.

A new discovery was made last week by Cox & Linton on Liberal Hill, about 150 ft. east of the Champion mine and probably the richest discovery in the dist. Very little has been done and a large body of ore is in sight that assays high in silver.

AMERICAN FORK—The Sultana works are in a flourishing condition. The Co. employ 40 teams day and night and are making a very successful run on their furnaces, having 100 tons of bullion already on hand, and coal enough to smelt 200 more. The ore in the mine (the Miller) seems to be holding out well. A contract has been let for the delivery of 1200 tons.

EAST CANON.—Cor. same: On the north side of this canon, about 6½ miles from town, very rich deposits have been found. Further up the mountain and we come to the San Joaquin in 50 ft. Chloride Gem, rich ore. Chrysopolis, down 60 ft. with rich ore. Cricket, very rich. Lineoln tunnel, Sphynx, Ward Beecher, Silver Emporium, etc., all evidently good mines. The Mariposa, Marvin and other prospects, all chloride ores. On Office Hill are several good prospects. On Base Hill (so called) are the Sevier, Veloeipedes 1 and 2, Miner's Delight, Silver Shield, Wild Delirium, Hidden Treasure, Fairview, McCullum, Antelope and others—all yielding good smelting ore and apparently heavy bodies.

In Dry Canon we have the Fourth of July, Chicago, Soverign, Kearsarge, Monitor, Silver Eagle, Uncle John, Crown Point and others. The foothills abound in rich deposits and contain several good leads. Below Ophir are a number of leads and prospects located by the English Co.

The El Capitan, a mine on Chloride Hill, is promising well. It has a vein of ore 16 inches in thickness, which assays on an average $300 per ton.

The Clark and Gardener is yielding considerable ore, which is worth $180 per ton.

Rich discoveries have lately been made on Shoo Fly Hill, consisting of horn and native silver.

Arastras are doing well. One started a few days ago by Williams & Co., works up to 70 per cent. of the assay value of the ore. The Ophir M. & S. Co. will start their furnace again next Monday.

Mr. Akin will have his furnace ready by the last of the month, when it is understood the Pioneer Mill will again steam up.

COMING.—Salt Lake *Review*, Jan. 18: The machinery for the construction of a 20-stamp mill, for the Sparrowhawk M. Co. of Camp Lloyd, is expected to arrive within a week.

S. F. Stock Exchange Board.

SAN FRANCISCO, January 25, 1872.

Mining stocks have been unusually active during the past week. The San Francisco Stock Board will hereafter meet at 10½ A.M. instead of 11 A.M., a change caused by pressure of business. The new stock of the Daney Mining company is ready for delivery; on surrendering certificates holders will receive three shares of new issue for one of old. From January 6th to January 23rd the receipts from the Meadow Valley mine were $66,000. The December receipts from the Original Hidden Treasure mine, were $12,515 from 600 tons of ore.

The sum of $7,060 was received here last week from the Succor mine. Nearly 700 tons of ore were extracted from the Hale & Norcross mine last week. From the Savage, 300 tons were taken, averaging $38 per ton. For the week ending on the 21st inst. 1,820 tons of ore were taken from the Crown Point; assay value $86,000. For the week ending last Saturday, the North Star mine shipped $7,050. On the 16th inst. $8,000 were sent down from the Minnesota mine, taken from 137 tons of ore.

The Pioche West Extension company have elected the following Trustees:

H. Kozmiensky, Charles Forman, A. E. Head, Augustus J. Bowie, Jr., and M. J. McDonald; Spring Mount company, H. A. Lyone, L. Maynard, Thomas Bell, J. W. Gashwiler, and C. D. O'Sullivan; Ely Consolidated company, H. A. Lyons, Ogden Hoffman, C. D. O'Sullivan, M. Skelly, H. Kesmiensky.

Comparative Prices—Extremes. Advance and Decline.—S. F. Stock and Ex. Board.

	Jan. 18.	*Highest.*	*Lowest.*	Jan. 25.	*Adv.*	*Dec.*
Alpha	$26	30	22	24	—	2
Amador	—	—	—	—	—	—
Belcher	—	620	580	600	—	—
Buckeye	4	5	4¾	4¾	¾	—
Chollar-Potosi	46	48	42	48	3	—
Caledonia	17	17¾	15½	—	—	—
Cons. Virginia	27½	27½	22	24	—	3½
Crown Point	—	6'0	569	650	—	—
Daney	—	8½	2¾	2¾	—	—
Eureka Cons.	26¾	26¾	24½	24½	—	2¼
Eureka	—	23½	18½	18	—	—
Empire	—	—	—	—	—	—
Gould & Curry	128	140	125	130	2	—
Golden Chariot	22	25	13½	15½	—	6½
Hale & Norcross	170	200	165	180	10	—
Imperial	70	77	62	50	—	—
Ida Elmore	17½	19	15¾	16	—	1½
Kentuck	165	230	160	205	40	—
Mammoth	60c	72½c	60c	60c	—	—
Meadow Valley	17½	18	16½	17½	—	—
Occidental	—	—	—	—	—	—
Ophir	60	60	53½	55	—	5
Orig. Hid. Treas.	—	8¼	7	7¾	—	—
Overman	48	53	37	50	7	—
Piochè	11¾	14¾	10¾	14¾	3½	—
Raymond & Ely	102	120	92	112	10	—
Savage	64½	71	59	67½	3	—
Sierra Nevada	—	28	25	27½	—	—
Silver Wave	—	—	—	—	—	—
Wash. & Creole	5	6¾	4¾	6¼	¼	—
Yellow Jacket	65½	70	63	64¾	—	1
St. Patrick	—	40	40	—	—	—
Seg. Belcher	50	65	48	65	16	—

Latest Prices—Bid and Asked.

	BID.	ASKED.		BID.	ASKED.
Alpha Cons.	24	23	Ida Elmore	15	16
Amador	200	200	Imperial	—	—
Belcher	595	600	Kentuck	200	205
Chollar-Potosi	47½	48	Meadow Valley	17¾	17½
Crown Point	625	630	Ophir	53	54
Daney	2¾	3	Orig. Hid. Treas	7½	7¾
Eureka Cons.	24½	24¾	Overman	48½	49
Eureka	17½	17½	Savage	66	67
Golden Chariot	14¼	14½	Raymond & Ely	108	108½
Gould & Curry	128	130	Sierra Nevada	26½	27
Hale & Norcross	180	180	Yellow Jacket	63	64

HOISTING WORKS BURNED.—The hoisting works of the Manhattan company on Gold Flat, near Nevada City were burned on the night of the 19th inst. The loss is about $3,300; origin of the fire not known. These works were built more substantially than those destroyed by fire last October, when the loss was $25,000. The Manhattan company seems to be afflicted by fires.

TOTAL RAIN-FALL.—At Green's Ranch, four and a half miles from Davisville, Yolo county, from Nov. 7th to Jan. 10th, was 24.03 inches.

Artesian Wells.

Important Results Obtained in Los Angeles Co.

The remarkable success attending the efforts of artesian well prospectors, in the vicinity of Santa Ana, is really astonishing. Fine flowing wells have been "struck" in all portions of this county, but an unusual number of them seem to have been especially successfully bored in and around Santa Ana. The low depth at which these wells are discovered is a matter of surprise. One would imagine there must be a sheet of water covering an area of many miles, a few feet under the surface; at all events the indications point that way, and strengthens the supposition, as six wells have been struck during the last year, the deepest of which is the San Joaquin well, which did not answer to the "call of the augur" until a depth of one hundred and forty feet was reached. Most all of the other five wells commenced to flow at a much shorter depth than the San Joaquin well. A fine flow of water was obtained by Mr. McCullough on his place last summer, at the exceedingly shallow depth of twenty-nine feet; another shallow well about a half mile from this one, was struck last spring by Mr. McFadden, at the low distance of thirty-nine feet beneath the surface. So confident was Mr. McFadden of securing artesian water that he did not go to the expense of buying any kind of well-boring material, but constructed a simple boring instrument, after his own notion, which was anything but artistic. He depended principally on luck, and the irrepressible presentiment that an entire sea of fresh water laid a few feet under the ground in his vicinity.

This well throws a constant stream of water, twenty-one inches in circumference, to an elevation eleven feet above the ground. The water is always cold, and as pure as crystal. Two and a half miles from this well is another that throws a column of water several feet high. This one was struck at the distance of ninety-one and a half feet, on Welche's ranch. Another well, from which a fine flow of water was obtained, was opened with the commonest instruments, on Mr. Laymau's place, and water obtained at a distance of twenty-seven feet.

Mr. Weigan entered into the well-boring mania with considerable enthusiasm, anticipating that he would strike water at a very short distance from the top of the earth; but unfortunately he did not touch the spontaneous fountain until the earth had been penetrated one hundred and thirty-five feet. He has all the water he wants, and some to spare in case of drouth.

Thus it will be seen that, within a radius of four miles, six of Nature's perpetual pumps are in operation, throwing up and distributing at least one million gallons of water per day.

The earth is bound to have a certain quantity of water that can either be utilized or saved for future use, by catching the water in a reservoir or plugging up the artesian pipe and stopping the flow.

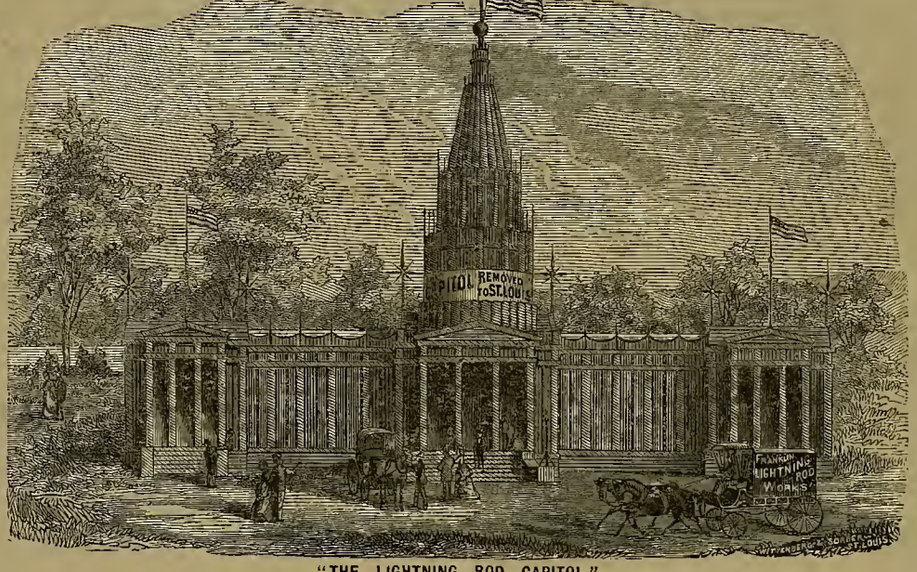
There are about one hundred artesian wells throughout the county. Probably half of them are in good running order. The business made in this line as an assistance to agriculture in this county is really wonderful. Three years and a half ago there was not an artesian well in the lower country, and to-day we have in this county alone, enough of them to redeem the country from drouth, should that plague visit us again.—*Los Angeles Star.*

Low Barometer in Polar Regions and in Cyclones.—Observations show that there is a marked depression of the barometer in the polar regions and in the central part of cyclones; but no very satisfactory explanation has as yet been given of the cause of this phenomenon. Reliable observations show that there is a depression of *more than one inch* below the average at the equator, in that portion of the Antartic region which has been visited by observers, and about half as much in the Arctic region. It is also known that during the continuance of a cyclone, the barometer stands from *one to two inches lower* in the central portion of the same, than when exposed in the exterior part.

Learning makes life sweet.

The Lightning Rod Capitol.

Since the St. Louis Fair, held in October 1871, has taken such a conspicuous place among such exhibitions, an illustration of some of its peculiar displays will be of interest. A number of the exhibitors, in a healthy competition, spent large sums of money in placing their articles as conspicuously before the public as possible; but perhaps the most extensive and liberal preparations were made by Messrs. Cole Bros., proprietors of the Franklin Lightning Rod Works, 723 South Seventh St., St. Louis. This enterprising firm, desiring to show their work to the best advantage, conceived the idea of hitting upon a popular question of the day, and constructed a miniature representation of the United States Capitol, built wholly of lightning rods, and inscribed "The Capitol removed to St. Louis."



"THE LIGHTNING ROD CAPITOL."

The hit was a happy one, and the unique structure was surrounded by thousands of spectators every day of the Fair. The building, of which our cut is a faithful representation, was 45x22 and was surmounted by a dome 45 feet high, the whole composed of lightning rods of various sizes kinds and colors, ingeniously arranged and combined as shown. More than 60,000 feet of lightning rods entered into its construction, jet black iron, bright copper, and white rods, being harmoniously blended, to form the walls, while a gorgeous display of glittering stars, gilded balls and silvered tops, ornamented its front and dome. The total value of materials used was nearly $10,000, and when the sun shone on this glittering mass, bristling with points and other ornaments, the effect was dazzlingly beautiful and challenged universal admiration.

The Wheeler Expedition.

The Wheeler Exploring Expedition, sent out last spring to examine the country between the Pacific Railroad at Elko and Southeastern Arizona, has completed its labors; but the results of the expedition will not be properly known until communicated to the public by the publication of the official report at Washington. We have learned enough, however, to satisfy us that a large amount of valuable and interesting information has been obtained.

The expedition examined the topography of a district about seventy-five miles wide and six hundred long. Thirteen main topographical points were determined precisely, and many minor points approximately. The country from Elko to the Colorado was found not unfavorable for railroad purposes. In Arizona a considerable district occupied by hostile Apaches was examined and its topography communicated to General Crook. The mines along the route were carefully inspected and a large mass of information of an industrial character collected. The great cañon of the Colorado was ascended for sixty-five miles from its mouth.

The photographer was kept constantly employed, and has obtained views of all the prominent places. The San Diego *Union* says that when the results of the labors of the photographers are given to the public, a sensation will be created; for among the scenes he has portrayed by the aid of the camera, are some of the most grand and striking conceivable.

The report of the Mineralogist on the mining resources of the Territory of Arizona will show that the mineral wealth of that country has not been overestimated. The new silver mines recently discovered in the Pinal Mountains were examined, and Dr. Hoffman gives it as his opinion that they are unequalled by any mines yet discovered on this continent. The expedition will undoubtedly result in throwing more light on the history of the mysterious Aztec race. Many ruins never before heard of, were discovered by the explorers, and sketches and photographs of them made, and their surroundings carefully noted. The report of Lieutenant Wheeler, when ready, will only be equalled by a descriptive book from the pen of Dr. Hoffman. The former will possess statistics and information invaluable to the student, and the latter will be pleasing to the lover of stories of strange adventure in an almost unknown country.

Great Bee Fight.—The Jackson (Tenn.) *Whig and Tribune* of a late date, relates the following interesting account of the resentment and courage of the honey bee. Capt. Brown, of this city, recently robbed three hives, and Dr. West, a neighbor, robbed four. The bees, thus deprived of the fruits of their labor, became furious; and unitiug, making an army of seven hives, they invaded the premises of Mr. Horace Bledsoe, and made a fierce attack on five of his hives. Bledsoe's bees were taken by surprise, aud although outnumbered, fought for their homes with desperation. The battle lasted several hours, and four of Bledsoe's hives were literally destroyed. The invaders were finally repulsed, after being almost annihilated. The grouud for yards around was black with dead bees. Mr. Bledsoe, although a serious loser, buried the dead warriors with the honors of war. Few of the invaders survived the battle, and from out of five of the defending hives, four were destroyed. It was the bloodiest bee battle on record, and deserves to be handed down to posterity.

Grape Sugar.—The manufacture of this substance in Germany in 1868 occupied sixty establishments, which produced in that year 22 million pounds of syrup, and 8,800 pounds of sugar. Since that time, the industry has much increased, and large tracts have been applied to the cultivation of potatoes from which the grape sugar is manufactured.

Gold and Silver.

Twenty years since, when California gold discoveries had become fully demonstrated, a sort of panic set in among the governments of Western Europe, to a lesser extent in England, and more modified in the United States. The question which presented itself was the probable change in the value of gold consequent upon its increased abundance. It was supposed that, both in relation to silver and other commodities, gold would have a lower value; that is, that a perpetual fixed income, like an annuity, or a ground rent, would gradually diminish in real value, so the recipient of, say $1,000 per annum, would gradually get less and less for the money as its purchasing power diminished. Most governments appointed Commissioners to investigate the matter. The United States passed the Mint bill of 1852, which made gold alone a legal tender. The French did the same; but Holland, under the supposition that if gold alone was produced in greater quantities it would lose its relative value, but that silver would maintain its position, adhered to silver alone as the standard by which permanent incomes would retain their purchasing power. It happened, however, that for the first ten years of gold production here, aided by Australia, gold did not much deteriorate in value, and its relative value to silver, 15½ to 1, was not changed. In the last ten years, however, a change has taken place, not in respect to silver, but in relation to commodities, and the fact shows itself in greatly increased expenses of living all over the world.

It is estimated that in England $4 now is not more than equal to $3 ten years since. On the continent of Europe the change is still greater, and still more in Australia and the United States. But throughout India the purchasing power of money has undergone still greater reduction. An important element of this change in the last ten years has been the United States war. When the war broke out there was in circulation about $200,000,000, bank notes, and $300,000,000, coin. There is now in circulation $700,000,000 of paper money, and little or no coin. The latter has passed off into the markets of the world, greatly increasing the general supply. At the same time there was a great reduction in the quantity of commodities produced—cotton, tobacco, rice, manufactures, etc. Of the first article, India became the source of supply, and silver poured out of Europe profusely into the Indian market for raw commodities and for railroad construction, so glutting it that English official reports show that the natives used the silver for wagon tires and other unusual purposes. The gold of the United States and Australia more than supplied the vacuum caused by sending the silver to India, and a rapid decline in the purchasing power of money has taken place. Such a moment is the favorable one for a return to specie payments in the United States; to call in the superfluous paper money and substitute the coin. But there are no signs as yet of such a consummation.

The prospect now is of a reflux from the India market and from China, while the production of silver on this coast promises to rival that of gold. A London financial authority states, in relation to the Indian flow of silver: "The reader can draw from this his own conclusions; for it is undeniable that the yield of silver is rapidly increasing on the Pacific Slope, and soon will attain to such dimensions that there will be a material fall in the value of the metal. The broad rule ought therefore to be kept in view that a fixed income is less desirable than an income derived from real estate or industrial undertakings, for it undergoes a diminution in its purchasing power through a constant, if slow, process, which must, however, be felt severely at the end of ten or twelve years." Without assenting to the full scope of this proposition, since there will no doubt be a restored activity in the production of commodities, which will tend to compensate for the increase of the precious metals and maintain an equilibrium, there is no doubt but the part California is to play in the world's operations will be more important in the future than in the past.

Useful Information.

Sardines, Where They Come From and How Preserved.

There are few delicacies so well known and so highly esteemed as the sardine. The delicious flavor of the fish when the tin is first opened, and the sweetness of the oil (always supposing a good brand,) print their charms upon the memory. It will be unwelcome news, however, to many to be told that anything good in this way is exceedingly scarce this season. Unfortunately, it was the same last year. Then the destroying demon of war took away the fishermen from the villages, and, added to this, the fish were scarce, so that more were contracted for than could be delivered. This year it is worse. Few fish of any size have been caught (except some very large,) least of all those of the finest quality. The consequence is, the French manufacturers are again unable to carry out their contracts.

The fishery, says the London *Grocer*, is carried on generally from July to November, all along the west coast of France. Two of the largest stations are at Douarnonez and Concarneau. Fleets of boats go out some few miles and spread out their nets, by the side of which some cod roe is thrown to attract the fish. The nets are weighed on one end and have corks attached to the other so that they assume a vertical position—two nets being placed close to each other, that the fish trying to escape my be caught in the meshes. Brought to land, they are immediately offered for sale, as, if staler by a few hours, they become seriously deteriorated in value, no first-class manufacturer caring to buy such. They are sold by the thousand. The curer employs large numbers of women, who cut off the heads of the fish, wash, and salt them. The fish are then dipped into boiling oil for a few minutes, arranged in various sized boxes, filled up with finest olive oil, soldered down, and then placed in boiling water for some time. Women burnish the tins; the labels are put on, or sometimes enameled on the tins, which are afterwards packed in wooden cases, generally containing 100 tins, and then are ready for export.

It does not always seem to be remembered that the longer the tin is kept unopened the more mellow do the fish become; and, if properly prepared, age improves them as it does good wine. But if they are too salt at first, age does not improve them—they always remain tough. The size of the tins are known as half and quarter tins. There are two half tins, one weighing eighteen ounces and the other sixteen ounces gross. The quarter tin usually weighs about seven ounces, but there is a larger quarter tin sometimes imported. Whole tins, and even larger ones still, are used in France, but seldom seen here.

As is well known, the sardine trade is an important branch of industry, very large quantities being consumed in France; and the exportation to England and America is truly wonderful—*Scientific American.*

Progress and Popular Science.

M. Sogg, of Neuchatel, writes to the Editor of *Les Mondes* as follows: "Since the world is inclined to ridicule your attempt to popularize science, permit me to ask what is the science which loses itself in the clouds of thought without a desire to come down to the practical, other than an error, the glory of standing by the side of those other honors which elevate the individual and debase the nation? What would astronomy be if it did not serve to measure time and to guide us on our way upon the land and sea? To separate pure science from applied science, is to condemn each to sterilty; they can no more exist alone than our heads can exist without our arms and legs.

"Thenard would be fogotten if he had not found the cohalt blue which bears his name; it is alkimetry and alcohometry which have rendered popular the name of Gay-Lussac, and, in spite of all his admirable works, the name of Chaptal would he forgotten if he had not connected it advantageously with the manufacture of beet-root sugar.

"Consider how the intelligence of our great men is developed and you will find always that they step upon the scientific stage with works as brilliant as they are useless to human society; later on and gradually, experience, the daughter of age, teaches them to devote themselves to practical application, and they are more pleased with and more proud of having perfected an industrial process, found the formula of a fertilizer, or discovered a new ailment, than if they had devised one of those brilliant theories which flash across the scientific heaven like falling stars, in the space of the firmament, and leave no trace behind."

Glycerine Composition for Leather.

As is well known, glycerine has found extensive application in tanning, as it has been discovered that it adds materially to the elasticity and strength of the leather. Especially has it been found of great value in protecting leather bands of machinery from cracking and drying. The partially tanned leather is immersed for considerable time in a bath of glycerine, by which the pores are filled and such an elasticity and softness is imparted that objects manufactured from it are less liable to break.

In order to prepare a neutral gutta-percha composition with glycerine take 3 to 4 pounds lamp black, ¼ pound burnt bones (burnt ivory), cover up in a suitable vessel with 5 pounds glycerine and 5 pounds common syrup, and stir well until the whole is intimately mixed and free from lumps. Four or five ounces of gutta-percha, finely cut, are to be put into a kettle, and after melting must be mixed with 20 ounces of sweet oil and dissolved, and two ounces of stearine added. While still warm the gutta-percha solution must be incorporated with the syrup and lamp black and after this is done, ten ounces of Senegal gum dissolved in 1½ pounds of water is also added. In order to impart an agreeable odor to the mass a small quantity of rosemary or lavender oil may be introduced.

In using, the glycerine gutta-percha paste must be diluted with three or four parts of water. It gives a fine lustre and, as it contains no acid, it does not injure the leather, but makes it soft and elastic and adds very much to its durability.—*Journal of Applied Chemistry.*

Lint.

Next to cotton, the vegetable fibre most extensively used for textile fabrics is flax, the Latin name of which is *linum*,—hence come the names of linen and lint. The fibres of cotton and flax, viewed under a microscope, will be found to be different; the fibre of cotton is angular, or bladed, while that of flax (linen) is perfectly round and smooth. It is this difference in their natural formation that constitute the superiority of linen over cotton as a material for dressing wounds, or as a fabric for clothing the body. Lint is the unwoven fibre of linen. By wear, and much washing, which it necessarily undergoes, linen becomes softer than when new; it undergoes a partial decay, and the much-prized linen eventually becomes "rag." In this state it is fit only to be converted into paper or lint. Lint is, in fact, the woolly fibre of old linen, "thrown" or slightly "felted" together (as manufacturers term it) into the material form so named. The flax plant yields not only linen by means of its fibre, but it also, by expression, gives a valuable oil from its seeds, known in commerce as liuseed oil. The residue, after the oil is expressed, is called linseed cake, and excellent food for cattle. Each product of the flax plant, both in peace and in war, has its value either as linen, linseed, or lint.—*Scientific American.*

How to Use the Thermometer.—Signal Officer Singleton, of St. Louis, alluding to some statements respecting discrepancies between government reports of the weather, the state of the thermometer, etc., and those made by private individuals, says: "A thermometer should be placed in an open space, out of the vicinity of high buildings, or any object that impedes the free circulation of air. It should face the north, to be always in the shade, should be twelve inches from every neighboring object, should be about fifteen inches from the ground, and should be protected against its own radiation to the sky, and against the light reflected from neighboring objects, or the ground itself. The thermometer should be read as rapidly as possible, as the heat from the body or the breath influences the instrument. I have taken a thermometer belonging to a gentleman in this city, that read seven degrees above the standard instrument in this office, and after removing the back, which was of metal, painted black and varnished, (with a radiating power of seventy-seven degrees at night), placed it in my instrument shelter, after ascertaining the error, by my standard, (which was but three-tenths degrees, the instrument being an imported article and very fine), I found it to read exactly with the standard. Out of 470 observations at all hours of the day and night it varied but once, and then was but two-tenths degrees.

Good Health.

Why do Not Our Teeth Last a Life Time?

That our teeth are made perfect, if the right materials are furnished, there cannot be a doubt. But are the necessary elements furnished to children as they are to the young of other animals? And do we not subject our teeth to deleterious influences from which animals that obey their natural instincts are exempt? The forming young of other animals, while depending on the mother, get lime, and phosphorous, and potash, and silex, and all the other elements of which the teeth are composed, from the blood or milk of the mother, and she gets them from the food which Nature provides containing these elements in their natural proportions.

But where can the child in its forming state get these necessary elements, whose mother lives principally on starch and butter, and sugar, neither of which contains a particle of lime, phospherous, potash or silex? Nature performs no miracles. She makes teeth as glass is made, by combining the elements which compose them according to her own chemical principles. And this illustration is more forcible, because the composition of the enamel of the teeth and of glass is very nearly identical, both, at least, requiring the combination of silex with some alkaline principal.

If, then, the mother of an unborn or nursing infant lives on white bread and butter, pastry and confectionary which contains no silex, and very little other elements which compose the teeth, nothing short of a miracle can give her a child with good teeth, and especially with teeth enameled. But what article of food will make good teeth? Good milk will make good teeth, for it makes them for calves. Good meat will make good teeth, for it makes them for lions and wolves. Good vegetables and fruit will make good teeth, for they make them for monkeys.

Good corn, oats, barley, wheat, rye, and indeed, everything that grows, will make good teeth, if eaten in their natural state, no element being taken out; for every one of them does make teeth for horses, cows, sheep, or some other animal. But starch, sugar, lard or butter will not make good teeth. You tried them all with your child's first teeth, and failed; and your neighbors have tried them, and the result is that a man or woman at 40 with good, sound teeth is a very rare exception.—*Philosophy of Health.*

Glycerine as Food and Medicine.

Glycerine is one of the most valuable articles our pharmacopia can boast of, while as an article of food, it is one of the best and most fattening nutriments. Sweet oil, or olive oil, has for ages been an article of daily diet in Palestine and other old countries, and glycerine is an essence of it. It is a perfectly natural and bland fluid, and the most penetrating, perhaps, in all Nature. Oil itself will penetrate where water will not, and glycerine, which may be considered the etherial part of oil has this property to a most remarkble degree—it penetrates the solid bone.

A medical journal tells us that if poured into a mixture of blood and matter, such as is expectorated from consumptive lungs, it will get between the globules of each and show them with greater distinctness. Being thus penetrating, it is the very best application for feverish sores, for inflamed or dry surfaces, simply from its quality of penetration and evaporability. If applied with a common brush to the surface of the throat in diptheria, in a few minutes its permeative quality enables it to sink between the molecules of the false membrane, dissolving and detaching it in a few hours. It is the best application known in case of burns.

Glycerine for Putrid Sore Throat.

Dr. J. D. Palmer, in the *Journal of Pharmacy*, says: I have found this an invaluable remedy in putrid sore throat, as well as in many other affections. Not long since a case occured in which its healing properties were fully tested. The patient, a little girl, seven years of age, had been suffering several days before I saw her, and the various remedies employed had made no impression on the disease. As it was with great difficulty and pain she swallowed, and her pulse being very weak and quick, it was important that the remedy adopted should possess healing, nourishing, and antiseptic properties; and glycerine possessing these properties, was administered in teaspoonful doses every six hours. The first dose caused some smarting, the second less, and before giving the third there was obvious improvement. The case was dismissed in three days.

The Unwearied Action of the Heart.

The effect of everything that touches the heart is multiplied by the intensity of the heart's own changes. Hence it is that it is so sensitive, so true and quick an index of the body's state. Hence, also, it is that it never wearies. Let me remind you of the work done by our hearts in a day. A man's total outward work, his whole effect upon the world in twenty-four hours, has been reckoned about 350 foot-tons. That may be taken as a good "hard day's work." During the same time the heart has been working at the rate of 120 foot-tons. That is to say, if all the pulses of a day and night could be concentrated and welded into one great throb, that throb would be enough to throw a ton of iron 120 feet into the air. And yet the heart is never weary. Many of us are tired after but feeble labors; few of us can hold a poker out at arm's length without, after a few minutes, dropping it. But a healthy heart, and many an unsound heart, too—though sometimes you can tell in the evening, by its stroke, that it has been thrown off its balance by the turmoils and worries of life—goes on beating through the night when we are asleep, and when we wake in the morning, we find it at work, fresh as if it had only just began to beat. It does this because upon each stroke of work there follows a period, a brief but a real period of rest; because the next stroke which comes is but the natural sequence of that rest, and made to match it; because, in fact, each beat is, in force, in scope, in character, in everything, the simple expression of the heart's own energy and state.—*Appleton's Journal.*

Throat and Lung Diseases.—Most of the throat and lung diseases, which indirectly lead to consumption, are occasioned by sheer carelessness. A delicate woman often sits for two or three hours in a crowded theater or church, breathing an atmosphere tainted by the exhalations from the lungs of hundreds of other people, her system is exhausted, her skin is excited by unwonted action, and when she leaves the building and goes out into the cold air her blood is suddenly driven to the interior of the body, and then ensues a more or less permanent congestion or inflammation of some of the internal organs—usually the air tubes in or leading to the lungs. This process being repeated many times, a chronic bronchitis is finally established in persons otherwise healthy, and life is ever after rendered miserable by this periodical overheating and sudden chilliug of the body, even if the more dangerous malady, consumption does not interfere, and put the abused body into the grave.

New Use for Electricity.—Electricity has achieved a new triumph. Already employed to restore vigor and nimbleness to the gouty limbs of decrepit *bons vivants*, the recent discoveries of Dr. Bernier, a French physician, show electricity to be an efficient remedy for the evil effects of excessive drinking on the human nose. The doctor maintains that, by the application of an electric current to noses even of the most Bacchanalian hue, the flesh may be made "to come again as the flesh of a little child;" and he supports his assertion by a case performed on a female patient of his own, a woman of high rank.

Female Physicians.—The prospects of medical education for women are brightening. The medical faculty of Moscow, Russia, it is stated, have not only decided that the privilege of acquiring a thorough medical knowledge would be of utility to women, but have "resolved to admit them to the educational courses and lectures of the University, and to the privilege of following all the labors of the Medico Chirurgical Academy."

To Stop the Bleeding from Leeches. Make a ball of cotton about the size of a pea; put this pellet of cotton or lint upon the wound; press it down firmly; keep up the pressure for a quarter of an hour. Remove the finger cautiously, taking care to let the pellet remain.

Turpentine for Headache.—Dr. Behbie, of the Edinburgh *Medical Journal*, advocates the use of turpentine for the headache to which nervous women are subject.

To Prevent Discoloration from Bruises.—Apply repeatedly cloths wrung out of hot water, or the tincture of arnica.

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San Francisco:

Saturday Morning, Jan. 27, 1872.

Gold and Legal Tender Rates.

San Francisco, Wednesday, January 24, 1872.—Legal Tenders buying 92; selling, 92½. Gold in New York to-day, 109⅛.

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Notices to Correspondents.

Editors Press:—Will you please inform me in what order steme drop in a six-etamp hattery. J. W. Mc.

Some 25 combinatious can be made with a battery of the size you speak of, and no two stamps drop together. It is always advisable that no two stamps follow each other. Supposing the stamps to stand in their order 1, 2, 3, 4, 5, 6, a good order for them to drop in, is 6. 2, 4, 1, 3, 5. Among the other combinations are. 1, 3, 5, 2, 4, 6, and 2, 5, 3, 6, 4, 1. Different mill-men have their own theories on this subject, hut the first order given will answer your purpose as well as any. Some people consider this a good order, 1, 2, 6, 5, 3, 4. hecause it brings the wash to the center, but by this combination the stampe follow each other more consecutively than you might think proper.

Mining Sales.

It is reported that the Pennsylvania mine, near Nevada, has been eold in this city to an English company. The amount paid is stated at $150,000.

The I X L and Buckeye No 1 have also heen purchased hy an Englieh company. The price is not stated. These mines are located in Scandinavian Cañon, Silver Mountain District, Alpine Co. According to the Silver Mountain *Chronicle* there are probably no better mines in the county.

The I X L made a ehort run a few years ago and ehipped some $50,000, but incompetent management soon demoralized the company, and for several years past no work has been done. In the Buckeye shaft, when rich ore wae reached, a heavy hody of water drove out the miners and the company heing unable to erect the necessary hoieting and pumping works the mine has lain idle for a long time. The plans of tho new owners for working the miues are said to be on an extensive scale, and will give employment to a large number of men.

Hints to Miners—No. 8

The proper oleaning and retorting of gold amalgam is an art which all mill-men do not understand. It is often found difficult to separate the amalgam from iron. The bullion comes from the retort looking like soot, yet the management of amalgam is simple and when once understood there need he no failure. We do not say that many amalgamators do not thoroughly understand it; it is for the inexperienced that this is written. To those who have had hut little practice we trust that a description of the whole process from the starting of the mill, until the retorting is completed, will be interesting and useful. In preparing this description we have made free use of some notes placed at our disposal by Mr. H. G. Hanks, one of the most experienced assayers of this city.

Amalgamating in the Battery.

When quicksilver is ueed in the battery, the art to acquire is how to introduce just the proper quantity to euit the rock. The quicksilver is put in by the feeder at regular intervals, and it is the duty of the amalgamator to see that the right quantity is employed. The general rule is to put it in every half hour.

On the inside of the battery two platee of copper 4 or 5 inches wide extend ite whole length on both sides of the stamps and incliuiug at an angle of 45° towards them. Sometimes a strip of copper is tacked to the inside of the frame of the screen; upon these plates and upon the apron in front of the ecrcen—which is also covered with copper, most of the gold collecte. Some amalgam forms about the ehoes and dies, and pieces, generally of small size, get broken off from the plates and are found in the loose stuff when the "run" is finished.

Amalgam on the Plates.

The experienced amalgamator judges from the appearance of the apron whether the feeder ie using the proper quantity of mercury. He frequently washes the pulp from the copper plate on the apron and carefully examinee the appearance of the amalgam on its surface. It is a common saying that "there should he no fluid quicksilver outside of the battery, and still there should he." In other worde the mercury and gold should he made to equalize each other.

The more amalgam allowed to remain in the apron, the moro rapidly will the particles of gold and amalgam he arrested as they pass over its surface. The experienced amalgamator takes great pains to keep his plates just in the proper and most sensitive condition. When the gold is coarse, from 60 to 80 per cent remains in he battery. As a general rule, each ounce of gold per ton in the rock will require an ounce of mercury.

Preparing New Plates.

New plates are almalgamated by first ruhhing them bright with dilute nitric acid and eand. Thie ie washed off and the plate wet with a solution, made hy heating mercury and nitric acid together, the mercury being always in excess; that is to say there must always remaiu some mercury undissolved when the acid no longer acts upon it. The plates are then rubbed with metallic mercury and a strong solution of cyanide of potassium. This process must be repeated if necessary until the surface of the copper is perfectly amalgamated.

Cleaning Up.

When the intended run is completed the stamps are hung up and the battery screen removed. All the large fragments of rock are taken out by hand and thrown aside. In removing those of medium size they must he examined for lumps of amalgam, which, if found, are to be placed in a clean iron pan. The finer portion, consisting of quartz, particles of iron, amalgam, etc., must be placed in buckets for washing at the proper time. The shoes and dies must be removed and every part of the battery scraped down with some convenient iron tool. The copper plates must be scraped with a piece of stiff rubber belting or with a scraper made of copper. The amalgam is to he placed in the clean iron pan with the detached pieces from the battery. Frequently, if an insufficient quantity of mercury was used the amalgam on the inside plates ie so hard that it caunot be removed without using a cold chisel or eome other iron tool. In this case great care should be taken not to lacerate the copper. The outside plates must he scraped with the helting in the same manner, and the amalgam carefully transferred to the pan.

The washing of the fine battery stuff is done in an iron pau just as a pan of placer dirt is washed. There generally remains some dirty quicksilver, pieces of iron from the stamps, lumps of amalgam and hlack iron eand. The residue is washed out into some convenient vessel, and the operation continued until the whole of the contents of the bucket is so treated. It is then all replaced in the pan and a considerable quantity of quicksilver poured in with it. Most of the water is removed with a sponge, and a few lumps of cyanido of potassium are put in. When these are dissolved the whole is to he stirred with a etick for some time, after which a stream of water is turned on until all the cyanide is waehed away. The hande are then plunged in and the mercury allowed to pass through the fingers; any lumps of amalgam can be crushed and the fragments of iron or quartz removed. This subject will he continued in our next number.

Mining Dividends in 1871.

Tho following are the amounts disbursed ae dividends during the year 1871 hy some of the mining companies of California, Nevada, and Idaho, whose offices are located in this city:

The Amador (California) mine dishursed in April, $14,800; May, $9,250, and omitted dividends during the other months.

Chollar-Potosi disbursed duriug January, February, March, April, aud May $280,000 a month, June and July $56,000 each month; and in Auguet, September, October, November, and December, $28,000 per month.

Crown Point paid dividends only during the mouths of June, July, August, and September, and then $120,000 per mouth.

Eureka (California) January, February, March, April and May, $40,000 per month; June and July $20,000, and none during the remainder of the year.

Eureka Consolidated, February, $50,000; March, $37,500; April, $37,500; August, September, and Octoher, $50,000.

Golden Chariot (Idaho), January, $40,000; February, $60,000; March, $70,000.

Greenville (California), in June, $4,000.

Hale & Norcross, January, February, March, and April, $40,000 per month; omitted during remaining eight months.

Keystone Quartz, in September, $5,000; Novemher, $7,500; December, $7,500.

Meadow Valley, January, Febrnary, July, August, and Septemher, $60,000 per month; October, November, and Decemher, $90,000 per month.

North Star (California), January, February, March, aud April, $9,000 per month; June $12,000, and July $6,000.

Pioche paid a dividend of $20,000 in Septemher.

Raymond & Ely, March, April, June, July, and August $30,000; September, $45,000; October, $120,000; Novemher and Decemher $150,000 per month.

Redington Quicksilver, April, May, June, July, and August $6,300 per month.

Sierra Nevada, one dividend of $20,000 in January.

Succor Mill & M. Co. paid one of $11,400 in September.

Yellow Jacket, Jauuary, February, and March, $48,000 each month; April, May, June, July, and August $60,000 per month.

Yule Gravel, August and Septemher $5,000 per month; Octoher, $10,000; Novemher and December $5,000.

The yield for the different months from the above named mines sums up ae follows: January, $537,000; February, $587,000; March, $554,500; April, $517,600; May, $407,550; June, $308,300; July, $363,300; August, $359,300; Septemher, $344,400; October, $298,000; November, $280,500, December, $280,500, making a total of $4,837,950.

These dishursements compare with the amounts paid hy the eame and other mining incorporations for the previous year as follows:

	1870.	1871.
Amador	$115,400	$24,050
Argenta	21,000	.....
Chollar-Potosi	668,000	1,652,000
Crown Point	.....	480,000
Eureka	430,000	240,000
Eureka Consolidated	.....	275,000
Golden Chariot	75,000	170,000
Golden Rule	3,000	.....
Greenville	.....	4,000
Gould & Curry	48,000	.....
Halo & Norcross	504,000	160,000
Ida Elmore	20,000	.....
Kentuck	30,000	.....
Keystone	.....	20,000
Meadow Valley	150,000	570,000
Metropolitan Mill	10,000	.....
Nor b Star	16,500	66,000
Original Hidden Treasure	32,000	.....
Pioche	.....	20,000
Raymond & Ely	.....	615,000
Redington Quicksilver	.....	31,500
Sierra Nevada	37,500	20,000
Succor Mill	.....	11,400
Union	30,000	.....
Yellow Jacket	.....	444,000
Yule Gravel	.....	35,000
Wheeler	6,000	.....
Totals	$2,226,400	$4,837,950

Raymond and Ely Mine.

The annual meeting of the Raymond & Ely Mining Company was held last week, aud the folllowing Trustees elected: Alpheus Bull (President), W. H. Raymond, C. J. Brenham, L. A. Booth aud A. K. P. Harmon. Andrew J. Moulder was retained as Secretary and C. W. Lightner as Superintendent.

The Superintendent reports the production of the miuee for the year as follows: From the Vermilliou mine, 78 tons; Burk mine, 2,764 tons; Creole mine, 2,690 tons; Panaca mine, 6,708—making in all 12,240. There were 10,574 tons sent to the 20-stamp mill at Bullionvillo, and 1,707 tons on the dumps, exclusive of 125 tons second class ore and 200 tons base metal ore, the latter at the Burk mine. The total quantity worked was 10,373 tons, the grose yield from which wae $1,361,590, or an avorage of $131.27 per tou. All the minee were in good condition, aud there was at least enough ore above the 233-foot level to keep a 50-stamp mill running for three months. Before the expiration of that time, the 323-foot level will have heen opened, and from presont indications the ore there will exceed the level now beiug worked. The new 30-stamp mill, recently purchased at a cost of about $90,000, is almost ready, and when completed will be the finest in that eection. The Secretary's report shows the receipts to have been, $1,395,975.57, and disbursements $1,331,289.89 leaving a halance on hand of $64,680.68 as shown by the following:

THE RECEIPTS.

From bullion product	$1,361,628.78
From waterworks	569.10
Sale of supplies	2,517.96
Mill salaries	733.28
Superintendent's drafts advised, but not presented	30,521.45
Total	$1,395,975.57

DISBURSEMENTS.

Property and claims, water works and legal expenses	$124,148.67
Mining expenses	228,329.54
Improvement at mino	35,688.32
Milling expenses	115,532.87
Improvement at mill	31,643.91
New 30-stamp mill	89,482.60
Taxes on property and bullion	10,563.07
Dividends to stockholders	615,000.00
Discount on bullion yield	21,642.77
Miscellaneous	7,657.74
Total disbursements	$1,331,289.89
Cash on band	64,680.68
Total	$1,395,970.57

Dividends.

There are 30,000 shares in the company. The disbursements to stockholders have been as follows:

1871	Per share.	Total.
March	$1	$30,000
April	1	30,000
June	1	30,000
July	1	30,000
August	1	30,000
September	1½	45,000
October	4	120,000
November	5	150,000
December	5	150,000
Totals	$20½	$615,000

Nearly 45 per cent. of the bullion yield ($1,361,628.78) has been realized by tho stockholders. Parties who purchased their stock when the operations first began, less than a year ago, have received back their principal and still have their stock.

The Hydraulic Fire Extinguisher.

The trial of Parker and Cook's Hydraulic Fire Extingnisher was made last Saturday, in the presence of a large nnmber of spectators, in front of Hobbs and Gilmoro's three-story building on Beale St. The want of an apparatns by which the roofs of huildings conld be reached in case of fire has been long felt, and any improvement which would snpply the doficiency looked for with interest.

The apparatns in question is very simple in its constrnction. It consists of a series of iron tubes shutting into each other like the sections of a telescope. The whole thing, stands upright on a firm framework pedestal. The tubes when fully extended reach a hight of 47 feet. The first tube or that connected with the framework on the ground, is oight inches in diameter, the smallest—that which is the last projected—is four and a half inches in diameter; the intermediate ones gradually vary in size, according to the snbstanco of the tubo. A staging, or cradle, rests on the top of the fonrth section, for men to stand npon, which, when the sections aro not extended, rests on the end of the first section, and is reached hy an ingeniously contrived ladder, which, with the sections fully extended, reaches from the staging on the top to the gronnd. This cradle is also movablo. It can be tnrned around or moved at pleasure. As it is raised up, it runs parallel with the wall, but when the desired elevation is reached, it is turned, end to the wall, and run ont so as to rest on the roof or on the window-sill, forming a gangway by which oither can he reached without danger or risk of any kind. By this means the contrivance can be placed so as to secure the firemen from danger of falling signs, cornices, etc. For no matter how far the extingnisher is placed from the bnilding, the fact that the staging can be run to the roof, forming a gangway from the apparatus to the roof or window, allows either to he conveniently reached by the firemen.

The test on Saturday was very satisfactory. Two men went into the cradle, aud in less than 30 seconds they were raised to a hight of 45 feet. They ran out their staging and crossed to the roof. A No. 2 nozzel was attached to the cock at the top of the tuhing and a copious stream thrown from it. Descending, the men stopped at one of the windows, turned their staging and went into the room. To descend, an escape pipe is opened, and as the water p^urs out, the staging comes down. The apparatus weighs from 1,000 to 1,300 lhs., and can be easily hauled on a truck. It lacks the complicated machinery which all the other apparatus intended for this purpose possess, and is easily handled.

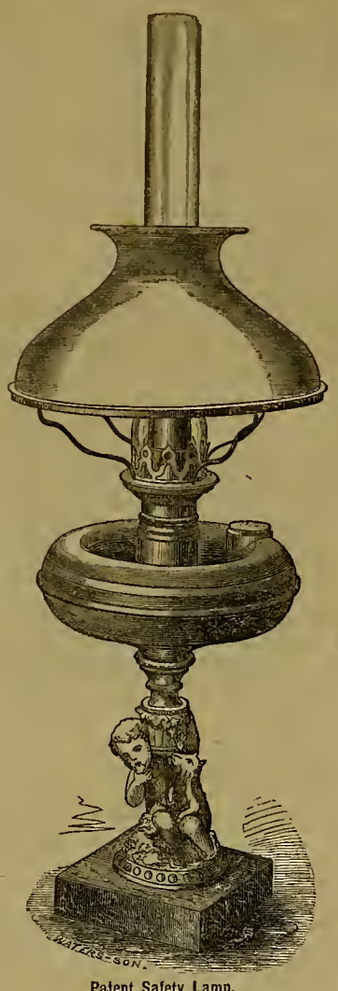
The apparatus is worked hy hydraulic power. A hose is fastened to the hydrant and attached to the base of the apparatus and the pressure forces the tubes upwards. The ordinary hydrant pressure of 50 pounds will force up a weight of 800 pounds. When the requisite hight is reached a faucet is turned and the water shut off, holding the apparatus in position. There is a cock at the top of the tuheing to which a hose is attached so that a heavy stream can he thrown without the necessity of having to haul up hose hy a ladder. When the water to supply this stream runs through the tuhing, it is held in position by cranks and wire ropes extending from the frame work to the top of the apparatus.

Another Line of Steamers.—In view of the proposed line of steamers for conveying ores to Europe, spoken of in another column, we learn by a telegram from Oregon, dated the 22 inst., that the representative of an English firm has lately heen in Portland for the purpose of making arrangements for another line of vessels between that place and England for ehipping spars and wheat.

The Quail Hill Mining & Water Co. are about introducing water into the deep gravel heds at Whisky Hill. The minos are said to be rich and a large yield is expected this spring. The principle owners in this mine are residents of Stockton.

Patent Safety Lamp.

The accompanying illnstrations represent the Bright-Union Safety Lamp, one which possesses considerahle merit, since it is the only one that has the burner connected with the tuhe separate and distinct from the reservoir containing the oil, and

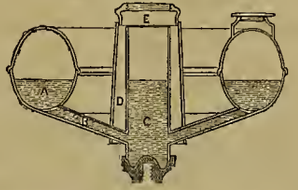


Patent Safety Lamp.

in case it should he upset, the oil will flow *from* the hurner and not come in contact with the flame. Most of the lamps in nse have the burner screwed direct on to

the fount, or oil tuhe containing the oil, there heing nothing in that case to prevent the accumulation of gas, and from that cause we hear of numherless accidents from explosions.

This lamp is constructed with two tuhes, as will he seen in the cut, the outside one,



D, intended only for the attachment of the burner, and the inside one, *C*, to contain oil and receivo wick. As there ie no eonnection hetween these tuhee, it will he evident that there can he no possibility of eommunicating any heat to the oil, and as long as the oil in a lamp can he kept perfectly cool, there is no chance for an explosiou. The tube to which the hurner is attached, *D*, is free from the oil tuhe, *C*, and a space for air, passing from the lower end, hetween the tuhe of the burner and the tube of the oil, keeps it always cool. The oil receptacle represented by *A* admits the oil through an opening in the top whenever it passes down throngh the tube *B* into the tube *C*. *E* represents the hurner.

When the burnor is attached to the lamp it will he seen that there is no opportunity for the oil to escape, should it be overturned, and in caso any accident should result, the worst consequenees that wonld occur would he the breaking of a chimney or shade. The patent for this invention was ohtained through the Scientific Press Patent Agency, by M. Samuels, and the lamps may be seen at Center & Bryant's, No. 10 Third street, in this city.

Notices of Recent Patents.

Among the patents recently obtained through Dewy & Co.'s Scientific Press American and Foreign Patent Agency, the following are worthy of mention:

Attachment for Planing Machines.—A. S. Hewlett, Sebastopol, Cal. This invention relates to a device which is called a chip-breaker, which is intended to he secured upon planing machines in such a manner as to press upon the hoard or stick which is heing planed, and prevent it from gouging or chipping up when the planing hits are cutting across or against the grain of the wood. It is intended to be used more particularly where the edges of hoards are to he planed to match each other, as in rustic and other similar work, and consists of a presser-foot with suitahly attached mechanism, so that it is caused to press on the wood just in front of the cutters in such a manner as to compel them to make a clean cut.

Car Coupling.—H. H. Morgan and A. Geary, San Francisco. This invention consists of au automatic coupling device and also of a euitahle mechanism for uncoupling the cars without the danger incurred hy going between them. Two humpers are secured to the ordinary car timhers, each consisting of two parallel stationary jaws, the outside one of each having a flaring extremity in order to guide the opposite or interlocking jaws when the care come together. After heing connected, the jaws are secured hy a piu passing through a slot which allows vertical motion. An arm is attached to a rotating shaft and connected to the pin, so that by rotating the shaft, the pin can he withdrawn. The upper end of the ehaft is hent at right angles so as to stand across the opening hetween the jaws, and a tripping har ie fixed to the upper corner of the entering jaw. This bar strikes the end of the shaft and draws the holt or pin, so as to allow the jaws to interlock, after which a spring throws the pin into place. The pin or holt is long enough to he withdrawn from the corner of the car without going between them, aud is held hack by a notch until the cars are nncoupled.

Nozzle. — Thomas Watson, Nevada, Cal. The ohject of this invention is to provide a nozzle or pipe principally for hydraulie gold washing, in which the difficulty encountered hy the twisting and spraying of the stream as it leaves the nozzle, is overcome without the use of the radial plates which are commonly employed. To do this the pipe is constructed with two conically shaped sections placed base to base within the length of the pipe, so that an enlarged chamher is formed, and within this the different currents are corrected and delivered from the nozzle straight and in a solid body.

Lamp Bracket or Support. — Henry Camphell, San Francisco, Cal. This invention consiste of a combination of etraight and curved arms, one being vertical and serving as a standard which fits into a socket in a table or sewing machine so that the outer end of the hracket may be turned ahout it over a considerable radius. The outer end of the hracket has a suitahle clamp for holding a lamp and this throws light on the work in various positions.

Bagatelle Game and Apparatus.—Wm. Evers, San Francisco, Cal. This invention relates to eertain improvements in the game of hagatelle, and the tahle used for the purpose, and consists in eonstrncting the table with a sheet-metal surface to prevent wear and present a smooth surface for the top to spin upon. Triangular boxes are constructed in the corners of the compartments of the table, and slides are held in these boxes so that if the top strikes a peg in front of the box the slide will be released and spring up so as to exhibit a number which counts for the player towards the game. The periphery of the top is made of an elastic snbstance to prevent injury to the sides of the tahle, and to cause the top to rehonud after striking.

Safety Lamp and Burner—Emil Boesch, San Francisco, Cal. This invention relates to an improved lamp, aud its object is first to so construct the wick-tube that by means of a movable ring the light is increased or diminished without changing the relative position of flame to the Argand chimney, which is used, and npon which relative position the efficiency of the light depends. It further consists in making the device a safety lamp hy means of certain connecting tubes, or channeled passages, which are so arranged that they convey any accumulation of gas or vapor from the body of the lamp to the hurner, where it is consumed. A novel arrangement is attached for suspending the lamp from the wall, or hracket, and also an improved adjustable reflector attached ahove the lamp.

Operating Railroad Switches.—E. A. Trapp, San Francisco, Cal. This invention relates to improvements on apparatus for throwing the switch rails of a railroad switch to any desired poiut by the approaching locomotive, previous to its arrival at the switch, and at the same time operating a signal which indicates the position of the switch or throw rails. The device is situated at some distance from the switch and is connected with a mechauism which is operated hy the passing locomotive or car, and in turn operates the worm gear and throw lever at the switch.

Mining Prospects.—The result of tho late rains are beginuing to show themselves among the mines iu an increase of product. From all quarters we hear predictions that the yield of the precious metals on the Pacific slope will he greater in 1872 than for the past five or six years. The amount of snow in the higher Sierras is large and its melting will suffice to fill the ditches until late in the summer. It will not be long hefore many of the placer claims now running night and day with large forces of men and an ahundance of water, will make their regular "clean ups" and business throughout the interior be heuefitted therehy.

We learn that in Nevada township more placer mines are heing worked, more men employed, and more water is used than ever before, and the *Transcript* thinks that more gold dust will be taken out than ever before in one season. At the more elevated mining towns in Nevada, Sierra and Plumas counties, the cold weather prevents mueh working, but in the tunnel camps the miners are all husy taking out gravel.

The past two years have heen so dry that our placer mines as a consequence did not yield anything like their usual amount of gold, but the prospect for active operations and a large quantity of "dust," is making all the miners wear smiling faces. The quartz miniug operations throughout the Coast are unusually active and prospects flattering.

The "Overland" for February.—The present number comes to hand full of good things, including a biographical sketch of the life of Joaquin Miller; Wine-making in California; The Commerce of Asia and Oceanica; The Palace and Tombs of the Czars, and a characteristic tale entitled "Spades."

Ballooning.—During the Siege of Paris, sixty-four balloons left the city—of this number five only were captured by the Prussiaus, two were lost at sea, and all the rest (57), were successful.

Dr. Kellogg delivered an interesting lecture on the Elements of Modern Civilization, last Saturday evening, hefore the College of Mechanic Arts.

Domestic Economy.

Animal Food.

A late number of the *Galaxy* has an article, by Dr. C. Draper, upon animal food for man. The Doctor does not agree with the vegetation philosophy. We do not know but the question of meat or no meat will be one of debate while the world stands. Concerning the influence of climate upon diet, Dr. Draper speaks as follows:

"Custom and religion have, it is true, a certain influence over the diet of a nation, but the habits of a people in this respect are, to a great extent, under the control of climate. The inhabitant of a torrid region delights in the fruits and succulent vegetables with which nature bountifully supplies him, and does not care to undergo the fatigue and exertion necessary to obtain animal food, when luscious fruit are ready to fall into his mouth. He lives surrounded by a warm, moist atmosphere, he does not require much heat-making food; the very air is enervating, and why should he exert himself when there is no necessity? The dwellers in arctic regions, on the contrary, must burn away rapidly in order to keep the temperature of his body at the point required to sustain the processes of life. Animal food therefore becomes the urgent requirement of his existence, and since fat furnishes the greatest amount of heat in a given bulk, he seeks greedily for the blubber of the seal or whale, and a glass of oil is to him far more desirable than the choicest wine of a Comet vintage.

"Between these extremes we find the inhabitant of the temperate zone, who, while he declines to partake of the grosser food of his northern neighbor, agrees with him in his craving for flesh of all kinds, and prizes especially venison and every species of game. At his table the fruits and vegetables of the southerner also have their place. He occupies the position that nature has intended for his race. He is an omniverous animal and with such a diet, and under favorable skies reaches the highest development of which his kind is capable. It is interesting to notice that when the system has become accustomed to a mixed diet, a total abstinence from either animal or vegetable food causes the disease known as scurvy. It is a popular error to suppose that this condition is the result only of a want of vegetable food. This error has arisen from the fact, that, heretofore, in long voyages, vegetable food has been deficient in quantity, but we now know that a species of scurvy may arise from a deficiency in the supply of animal food."

Hard and Soft Boiled Eggs.

It is understood that eggs are more easily digested if "rare" than "well" done; but which portion of the egg resists digestion —the "white," which is nearly pure albumen, or the yolk? Lately experiments have been made in this direction with ample opportunity of demonstrating that healthy gastric juice, which the stomach secretes for purposes of digestion, will not act readily on firmly coagulated white of egg, even if cut in pieces not larger than ordinary peas (and that is as fine as people usually chew their food!), while it acts with facility upon the more brittle yolk. The reason is that the coagulated albumen is very compact and tenacious, and would need to be "ground to powder" to accept the chemical affinities of the gastric juice.

Pour into a basin boiling water sufficient to cover the eggs, put the eggs into the water and let them remain 10 or 15 minutes, according to circumstances and your own taste; keep the water nearly up to boiling temperature, but don't boil the eggs. Fresh eggs will cook more quickly than old ones, and of course small ones quicker than large ones. By this process you will find the yolks well cooked, while the white is left in a condition to digest readily.

Moths.—In India, both upholsterers and saddlers badly troubled with moths in their work, especially in the rainy season; and the upholsterers in that country follow a series of simple rules by which they entirely avoid the ravages of these pests. They never put on a burlap or cotton covering without first steeping it in a solution of sulphate of copper, made by dissolving about one ounce in one gallon of boiling water, and then quickly drying the material in the sun or by a hot stove. For over coverings, especially if of wool, a solution of corrosive sublimate dissolved in patent colorless alcohol is frequently used with good effect. The boiling solution of sulphate of copper is often applied to a floor previous to laying a mat or carpet, and invariably under heavy articles of furniture.

Hollow Measure in the United States.

The following data with regard to measurements will oftentimes be found convenient for reference:

A barrel contains 40 gallons of 321 cubic inches, or 9,240 cubic inches.

The normal bushel is the Winchester; this ought to have the diameter in the clear of 18½ inches, to be 5 inches deep, and to have the capacity of 9.25x9.25x 3.1416x8, or about 2,150⅓ cubic inches.

A box 24 inches square and 16 inches deep has a capacity of 9,216 cubic inches, or nearly a barrel. A box 17¾x15x8 inches contains 2,130 cubic inches, or nearly a bushel. A box 14⅛x10x7½ inches contains 1,075 cubic inches, or exactly a half bushel.

A box 8x8x8 5-12 inches contains 538 cubic inches, or almost exactly a peck or quarter bushel. A box 7x8x4⅛ inches contains 231 cubic inches, or a gallon. A box 6x6x3¼ inches contains 117 cubic inches, or nearly a half gallon of 115½ cubic inches. A box 4x4x3¼ inches contains 56 cubic inches, or nearly a pint or quarter gallon (57¾ cubic inches.)

A New Use for Fresh Eggs.

Mr. John Murphy of this city—a gentleman of intelligence and close observation —recently made to us some interesting statements in regard to the value of fresh eggs in affording nourishment to weak animals, that are worth remembering by all farmers. He remarked that he had known a young colt which to all appearances was nearly dead, the breath of life being barely perceptible, to be quite instantly revived by giving it one or two fresh eggs. The same results, in several cases to which he was knowing, have followed the administering of eggs to weak calves, and also to feeble and chilled lambs. A remedy so simple, so easy at hand and so effectual in the cases mentioned—which often occur with calves and lambs—should be remembered by all our readers.

Cornstalk Syrup.—S. W. Bloom, of Broomstown, Ind., has made from common cornstalks a syrup superior in flavor to sorghum, though there was a sorghum flavor discernible. The yield is nearly equal, per acre, to that of sorghum, and does not interfere with the production of green corn for market, from the same stalk.

Mechanical Hints.

Fine Green Bronze.—First boil the work in a strong solution of potash to get off all the old lacquer and grease; next wash in clear water, after that let the work stand a day or two in a weak solution of nitric acid, then take out, wash, and dry; then coat the article with some good black lead. Polish until you have a good black glossy surface; then put on your yellow lacquer, which, put on a black surface, is your green bronze.

Waterproof Glue.—A glue that will resist both fire and water may be prepared by mixing a handful of quicklime with four ounces of linseed oil, thoroughly levigated, then boiled to a good thickness, and kept in the shade, on tin plates, to dry. It may be rendered fit for use by boiling it over a fire in the ordinary manner.

American Furniture Abroad.—During the week ending Dec. 12th, there was exported from the port of New York five cases of redwood to Stittin; two pianos and seven hundred and fifty fine packages of furniture, valued at $9,932, to Peru; eleven boxes of furniture and one hundred logs of maple to London; seven packages of furniture to the British West Indies; twenty-five logs of maple to Havre; twenty-nine packages of furniture, valued at $1,510 to Hayti; fourteen cases of furniture to Central America; eleven packages of furniture to New Grenada; three packages of furniture to Venezuela, and thirty-four packages of furniture to Brazil.

On the 14th of the same month, eight cases of furniture were shipped from New York to Constantinople; fifteen cases to Havana; nineteen packages of furniture to Poiut a Petre; one hundred cases of furuiture to Rio Janeiro; seven packages of furniture, one piano and eight cases of oil cloth to Vera Cruz.

On the 16th, one hundred cases of furniture, shipped from New York to Bombay, and ten hundred and sixty seven packages of furniture to Sydney.

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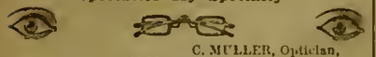

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JOHN ROACH, Optician,
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Surveying Instruments made, repaired and adjusted
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Interest paid on Deposits. Money Loaned on Real Estate.
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N. P. LANGLAND,
Stair Builder, Wood Turner, and
SCROLL SAWYER,
No. 485 Brannan Street.....SAN FRANCISCO.
And No. 9 Q St., bet. First and Second,
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WM. BARTLING. HENRY KIMBALL.
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BOOKBINDERS,
Paper Rulers and Blank Book Manufacturers,
505 Clay street, (southwest cor. Sansome),
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Manila Rope of all sizes. Also, Bale Rope and Whale Line constantly on hand. Tarred Manila Mining Ropes of any size and length manufactured to order.
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STEEL PENS.
Sold by all Dealers throughout the World.

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Brass and Steel Stamps and Dies, 608 Sacramento street, San Francisco. Orders by express promptly attended to.

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This Favorite House is located on Jackson street, a few doors west from Montgomery; offers the greatest inducements for Families. The International Coach will be at each Car Depot and Steamboat, plainly marked International Hotel, to convey passengers to the Hotel FREE, and to any part of the city at reasonable rates.
F. E. WEYGANT & H. C. PARTRIDGE,
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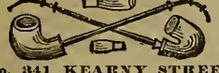
Meerschaum Pipe Manufacturer,



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The first and only Manufactory on the Pacific Coast. MEERSCHAUMS MOUNTED WITH SILVER. Meerschaum Pipes Boiled and Repaired. Amber Mouth-pieces Fitted.

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Pianos to Let.

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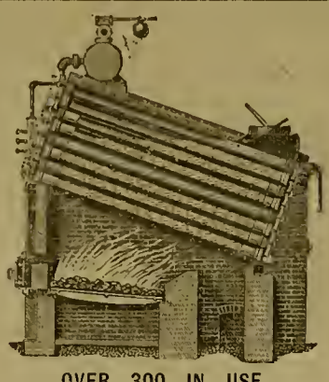
Per cent. of Power guaranteed equal to any Overshot Wheel.
American Turbine Water Wheel,
MILL GEARING AND SHAFTING
Of all Descriptions, and General Mill Furnishing.
Water Powers Estimated and Plans Furnished.
A. L. STOUT, W. M. MILLS, J. TEMPLE.
Send for Descriptive Circular. 22v23-3m-sa



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BEST IN THE MARKET.
Engines, Pumps, Etc., Manufactured and on Hand.
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Twenty-eighth Street, corner Second Avenue,
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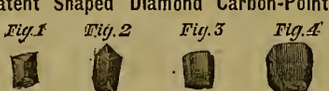
DICKINSON'S
Patent Shaped Diamond Carbon-Points.
Fig.1 Fig.2 Fig.3 Fig.4



Diamond and Carbon, shaped or crude, furnished and set for Dressing Mill-Burrs, Emery-Wheels, Grindstones, Conglomerate, Drilling Rock, Sawing or Working Stone, Truing up Hardened Steel, and for other mechanical purposes. Also Glaziers' Diamonds. See Scientific American, July 24th, Nov. 20th and 27th, 1869; Engineering and Mining Journal, Jan. 17th, 1871; Journal of the Franklin Institute, Philadelphia, June, 1870. For Circulars descriptive, and Prices, send stamp to
1v24-6m J. DICKINSON, 64 Nassau St., N. Y.

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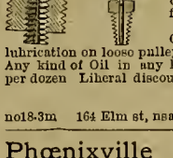
WATERS'
SELF-OILERS.



PATENTED October 21, 1862; July 6, 1867; July 23 and Sept. 22, 1868, and June 20, 1869.
Glass reservoir, with white metal coupling cast on.
Substantial brass stem, with graduating plug—V slot on one side, as shown in magnified cut—in the top.
The best and cheapest OILER in the market; perfect lubrication on loose pulleys and all kinds of bearings. Any kind of Oil in any kind of weather. Price, $4.50 per dozen Liberal discount to agents and to the trade.
WATERS & CO.,
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CLARKE, REEVES & CO.,
ENGINEERS AND BUILDERS.
NEW BRIDGES, VIADUCTS, ROOFS, ETC.
Would respectfully call the attention of the officers of Railway Companies, and Engineers having charge of New Bridge Constructions, to their now
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showing various styles of New Railroad Bridges, Viaducts, etc., which they have either constructed or are prepared to construct. A copy will be mailed on application to our address, No. 410 Walnut Street, Philadelphia. ap8-1y

Situation as Chemist Wanted.
The undersigned, having completed the working course of Chemistry in La Fayette College, Easton, Pa., including Dry Assay of Ores and Blowpipe Analysis, desires a situation requiring a
Practical Knowledge of Chemistry.
By permission refers to Dr. Traill Green, Professor of Chemistry in La Fayette College.
B. CHAMBERS, JR.,
20v23-3m Chambersburg, Pa.

VICK'S
FLORAL GUIDE FOR 1872.
Over One Hundred Pages,
Printed in Two COLORS, on superb Tinted Paper. FOUR HUNDRED ENGRAVINGS of Flowers, Plants and Vegetables, with Descriptions, and a
TWO COLORED PLATES.
Directions and plans for making Walks, Lawns, Gardens, etc. The handsomest and best FLORAL GUIDE in the World. All for TEN CENTS, to those who think of buying Seeds. Not a quarter the cost. 200,000 sold of 1871. Address JAMES VICK,
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Catalogue, priced and illustrated, sent free.
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Manufacturers and have constantly on hand
SPORTING,
MINING,
And BLASTING
POWDER,
Of SUPERIOR QUALITY, FRESH FROM THE MILLS. It being constantly received and transported into the interior, is delivered to the consumer within a few days of the time of its manufacture, and is in every way superior to any other Powder in Market.
We have been awarded successively
Three Gold Medals
By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others.
We also call attention to our
HERCULES POWDER,
Which combines all the force of other strong explosive now in use, and the lifting force of the BEST BLASTING POWDER, thus making it vastly superior to any other compound now in use.
A circular containing a full description of this Powder can be obtained on application to our Office.
16v20-3m JOHN F. LOHSE, Secretary.

H. & L. AXLE GREASE.
The attention of Teamsters, Contractors and others, is called to the very superior AXLE GREASE manufactured by
HUCKS & LAMBERT.
The experience of OVER TWENTY YEARS, specially devoted to the preparation of this article, has enabled the proprietors to effect a combination of lubricants calculated to
REDUCE THE FRICTION ON AXLES,
And thus Relieve the Draft of the Team.
Far beyond the reach of any who have but recently gone into the business; and as the H. & L. AXLE GREASE can be obtained by consumers AT AS LOW A RATE as any of the inferior compounds now being forced upon the market,
HUCKS & LAMBERT
Invite all who desire a First-class and Entirely Reliable Article, and which for Over 18 Years in this country has given such GENERAL SATISFACTION, to ask for the
H. & L. AXLE GREASE.
See that the brand H. & L. is on the red cover of the package, and take no other.
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Manufacturers and Sole Proprietors.
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3v24-cowr

MINERS, ATTENTION!
MINERS AND MANUFACTURERS ARE HEREBY cautioned against MAKING, BUYING, SELLING or USING, what is known as R. R. & J. CRAIG'S NEW AND IMPROVED HYDRAULIC JOINT OR NOZZLE, as the same is an infringement upon the invention of the undersigned secured by Letters Patent No. 108,658, dated Oct. 25th, 1870, known as Watson's "Hydraulic Champion," and all parties participating in such infringement will be rigorously prosecuted.
THOMAS WATSON,
Proprietor of Watson's Hydraulic Champion.
Dated Nevada City, Jan. 2d, 1872. 2v24-1m

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CARRIAGE SPRING WORKS,
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LOCOMOTIVE, CAR,
And all kinds of Carriage and Wagon Springs made to Order and Warranted.
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MANUFACTURER OF TOOLS
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Molding, Turning, Carving, Etc.
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SUCCESSOR TO
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House and Sign Painters,
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Country Orders Attended to
With Punctuality, Cheapness and Dispatch.
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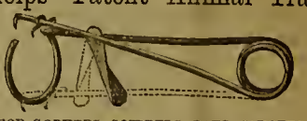
Phelps' Patent Animal Trap,



FOR GOPHERS, SQUIRRELS, RATS, COYOTES, and other "Varmints."
This Trap, as may be seen, is of simple construction and not likely to get out of order, and very durable.
It is Very Efficient
and can be used conveniently by women or children. THE CHEAPEST AND BEST YET INVENTED. Price 50 cents. By mail, prepaid (to places where express charges are high), $1. A liberal discount to clubs or dealers who buy by the dozen. Address the inventor and manufacturer, D. N. PHELPS,
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Mechanics' Institute.
Entrance 27 Post Street (bet. Kearny and Montgomery), SAN FRANCISCO.
The Library of References, the Library, Reading Room and Chess Room are open from 8 A.M. until 10 P.M. every day, (except Sundays and Legal Holidays).
The Society possesses a Library of 18,000 volumes—the most valuable technical and scientific library on the Coast, embracing the transactions of the leading Scientific Societies of the United States and Europe, (among which are the philosophical transactions of the Royal Society of Great Britain, complete), and the standard, scientific and technical works; and is in immediate receipt of all new standards publications.
The Reading Room is supplied with the current periodicals and newspapers of the day.
The Mechanics' Institute is open to all, and the Trustees will be pleased to have visitors and others inspect the Rooms.
Entrance Fee, $1.00. Quarterly Dues (in advance) $1.50. Life Membership, $50.

Important to Miners.
FREY'S IMPROVEMENT ON
Evans' Under Current and Sluices,
For Saving Fine Gold and Floating Quicksilver.
For particulars address
WATERS & CO., Assayers, Agents,
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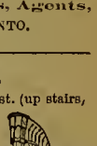
H. M. BALCH,
432 Kearny St., S. E. corner of California st. (up stairs, SAN FRANCISCO.
Repairs and Tunes
ALL KINDS OF
MUSICAL INSTRUMENTS,
Either Brass, Reed or String.



Special attention given to PIANOS, ORGANS, or MELODEONS.
Mr. B is a practical workman of twenty-five years experience, and employs none but experienced workmen.
ORDERS from the country attended promptly.
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Pacific Bridge Company
Are prepared to build Wooden and Iron Bridges on SMITH'S PATENT TRUSS PLAN.
Plans and specifications furnished to counties or persons desiring to build. Lithographs and prices sent on application.
Smith's Cast Iron Pier, durable as stone, and adapted to resist rapid currents, put in at low rates.
Address PACIFIC BRIDGE CO.,
3v23-3m-eow Oakland Cal.

DIVIDEND NOTICE.
Savings and Loan Society,
619 CLAY STREET, SAN FRANCISCO.
A DIVIDEND, Free of Federal Tax, of 10 per cent. per annum on all deposits for the six months ending December 31, 1871, has been declared, payable immediately. By order of the Board of Directors.
ja13-2w CYRUS W. CARMANY, Secretary.

H. N. COOK,
Leather Belting and Hose,
HYDRAULIC HOSE, SUCTION HOSE of all sizes, for Mining Pumps.
N. W. Corner Battery and Broadway,
3v24-3m SAN FRANCISCO.

JOHN J. NEWSOM,
Architect,
No. 430 Montgomery street, over the U. S. Treasury,
25v2-6m SAN FRANCISCO.

Mining Accidents.

A miner employed at Badger Hill, Nevada, fell from a flume on which he was at work, last week, and was instantly killed.

A man named Myers fell from a flume in Grizzly Cañon on the 16th inst., and was killed. Deceased was about 50 years of age.

John Sprague was badly injured in a claim on Iowa Hill by a cobble-stoue falling from the top of the bank and striking him on the head, fracturing his skull; his recovery is doubtful.

A Frenchman named Joseph Borchat, employed in Garland's Sulphuret Works in Lower Rat Gulch, Calaveras county, was severely injured by falling down a flight of stairs into the gulch below.

At the Creole Shaft of the Raymond & Ely Cos.' mines, says the *Ely Record*, on the eveniug of the 15th inst., an accident occurred, by which two men, Driscoll and Bradley, were severely iujured. A plank that was lowered into the miue got loose from the bucket and struck the shaft. When the bucket was raised again it loosened the plank which fell to the bottom of the shaft, striking two men, one of whom had his arm broken and hand badly injured. The other man sustained a compound fracture of the left thigh hone, and his hand also bruised and lacerated.

J. A. Davis, working in the Newton Booth mine, on the 10th inst., was injured in the head hy a piece of rock falling down the shaft. The bucket in passing up, struck the side of the shaft, dislodged the rock, which fell about 75 feet hefore striking Davis. He was stooping over at the time he received the hlow. The injuries, though painful, aro not of a dangerous character.

REDUCTION WORKS BURNED.—The Stewart Reduction Works at Georgetown, Col., were totally destroyed hy fire on the 16th inst. The fire is supposed to have originated from hot ore thrown from an Arey furnace on to the cooling floor. The loss is reported at $60,000 of which $20,000 is covered by insurance. These works were huilt in 1870 at a cost said to have beeu $150,000. They contained eight reverberatory furnaces, which were in daily operation until the beginniug of this year, when an Arey furnace was put in operation. The Denver *Tribune* says that arrangements had been completed for the construction of a Krom concentrator.

Three several reduction works have been destroyed by fire in Clear Creek County during the past year. There are but two mills now remaining—the German Reduction Works at Georgetown and the International Mill at East Argentine. The Stewart works treated ore containing from 50 to a 100 ounces of silver per ton—just the class which predominates at Georgetown, and to the people of that towu the loss is a severe calamity. It is, however, contemplated to rebuild them.

New Incorporations.

The following have filed certificates with the County Clerk, San Francisco.

CALIFORNIA FURNITURE MANUFACTURING CO.—Jan. 19. Object—To manufacture, import, buy and sell furniture and upholstery. Capital stock, $600,000 in 600 shares. Trustees: N. P. Cole, O. W. Merriam, E. Foster, J. P. Whitney and G. Whitney.

MURPHY M. Co.—Jan. 19. Object—To mine in Twin River District, Nye county, Nevada. Capital stock, $3,000,000 in 60,000 shares. Trustees: J. D. Hayne, H. Beachy, J. W. Gashwiler, T. Bell and J. A. Boalt.

KINGSTON M. Co.—Jan. 22. Objects—Mining and milling ores containing precious metals from certain veins, or lodes, of quartz rock in Ely Mining District, Lincoln county, Nevada. Capital stock, $1,000.000 in 30,000 shares. Trustees: W. J. Williams, L. W. Greenwell, M. Schmitt, G. D, Roberts and J. C. Maynard.

HUHN ANN HUNT SILVER M. Co.—Jan. 23. Object—Mining, etc., in Ely Mining District, Lincoln county, Nevada. Capital $3,000,000. Trustees: L. A. Booth, N. O. Fasset, G. D. Roberts, E, A. Head, E. B. Rail, E. Huhn and J. Clark.

PACIFIC LANCET PUBLICATION ASSOCIATION.—Jan. 23. Objects—Scientific purposes, and especially for the publishing of a medical and scientific serial. Trustees: W. F. Smith, W. T. Brodburg, C. M. Bates, H. H. Toland, R. Beverly Cole, A. A. O'Neil and E. Trenor.

Mr. J. S. Phillips's Book Reviewed by the Overland Monthly.

[Issued and sold by DEWEY & Co., SCIENTIFIC PRESS Office, San Francisco.]

The title-page to this volume sufficiently indicates its general scope and purpose. A work of this kiud has been much needed by those interested in mining on this coast. The author has performed his labor well, and, with the exceptiou of some minor imperfections of style, produced not ouly a well-arranged, aud somewhat original, but also a highly interesting and useful work. The book contains 640 octavo pages; illustrative of the several subjects treated—some of theso beiug original—and the wholo creditahle, as regards mechauical exccution. The first section of the work is devoted to a consideration of geology and mineralogy, wherein the author treats of the structure of the earth, tracing it from its initial chaotic state to the earliest appearance of its primitive mountains; the formation of its various rocks; the theory of earthquakes; its vein system, etc. Some of the ideas set forth in these chapters, though strikiugaud unique, are well sustained. Part secoud is devoted to the subject of exploration or "prospecting," giving directions how and where to carry on the busincss; pointiug out the most favorahle formation in which to seek for metalliferous veins, and the best methods of ascertaining their value, etc.—all of which cannot fail to be of great service to that class for whose use it was chiefly iutended. Section fourth is occupied with questious relating to mining and engineering—a hrauch in which our people have hcen especially deficient, and who must, therefore, be proportionately profited by what is here said. In this departmeut the author secms to be entirely at home, the whole suhject having been treated in a masterly and exhaustive manner; mechanical engineering, both above and below the surface, the hest style of engiue and machinery for hoisting, pumping, concontrating, crushiug, and for effectiug the various other operatious required, being ably handled. The last system is devoted to metallurgy; the various means and methods adopted iu the treatment of refractory ores, hoth iu their reductiou, and with a view to diminish their weight to insure cheaper conveyance to market, being ably discussed and intelligently disposed of.

This book, while well arranged and vigoronsly written, shows signs of haviug heen prepared iu haste; the style, as hefore remarked, leaving the impression on the reader's miud that the author had beeu, at times, greatly hurriod. His meaning is, nevertheless, always clear, and his language good Anglo-Saxon; while, so far as the mere graces of style are coucerned, it could hardly be expected that they would receive much attentiou in a book like this: we might almost say that any attempt at "fine writing" would be a blemish in a work of this kind. The man who has had to wrestle with pouderous machinery, who has passed his days amidst the hissing of steam and the pounding of engines, or down in the dripping alcoves of the mine, could have had but little leisure for the study of rhetoric, and few will complain that he has attempted to introduce so little of it into this volume. He has rendered to the leading industry of the coast a valuahle service—has furnished the mill-man and miner a safe and much-needed practical guide—having earned for himself, all things considered, the credit of producing one of the most useful works ever issued from the press of San Francisco.

THE Assembly has passed the bill for the relief of James W. Marshall, the discoverer of gold in California, giving him $200 per month for two years. It now goes to the Senate.

TWO OF the Japanese party are visitiug the mines of Grass Valley.

A Prospector's Manual.

EXPLORERS', MINERS' AND METALLURGISTS' COMPANION, comprising a practical exposition of the various departments of Exploration, Mining, Engineering, Assaying and Metallurgy. By J. S. Phillips, M. E. San Francisco. Dewey & Co., 1871. Volume I. 8vo., pp. 640. Mr. Phillips has written a hook that deserves the favor of the miners and prospectors of the Pacific slope. It is written with special reference to their wants, and contains much information in which they are generally deficient. * * * Of the 640 pages he devotes 99 to geology and mineralogy, 20 to prospecting, 230 to assaying, 140 to mining and engineering, and 150 to the main principles of metallurgy. This brief classification of the subjects of this volume serves only to give a general idea. Each branch is treated with clear style and full information. There are no words without ideas, and no ideas without practical value. Prospectors may imagine that they do not need to study books like this; but we tell them that those who prefer to remain ignorant will, in the course of a few years, be superseded by others who will learn a few fundamental principles. The book is free from trash, and solid throughout; all its matter is intelligible to men of ordinary education, and all of it is valuable to miners.—*Daily Alta, Dec. 24th.*

Daily Record,

By the U. S. Army Signal Service, for the week ending Wednesday, January 24, 1872.

Date and Place of Observation.	Hight of Barometer.	Thermometer.	Rel. Humidity.	Direction of Wind.	Vel. of Wind. Miles per Hour.	Force of Wind red. to Beaufort's Scale. Approxately.	Amount of Lower Cloud.	Rainfall since last Report.	State of Weather
Thurs...	30.23	50	79	S.	1	Light			Clear
Friday..	30.18	49	85	N.	5	Gentle			Clear
Saturday	30.19	48	85	N.W.	12	Fresb	4-4		Cloudy
Sunday..	30.21	47	83	N.	6	Fresh	4-4		Cloudy
Monday..	30.29	50	79	N.	5	Gentle	3-4		Cloudy
Tuesday.	30.23	51	86	N	1	Stormy			Cloudy
Wed'day	29.82	53	90	N.	18	Brisk			Clear
Thurs...	30.17	49	42	E.	5	Gentle			Clear
Friday..									
Saturday									
Sunday..									
Monday..									
Tuesday.									
Wed'day	30.64	25	63	E.	3	Gentle			Clear
Thurs...	29.96	18	83	S. E.	5	Gentle			Clear
Friday..	30.03	13	77	N. E.	5	Gentle			Clear
Saturday	30.30	42	90	S.	11	Fresh			Clear
Sunday..	29.95	15		E.	3	Gentle			Clear
Monday..	30.13	10	61	S. E.	5	Gentle			Clear
Tuesday.	29.84	20	86	S.	8	Fresh	3-4		Threat.
Wed'day									
Thurs...	30.44	18	84	N.W.	4	Gentle			Clear
Friday..	30.38	28	68	N. E.	6	Fresh			Clear
Saturday	30.46	14	85	N.W.	4	Gentle			Clear
Sunday..	30.42	13	81	N.	7	Fresh			Clear
Monday..									
Tuesday.	30.29	15	83	Calm			3-4		Cloudy
Wed'day	30.15	9	49	N. E.	38	High			Clear
Thurs...	30.03	19	57	Calm					Clear
Friday..	30.00	18	88	N.	26	Brisk	4-4		Snow
Saturday	30.03	16	67	N.	23	Brisk			Clear
Sunday..	29.97	27	77	W.	11	Fresh	4-4		Cloudy
Monday..	30.07	2	72	N.	32	High	1-4		Fair
Tuesday.	29.94	18	52	N.W.	21	Brisk	3-4		Cloudy
Wed'day	30.16	10		N.	15	Brisk			Clear
Thurs...	30 11	11	80	S.	10	Fresh			Clear
Friday..	30.08	16	74	S.	2	Stormy			Clear
Saturday	30.14	17	77	S.	11	Fresh			Clear
Sunday..	30.03	35	77	N.W.	24	Brisk	4-4		Cloudy
Monday..	30.07	52	68	S. W.	11	Fresh			Clear
Tuesday.	30.03	14	82	Calm			3-4		Cloudy
Wed'day	30.30	9	59	N.	10	Fresh	4-4		Lt. Snow
Thurs...	29.99	21	88	S. W.	3	Light			Fair
Friday..	29.75	27	83	N.W.	16	Brisk	4-4		Lt. Snow
Saturday	30.05	15	82	N.W.	15	Fresh	4-4		Cloudy
Sunday..	29.97	16	83	Calm			4-4		Clear
Monday..	29.86	27	88	N.W.	12	Fresh			Fair
Tuesday.	30.31	1	69	s. w.	14	Fresh	3-4		Cloudy
Wed'day	30.53	1	68	s. w.	10	Fresh	3 4		Cloudy
Thurs...	30.1	3	88	W.	7	Fresh	4-4	.01	Cloudy
Friday..	29.82	35	89	S.	1	Stormy	4-4		Cloudy
Saturday	29.88	29	77	s. w.	12	Fresh	4-4		Cloudy
Sunday..	30.15	17	79	W.	6	Fresh	1-4		Clear
Monday..	29.77	28	89	s. w.	13	Fresh	1-4		Fair
Tuesday.	30.10	8	71	N. W.	6	Fre-h	1-4		Clear
Wed'day	30.37	9	58	w.	14	Fresh	1-4		Clear

San Francisco Metal Market.

[Corrected weekly by Hooker & Co., 117 and 119 Cal. street.]

PRICES FOR INVOICES

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

THURSDAY, January 25, 1872

IRON.—			
Scotch and English Pig Iron, ₱ ton	$32 50	@	55 00
White Pig, ₱ ton	45 00	@	—
Refined Bar, bad assortment, ₱ lb	— 04	@	— 04½
Refined Bar, good assortment, ₱ lb	— 05	@	— 05½
Boiler, No. 1 to 4	— 05	@	— 06
Plate, No. 5 to 9	— —	@	— 05
Sheet, No. 10 to 13	— 05½	@	— —
Sheet, No. 14 to 20	— 06	@	— —
Sheet, No. 24 to 27	— 06	@	— —
Horse Shoes	7 50		
Nail Rod	10		
Norway Iron	8		
Rolled Iron	5		
Other Irons for Blacksmiths, Miners, etc.	5	@	6
COPPER.—			
Sheathing, ₱ lb	— 24	@	— 26
Sheathing, Yellow	— 24	@	— 25
Sheathing, Old Yellow	— 11	@	— 11½
Composition Nails	— 24		—
Composition Bolts	— 24		—
TIN PLATES.—			
Plates, Charcoal, IX ₱ box	12 00		— —
Plates, I C Charcoal	10 00		10 50
Roofing Plates	11 00		— —
Banca Tin, Slabs, ₱ lb	— —		— 45
STEEL.—English Cast, ₱ lb	— 16		— 17
Drill	16		17
Flat Bar	16		20
Plough Pointe	3 75		
Russia (for mould boards)	12½		
QUICKSILVER.—₱ lb	— —		— 85
LEAD.—Pig, ₱ lb	— 05½		— 06½
Sheet	— 08		— 8½
Pipe	— 9		— 10
Bar	08		09
ZINC.—Sheets, ₱ lb	— 10		— 10½
BORAX.—Refined	— 25		— 30
Borax, crude	— 5		— —

Leather Market Report.

[Corrected weekly by Dolliver & Bro., No. 109 Post st.]

SAN FRANCISCO, Thursday, January 25, 1872.

SOLE LEATHER.—The demand is still equal to the supply, and prices still continue firm.

City Tanned Leather, ₱ lb	26@29
Santa Cruz Leather, ₱ lb	26@29
Country Leather, ₱ lb	23@28

The market is well supplied with French stocks, and prices have a downward tendency. Heavy California skins are firm, with an upward tendency.

Jodot, 8 Kil., per doz	$60 00	@	—
Jodot, 11 to 13 Kil., per doz	76 00	@	95 00
Jodot, second choice. 11 to 15 Kil., ₱ doz	60 00	@	60 00
Lemoine, 16 to 19 Kil., ₱ doz	95 00	@	—
Levin, 12 and 13 Kil., per doz	68 00	@	50 00
Cornellian, 16 to 18 Kil., per doz	70 00	@	—
Cornellian, 12 to 14 Kil., per doz	60 00	@	68 00
Ogeran Calf, ₱ doz	54 00	@	—
Simon, 18 Kil., ₱ doz	65 00		
Simon, 20 Kil., ₱ doz	68 00		
Simon, 24 Kil., ₱ doz	72 00		
Robert Calf, 7 and 8 Kil	35 00	@	40 00
French Kips, ₱ lb	1 10	@	1 30
California Kip, ₱ doz	55 00	to	80 00
French Sheep, all colors, ₱ doz	15 00		
Eastern Calf for Backs, ₱ lb	1 15	@	1 25
Sheep Roane for Topping, all colors, ₱ doz	8 00	@	13 00
Sheep Roans for Linings, ₱ doz	5 50	@	10 50
California Russett Sheep Linings	1 75	@	5 50
Best Jodot Calf Boot Legs, ₱ pair	3 25		
Good French Calf Boot Legs, ₱ pair	4 50	@	5 00
French Calf Boot Legs, ₱ pair	4 00		
Harness Leather, ₱ lb	30	@	37½
Fair Bridle Leather, ₱ doz	48 00	@	72 00
Skirting Leather, ₱ lb	34	@	37½
Welt Leather, ₱ doz	30 00	@	50 00
Buff Leather, ₱ foot	17	@	21
Wax Side Leather, ₱ foot	18	@	29

MARAVILLA COCOA.—No breakfast table is complete without this delicious beverage. The *Globe* says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoas, but we doubt whether any thorough success had been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma, they have produced an article which supercedes every other Cocoa in the market. Entire solubility, a delicate aroma—and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homœopaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers, Original Homœopathic Cocoa and Soluble Chocolate Steam Mills—Brick Lane, London. Export Ohioory Mills, Bruges, Belgium. f25-1y

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

ASSESSMENTS.

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT	DAY DELINQUENT.	DAY OF SALE.
Alhambra Hill M. Co., Nev., Dec. 9, 50c.	Jan. 13	Feb. 5*
Buckeye G. & S. M. Co., Nev., Jan. 9, $1.	Feb. 13	Mar 14
Cherokee Flat, Butte Co., Jan. 3, $2.50	Feb. 6	Feb. 23
El Dorado M. Co., Cel., Dec. 7, 25c.	Jan. 24	Feb. 14
Ely Cousolidated, Nev., Nov. 27, 50c.	Jan. 8	Jan. 30
Emerald Hill M. Co., U.T., Jan 11, 25c.	Feb. 19	Mar. 14
Empire M. & M. Co., Nev., Jan. 5, $10.	Feb. 8	Feb. 26
General Lee S. M. Co., W. P, Dec. 5, 10c.	Jan. 10	Jan. 30
Hale & Norcross, Nev., Dec. 14, $5.	Jan. 18	Feb. 7
Ida Ellmore, Idaho, Dec. 30 $3.00.	Jan. 31	March 4
Imperial S. M. Co., Nev , Jan. 5, $10.	Feb. 8,	Feb, 26
Jackson M. Co., Eureka, Dec. 8, 25c.	Jan. 10	Jan. 29
Kentuck, Nev., Jan. 20, $10.	Feb. 24	Mar. 13.
Kincaid Flat M. Co., Dec. 11 $2.50.	Jan. 17	Feb. 7*
Lemon, Nev., Jan. 6, 50c.	Feb, 10	March 2
Lillian Hall M.Co., Ely Dist., Nov. 18, 50c.	Dec. 27,	Jan. 23
Mammoth, White Pine, Dec. 13, 10c.	Jan. 18	Feb. 8
Meadow Valley, Ely Dist., Nov. 27, 50c.	Jan. 9	Jan. 31
Mina Rica M. Co., Cal., Jan. 16, 20c.	Feb. 19	March 11*
Monitor & Magnet, N. T. Dec. 4, 25c.	Jan. 23	Feb. 17
Mt. Jefferson M. & M. Co., Cal., Jan 8, 25c.	Fe 5	Fe 22*
Nevada Con. Borax Co., Nov, 29, 5 cts.	Jan. 10	Jan. 29*
Nevada L. and M. Co., Nev., Jan. 9. 4c.	Feb. 13	Mar. 4*
Ophir S. M. Co., Nev., Dec. 20, $2.	Jan. 24	Feb. 14
Overman, Nev., Feb. 22, $4.	Feb. 22	Mar. 11.
Phœnix, Nev., Jan. 18, 75c.	Feb. 22	Mar. 13.
Pioche W. ex, Ely Dist., Nov. 23, $1.50.	Jan. 4	Jan. 27
Pioche S. M. Co., Nev., Dec. 18, $1.50.	Jan. 25	Feb. 16
Pocahontas G. M. Co., Cal., Nov. 29, $5.	Jan. 6	Jan. 30*
Quail Hill M. and W. Co., Dec. 19, $5.	Jan. 23	Feb. 13*
Silver Wave, White Pine, Dec. 19, $3.	Jan. 25	Feb. 23*
Silver Wave, Nev., Jan. 30, $1.	Feb. 26	Mar. 19.*
Spring Mount Co., Ely Dist, Nov. 27, 50c.	Jan. 7	Jan. 29
Succor, M. M. Co., G. H., Jan. 3, $1.50.	Feb 6	Feb. 27
Tecumseh G. S. & C. Co., Dec. 5, $3.	Jan. 9	Jan. 30*
Tallulah M.Co., Humboldt Co. Nev., Nov 29-$1.	Jan 3,	30
Tecumseh, Cal., Jan. 23, $4.	Feb. 27	Mar. 16.*
Union G. M. Co., Cal., Jan. 4, $1,00.	Feb. 5	Feb. 26*
Washington & Creole, Nev, Nov. 27, 50c.	Jan. 5	Feb. 1
Wm. Penn, Nev. Jan. 16, 50c.	Feb. 10	Mar. 11.*

MEETINGS TO BE HELD.

Belcher Mining Co.....Annual Meeting, Jan. 30
Cherokee Flat Blue Gravel Co..Annual Meeting, Feb. 3

LATEST DIVIDENDS—(Within Three Months).

Belcher, $10.....Jan. 10
Chollar Potosi, $1.....Payable Dec. 11
Chollar Potosi, $1.....Payable Jan. 10
Crown Point, $10.....Payable Jan. 12
Eureka Gold M. Co., $1.....Payable Jan. 6
Meadow Valley, $1.50.....Payable Dec. 15
North Star G. M. Co., $3.....Jan. 10
Raymond & Ely, $5.....Payable Dec. 18
Yule Gravel M. Co., 50c.....Payable Dec. 5

—*Advertised in this journal.

UNIVERSITY OF CALIFORNIA.—This Preparatory Department is under the charge of five Professors of the University, and six tutors.

Besides the studies of the public schools, Algebra, Geometry, Latin, Greek, German, French, Spanish and Book-Keeping are taught.

Terms: Board and tuition, 4 weeks, $30. Students received at any time. GEORGE TAIT, Oakland, Master Fifth Class. se9bptf

The Evangel, Office, 414 Clay street, San Francisco. Terms, $4 per year, in advance. THE EVANGEL is the organ of the Baptist Denomination for the Pacific States and Territories. All efforts on the part of brethren and friends to extend its circulation will be gratefully appreciated. $3, for one year's subscription, will be received from new subscribers, strictly in advance. Address "Evangel, San Francisco, Cal." Sample copies furnished free. 4v3-1ambptf

$5 TO $20 PER DAY AND NO RISK.—Do you want a situation as salesman at or near home to introduce our new 7-strand White Wire Clothes Lines, to last forever. Don't miss this chance. Sample Free. Address Hudson River Wire Works, 75 William street, N. Y., or 1 Dearhorn street, Chicago, Ill. 23v1-12mbp

LADIES DESIRING TO PROCURE A FIRST-CLASS SEWING Machine against easy monthly installments may apply to No. 294 Bowery, 157 E. 26th, 477 9th Avo., New York Good work at high prices if desired. 21v1-12mbp

GIVE YOUR OLD ADDRESS when you want the paper sent to a new one. We cannot afford to look over several thousand names to stop it at the former P. O.

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

H. J. BOOTH & CO.,

UNION IRON WORKS,

(The Oldest and most Extensive Foundry on the Pacific Coast).

Cor. First and Mission Sts.,

SAN FRANCISCO.

Marine, Locomotive and Stationary Engines, Quartz Crushing and Amalgamating Machines, Mill Irons and Brass and Iron Castings, of every description, made to order.

Steamboat Repairing, Boiler Making, Turning and Finishing,

EXECUTED WITH DISPATCH.

Beet Sugar Machinery complete in every part—made a specialty.

OIL MACHINERY.

A complete set of Machinery of our own design and patent for extracting oil from Castor Bean, dispensing with Hair Cloth. Also Machinery for Flax Seed Oil, Mustard Seed Oil, and Sun Flower Seed Oil.

MARBLE MACHINERY

For sawing Marble of any thickness or size.

Irrigating Pumps. Steam Pumps.

Plans, Estimates, and Advice promptly supplied.

H. J. BOOTH. GEO. W. PRESCOTT. IRVING M. SCOTT.
4v24-1yelamr

FARMS AND STOCK RANGES,

On Government, State and Railroad Lands, IN NEVADA.

Having surveyed a large portion of the public domain in Northern Nevada, I am prepared to select, locate and obtain title for parties desiring to secure such lands, in quantities to suit, and on the most favorable terms.

Address or apply to A. J. HATCH,
22v2-3msa U. S. Deputy Surveyor, Reno, Nev.

Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the Scientific Press we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

Alhambra Hill Mining Company—Location

of works, Alhambra Hill, Pinto District, White Pine county, Nevada.

Notice—There are delinquent upon the following described stock, on account of Assessment (No. 1) levied on the Ninth day of December, 1871, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No of certificate.	No. shares.	Amount.
Andreas Fisher	not issued,	253	$126.50
R. Beverly Cole	" "	253	126.50
R. Mayrisch	" "	253	126.50
C. P. Schmidt	" "	253	126.50
R. Stehlhelmur	" "	253	126.50
J. Hausmelster	" "	253	126.50
D. H. Jackson	" "	506	253.00
L. schumacher	" "	161	80.50
J. Naptualy	" "	161	80.50
D. B. Arrowsmith	" "	161	80.50
John Shoenbar	" "	161	80.50
Thos. J. Reed	" "	80½	40.25

And in accordance with law, and an order of the Board of Trustees, made on the Ninth day of December, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction by Maurice Dore & Co., at No. 327 Montgomery street, on the Fifth day of February, 1872, at the hour of 12 o'clock M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

HENRY G. LANGLEY, Secretary.

Office—612 Clay street, San Francisco, Cal. jr20-4w

Caution—Eagle Quicksilver Mining Company—Location

of works, Santa Barbara County, Cal.

Notice is hereby given to the public not to purchase or negotiate for the following named shares, designated by the names of the delinquent owners in the Eagle Quicksilver Mining Company. They were duly advertised and sold in full at public auction, as by law, and the articles of agreement provided, by John Middleton and Son, Auctioneers, on Monday, the 8th day of January, 1872, for delinquent assessments thereon and accruing costs of advertising and expenses of sale, and will not be transferred by said company.

Names.	Shares sold.
Bush, A. F	1
Panchie, F. L. A	2
Pearson, H. H	1
Townsend, James B	2
Sinclair, Peter	1
Williams, Mrs Sarah	1

WM. H. WATSON,

Secretary of Eagle Quicksilver Mining Company, Room 5, No. 302 Montgomery street, San Francisco, Cal.

January 8, 1872. ja13-3t

Kincaid Flat Mining Company—Location

of works, Tuolumne County, State of California.

NOTICE.—There are delinquent upon the following described Stock, on account of Assessment levied on the 11th day of December, 1871, the several amounts set opposite the names of the respective Shareholders as follows:

Names.	No. Certificate.	No. Shares.	Am't.
F. Vassault	93	50	$125 00

And in accordance with law, and an order of the Board of Trustees, made on the 11th day of December, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the Secretary's Office, No. 220 Clay street, San Francisco, California, on Wednesday, the 7thday of February, 1872, at the hour of 10 o'clock A. M. of said day, to pay said delinquent assessment thereon, together with costs of Advertising and expenses of sale.

R. H. CORNELL, Secretary,

Office, No. 220 Clay street, San Francisco, Cal. j203t

Mina Rica Mining Company—Location of

works, Auburn District, Placer county, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 16th day of January 1872, an assessment of Twenty (20) cents per share was levied upon the capital stock of said company, payable immediately in United States gold and silver coin, to the Secretary at the office of the company, room No. 2, 418 California street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Monday, the 19th day of February, 1872, shall be deemed delinquent, and will be duly advertised for sale by public auction, and unless payment be made before, will be sold on Monday, the 11th day of March, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

GEO. R. SPINNEY, Secretary.

Office—Room No. 2, third floor, 418 California street, San Francisco, California. ja20-5w

Mount Jefferson Milling and Mining Company—Location of works, First Garote, Tuolumne county, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 8th day of January, 1872, an assessment of Twenty-five cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the company's office. Any stock upon which said assessment shall remain unpaid on Monday, the 5th day of February, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before the hour of 2 o'clock P. M., will be sold on Thursday, the 22d day of February, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. W. CLARK, Secretary.

Office, 418 California street, San Francisco. ja13-4w

Nevada Consolidated Borax Company—Location of Works: Columbus and Fish Lake Valleys, Esmeralda County, State of Nevada.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the 29th day of November, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. of Certificate.	No. of Shares.	Am't.
Charles Myrtetus	15	3571	$178 55
Charles Myrtetus	16	3571	178 55
Charles Myrtetus	22	250	12 50
Charles Myrtetus	55	1220	61 00
Charles Bell	1	5055	252 75
Charles Bell	26	2000	100 00
Charles Bell	27	200	10 00
Charles Bell	28	100	5 00
Charles Bell	29	625⅓	31 26⅔
Charles Bell	30	2000	100 00
Charles Bell	31	200	10 00
Charles Bell	32	2000	100 00
Charles Bell	33	20	1 00
Charles Bell	61	2161⅔	108 08⅓
S E Holcombe	24	250	12 50
S E Holcombe	35	4167	208 35
S E Holcombe	53	720	36 45
F W Fratt	25	250	12 50
F W Fratt	62	41	2 05

And in accordance with law, and an order of the Board of Trustees, made on the 29th day of November, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the company, 420 Montgomery street, Room No. 1, (3d story) San Francisco, Cal., on Monday, the 29th day of January, 1872, at the hour of 11 o'clock A. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

J. L. SANFORD, Secretary.

Office, No. 420 Montgomery Street, (Room No. 1) 3d story, San Francisco, Cal.

ROOT'S PATENT FORCE BLAST ROTARY BLOWER.

MANUFACTURED AT

The Globe Iron Works, Stockton, Cal.

AWARDED THE FIRST PREMIUM AT THE PARIS EXPOSITION—PATENTED NOV. I, 1864; JULY 24, 1866; AND OCT. 9, 1866.

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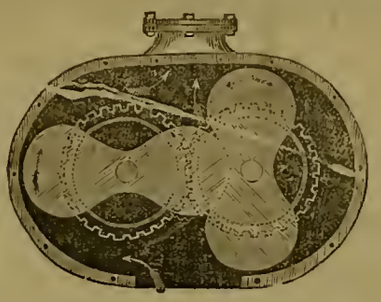


Requires 50 Per Cent. LESS POWER Than any Blower Now in Use.

One of these Blowers may be seen at W. T. Garratt & Co.'s Brass Foundry, San Francisco; Gould & Curry and Savage S. M. Co.'s, Nevada; and at C. P. R. R. Co.'s Works, Sacramento; and other places on this coast.

CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufactnre the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

QUARTZ, SAW AND GRIST MILL, IRON, STATIONARY AND STEAMBOAT ENGINES, HORSE-POWER AND PUMPS, OF ALL SIZES.

For Circulars and further information, Address

4v24tf GLOBE IRON WORKS, STOCKTON, CAL.

Nevada Land and Mining Company—Location, Spruce Mountain, Antelope and Clifton Districts, Elko County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 9th day of January, 1872, an assessment of four cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the company's office, Room 5, No. 302 Montgomery street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Tuesday, the 13th day of February, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 4th day of March, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

By order of the Board of Trustees.

WM. H. WATSON, Secretary.

Office, Room 5, No. 302 Montgomery street, San Francisco, Cal. ja13-3w

Quail Hill Mining and Water Company—Location of works, Salt Springs Valley, Calaveras County, State of California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the 19th day of December, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. certificate.	No. shares	Amount
F. S. Spring, Trustee	41	120	$600.00
E. J. Dennison	42	1	5.00

And in accordance with law, and an order of the Board of Trustees, made on the 19th day of December, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the company, No. 409 California street, (up stairs,) San Francisco, Cal., on the 13th day of February, 1872, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

T. F. CRONISE, Secretary.

Office, No. 409 California street, (up stairs) San Francisco, Cal. jr27-3t

Silver Wave Mining Company—Location of works, White Pine Mining District, White Pine county, Nevada.

Assessment of Three ($3) dollars per share, levied December 19th, 1871, having been rescinded by vote of the Board of Trustees.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 2th day of January, A. D. 1872, an assessment of One Dollar per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company. Any stock upon which said assessment shall remain unpaid on Monday, the 26th day of February, A. D. 1872, shall be deemed delinquent, and will be duly advertised for sale, at public auction, and unless payment shall be made before, will be sold on Tuesday, the 19th day of March A. D., 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

By order of the Board of Trustees. J. W. CLARK, Sec'y.

Office, 418 California St. San Francisco. jr27-4w.

Tecumseh Gold, Silver and Copper Mining Company.—Location of works, Gopher District, Calaveras County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 23d day of January, 1872, an assessment of Four ($4.00) dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, F. J Herrmann, at the office of the company, No. 516 Kearny street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the 27th day of February, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the 16th day of March, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

F. J. HERRMANN, Secretary.

Office 516 Kearny street, San Francisco, Cal. jr27td.

Union Gold Mining Company—Location of works, Howland Flat, Sierra county, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 4th day of January, 1872, an assessment of one dollar ($1) per share was levied upon the capital stock of said Company, payable immediately in United States gold coin, to the Secretary, at the office of the Company, Room No. 22, Merchants' Exchange, California street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the 5th day of February 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before will be sold on Monday the 26th day of February, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

ALFRED K. DURROW, Secretary.

OFFICE—Room No. 22 Merchants' Exchange, California street, San Francisco, Cal. ja4-4w.

Wm. Penn Consolidated Mining Company—Location of works, Storey and Lyon Counties, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 16th day of January, 1872, an assessment of 50 cents per share was levied upon the capital stock of the company, payable immediately, in gold coin, to the Secretary, at the office of the company, Rooms 3 and 4, No. 338 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Monday, the 19th day of February, 1872, shall be deemed delinquent, and duly advertised for sale at public auction, and unless payment be made before, shall be sold on Monday, the 11th day of March, to pay the delinquent assessment thereon together with cost of advertising and expenses of sale. By order of the Board of Trustees.

ja27-3t HENRY TOOMY, Secretary.

Office, No. 338 Montgomery street, Rooms 3 and 4.

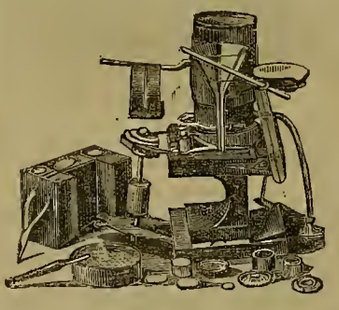
J. S. PHILLIPS, M. E.,

Examiner of Mines, Consulting Engineer, Mineral Assayer, Analyst, Etc., Etc.

Author of "The Explorers', Miners', and Metallurgists' Companion."

Inventor of the Explorers', Miners', Millers', and Smelters' Friend, the Prospectors' "WEE PET" Assaying Machine, etc., which obtained a Gold Medal at the San Francisco Mechanics' Institute Fair of 1869.

Patented September 7, 1869.



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Three years since we established in connection with our Crockery and Silver Plated Ware Business, a Factory for Silver Plating by electro process all wares which we had previously imported ready plated from Eastern factories.

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Orders for special sizes sent by mail will receive prompt attention. References from those who have used our Plates will be furnished to those desiring them

HAYNES & LAWTON,

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The C-Spring Roller Skate.

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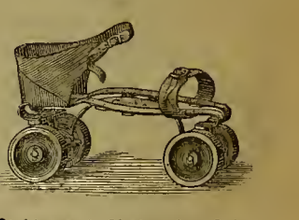

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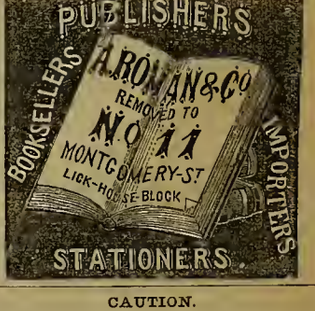

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are being infringed by importation of Capsules made in contravention of his rights, which necessarily are numerous, BETTS being the original Inventor and Sole Maker in the United Kingdom.

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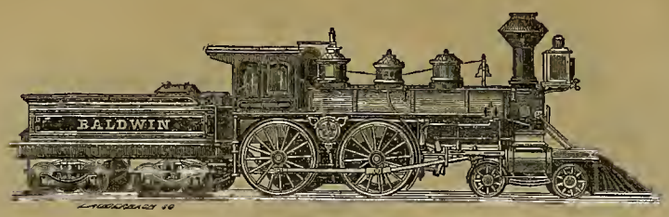

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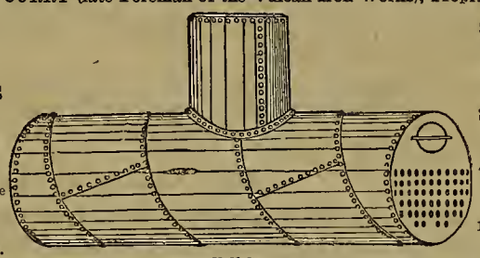

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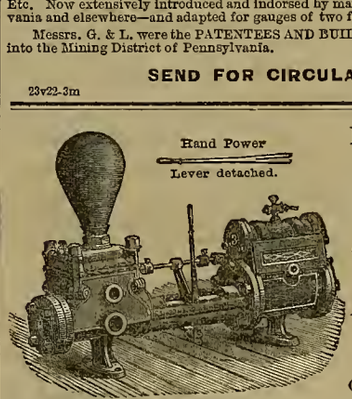

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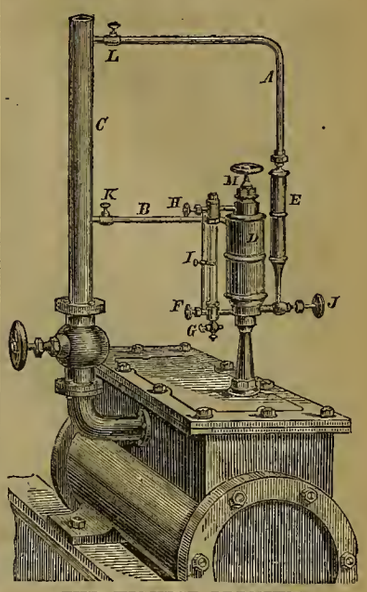

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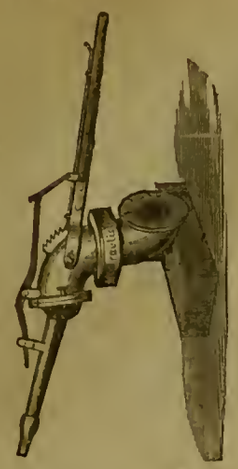

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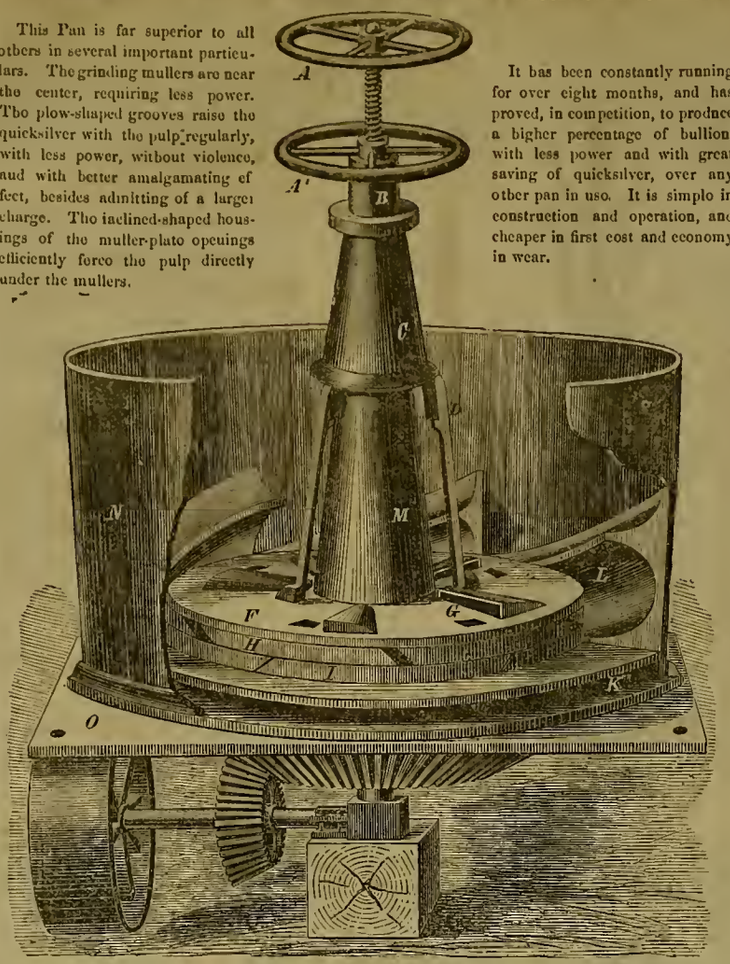
It has been constantly running for over eight months, and has proved, in competition, to produce a higher percentage of bullion, with less power and with great saving of quicksilver, over any other pan in use. It is simple in construction and operation, and cheaper in first cost and economy in wear.



Manufactured at the Golden State Iron Works (Co-operative). 19 First street, S. F.

Where it can be examined and further particulars be learned; or persons may apply to the inventor and patentee, Mr. C. C. STEVENSON, at the Douglas Mine, Gold Hill, State of Nevada, where the Pans have long been in coustant operatiou. 15v20-1mr,1amtf

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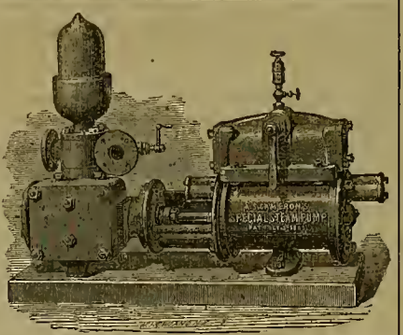

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Since the time when King Alfred made the first lantern by surrounding a candle with a transparent casing of horn, this class of appliances has been one of the greatest utility and most extended use. Among the latest improvements in its construction is that illustrated in the accompanying engravings, and designed to secure the threefold object of providing for the easy cleansing of the glass portion, the secure retention of the upper in place upon the lower part of the lantern, and the affixing of the hall to the top of the lantern in a durable and efficient manner. The base of the lantern is provided with the usual detachable lamp, and at one side has hinged to its upper edge a wire frame designed to carry and protect the glass portion or body of the lantern, and at the upper end of which is the cylindrical top, perforated in the ordinary manner to permit the escape of the products of combustion from the lamp. Arranged at that side of the base opposite the hinge is an angular spring-catch so applied as to catch over the annular lower rim in the wire frame, and, in conjunction with the hinge, to hold the said frame firmly of place upon the base as required when the lantern is in use.

This Lantern is offered as

The Best and Most Desirable in Use,

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Individuals, Dealers, Railroad Companies, and all persons and institutions about to purchase Lanterns, should inquire for this kind; and if not for sale in your locality, address the inventor for circular of full description, price list, etc.

Patented August 10 and December 28, 1869, by

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It is Adapted to All Kinds of Ores.

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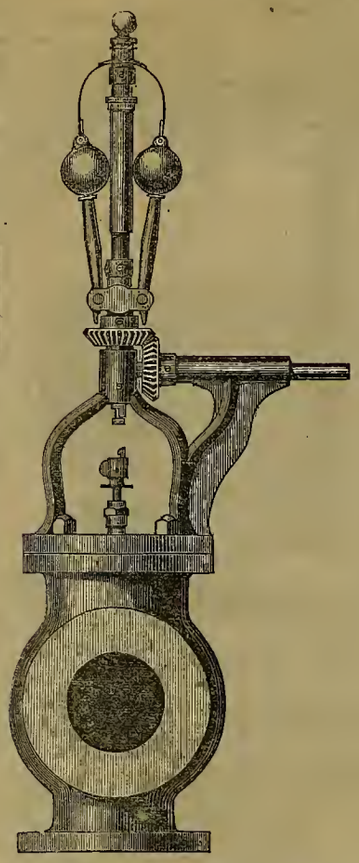

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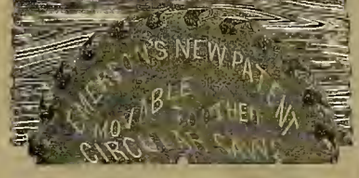

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4.35 P M	7.35 A M.	....Oakland.....	8.00 P M	1.50 P M
4.10 P M	7.50 A M.	....San Jose.....	8.30 P M	2.10 P M
5.35 P M	8.35 A M.	....Niles.....	7.05 P M	12.45 P M
6.38 P M	11.50 A M.	....Stockton.....	4.07 P M	9.01 P M
10.45 P M	2.00 P M.	....Sacramento....	2.20 P M	7.15 A M
ARRIVE.	5.15 P M.	....Colfax.....	10.20 A M	LEAVE.
Read Down.	12.45 A M.	....Reno.....	2.10 A M	Read Up.
	9.10 A M.	....Winnemucca....	4.15 P M	
	12.00 M.	....Battle Mountain.	1.25 P M	
	4.40 P M.	....Elko.....	8.45 A M	
	6.20 A M.	....Ogden.....	5.20 P M	
	ARRIVE.		LEAVE.	

San Francisco and San Jose.

LEAVE.	LEAVE.		ARRIVE.	ARRIVE.
.....	3.00 P M	....San Francisco....	10.40 A M	.....
7.10 P M	4.40 P M	....Niles.....	8.35 A M	5.30 P M
8.30 P M	5.15 P M	....San Jose.....	7.0 A M	4.10 P M
ARRIVE.	ARRIVE.		LEAVE.	LEAVE.

Sacramento, Marysville and Red Bluff.

LEAVE.	LEAVE.		ARRIVE.	ARRIVE.
*8.45 A M	2.35 P M	....Sacramento....	1.05 P M	*4.45 P M
10.25 A M	3.25 P M	....Junction.....	12.15 P M	3.25 P M
1.50 P M	5.15 P M	....Marysville.....	10.20 A M	12.00 P M
6.00 P M	8.35 P M	....Tehama.....	6.50 A M	5.30 A M
.....	9.30 P M	....Red Bluff.....	6.00 A M	.....
ARRIVE	ARRIVE.		LEAVE.	LEAVE.

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LEAVE OAKLAND, *5 40, 6 50, 8 00, 9 10, 10 00, and 11 10 a. m., 12 00, 1 40, 2 50, 3 50, 5 05, 6 20, 7.50 and 10 20 p. m.

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Leave S. Fran.	Leave Vallejo.	Arrive at Calistoga.	Arrive Davis.	Arrive Knights.
7.30 A M	9.30 A M	1.00 P M	.....	.....
*1.0 P M	6.20 P M	9.10 P M	.....	.....
*4.00 P M	6.35 P M	.....	10 00 P M	11.45 P M
†7.30 A M	11.00 A M	.....	1.58 P M	3.20 P M

Leave Knights.	Leave Davis.	Leave Calistoga.	Arrive Vallejo.	Arrive S. Fran.
5.30 A M	7.10 A M	.....	10.30 A M	12.15 P M
.....	.....	*8.00 A M	10. 0A M	12.15 P M
.....	.....	3.00 P M	6.00 P M	8.00 P M

SAN FRANCISCO & N. PACIFIC R. R.

Leave	*2.00 P M	....San Francisco....	*11.00 A M	Arrive
.....	4.35 P M	....Donahue.....	8.45 A M	.....
.....	5.00 P M	....Petaluma.....	8.20 A M	.....
.....	6.00 P M	....Santa Rosa.....	7.30 A M	.....
Arrive.	6.45 P M	....Healdsburg	6.45 A M	Leave.

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*4.00 P M	*4.00 P M	....San Francisco....	*10.00 P M	*8.00 P M
6.00 P M	.....	....Vallejo.....	.....	6.00 P M
7.00 P M	6.00 P M	....Benicia.....	8.00 P M	5.00 P M
.....	2.00 A M	....Stockton.....	2.00 P M	.....
2.00 A M	.....	....Sacramento	.....	12.00 M.
Arrive.	Arrive		Leave.	Leave.

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BY DEWEY & CO., Patent Solicitors.

SAN FRANCISCO, SATURDAY, FEBRUARY 3, 1872.

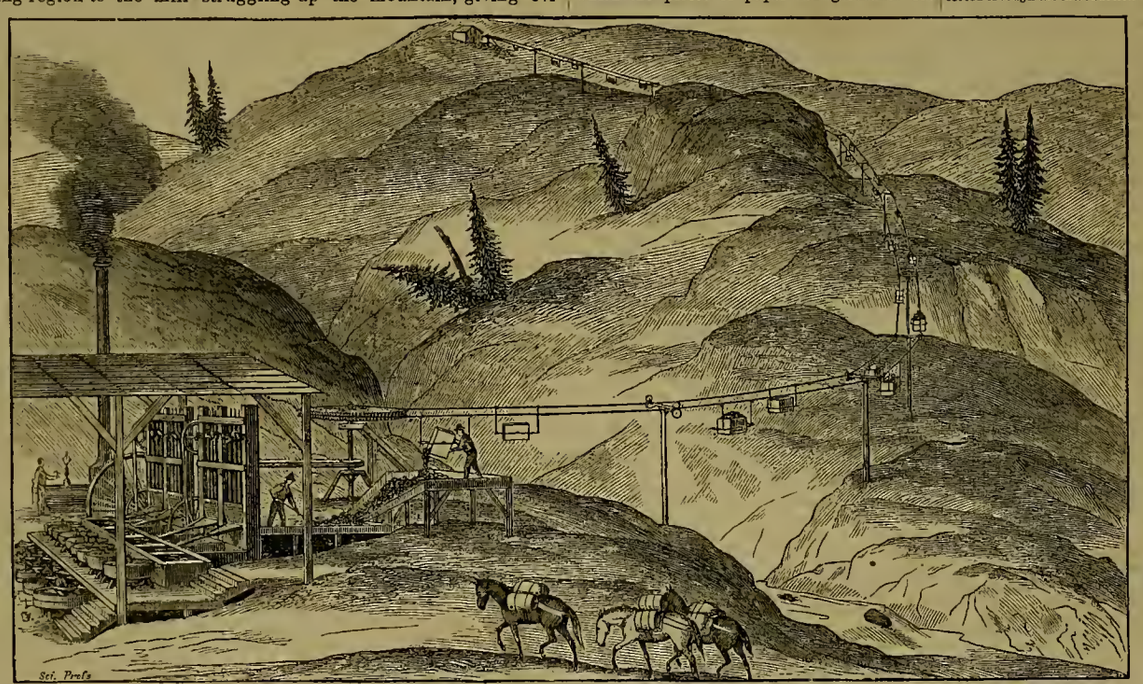
VOLUME XXIV. Number 5.

Hallidie's Wire Rope-Way.

In the SCIENTIFIC PRESS of February 18th, 1871, we gave a detailed description, with numerous engravings, of Hallidie's endless wire rope-way, which is intended for the rapid and economical transportation of ores, lumber or goods, over a rough country, as well as for the transmission of power from one point to another. The invention is one of great importance, especially to the miners of the Pacific slope. Our illustration gives a general view of the whole apparatus in practical operation conveying quartz from the top of a mountain in a rough mining region to the mill below. As will be seen, the wire rope passes over pulleys elevated upon posts of a suitable length, and as shown in the cut the sacks of ore are suspended by the proper device to the rope. The sacks or cars are loaded on the dump at the mine on the mountain, and the patent grip pulley being revolved by means of the engine, the sacks or cars pass down on one side, deliver their load, and pass up empty on the other side. Boxes may be used that are self-dumping, or operated by hand as desired. By this means the expense of road building, teams, drivers, etc., is done away with and a safe and very convenient method adopted by which the ore is delivered to the mill. Either sacks or cars may be used for carrying, as desired. The patent grip pulley is a very ingenious device and accomplishes its purpose admirably.

The rope-way may be run by the same engine that runs the stamps at the mill, and when the descent is sufficient and the load comes *down*, no extra power is needed, the gravity of the descending loads being sufficient to keep it in motion; it being desirable, however, in all cases to connect with the steam engine or water wheel in order to regulate the speed of the rope, which is usually about 200 feet per minute. The posts, of course, are arranged high enough so that the cars may be clear of all obstructions from the ground, but the undulations of the ground can be followed. There being a pulley over the rope as well as under it, keeps the rope between the pulleys and enables it to pass over any mountain at any angle. A brake is sometimes used to regulate the rapidity. One very great advantage possessed by this system of conveying ores, is that the weather will not affect it, for it can be worked during heavy storms and freshets and the depth of snow is of no consequence; moreover, it will run as well by night as day and with no more cars.

The advantages of this apparatus will be obvious at a single glance to any one familiar with the general rugged character of the Pacific slope, and our artist has succeeded in giving a very good view, easily comprehended. The familiar quartz mill with its pans, settlers, etc., the mine on the summit, the patient mules struggling up the mountain, giving evidence that even the mill is in a somewhat elevated position, the engine, engineer, feeders, and last, but not least, Mr. Hallidie's excellent device in operation. This apparatus should not be confounded with the rope-way of Hodgson's patent, which is now in operation at the Eberhardt and Aurora Company's mines in White Pine, as it is totally different in its construction.



A VIEW OF HALLIDIE'S WIRE ROPE-WAY FOR TRANSPORTING ORES.

THE JAPANESE EMBASSY.—The Japanese Embassy, Hon. Chas. E. DeLong, U. S. Minister to Japan, and C. W. Brooks, Japanese Consul, left this morning by way of Oakland *en route* for Washington. The whole party numbered 112. From Omaha they will go on the Chicago and Burlington R. R. line, and we learn from D. W. Hitchcock, the agent of that line in this city, that arrangements have been made to give them the use of one of the finest trains possible, consisting of the magnificent Pullman Hotel cars, this being the only Pacific line on which these cars are run. The desirable accommodation of these cars was, we presume, the reason which induced the members of the Embassy to take that favorite route.

Japanese Waterproof Paper.

We have just received from the editor of the *Anglo-American Times*, 127 Strand, London, an immense pamphlet, containing reports on the manufactures of paper in Japan. Presented to both Houses of Parliament by command of Her Majesty, etc., etc., 1871. Consul Lowder gives an account of the manufacture of paper in Japan from the Paper Mulberry with numerous colored illustrations, representing the whole process of manufacture. Also speaks of the Tororo, another plant, from the roots of which a fine quality of paper is made, warranted to wash; and an oil paper for rain-coats, etc., and the process for making the glue by which the pieces of paper for garments are joined; also a list of some thirty varieties of paper and the uses to which they are applied.

Consul Annesley gives a list of 54 varieties of paper and a description of the shrube Kaji, Makoso and Kajiso, and the methods employed in the manufacture of paper from their barks, and modes of cultivation. Whole pages are devoted to the different processes by which waterproof garments, handkerchiefs, hats, rain umbrellas, sun umbrellas, telescopes, maeke, lanterns, fans, hair-strings, purses, oil paper for wrapping eilks, etc., together making an interesting document, which, if read by our paper manufacturers may lead to inquiries that may result in the introduction of some of these paper-producing plants, and possibly some of the processes by which the Japanese make so many thin, useful and beautiful articles of every-day use from paper.

EXTRACTION OF METALLIC ANTIMONY.—A new method of obtaining metallic antimony from the ore is as follows: The ore is pulverized and treated in wooden vessels with hot hydrochloric acid. The antimony is precipitated from the solution by means of zinc or iron, and the precipitate washed, dried and melted in a crucible under a covering of charcoal dust.

[From the COMMERCIAL HERALD AND MARKET REVIEW.]

MINING REVIEW FOR 1871.

Disastrous Effects of a Two Years' Drought.

For the last two years mining, in common with all our other leading industries, has suffered terribly from the effects of the drought, which has prevailed with a severity, and to an extent, not before experienced on this coast. For the first time in our history it has seriously affected both the vein and placer mines of California, and even crippled production in all our other Pacific States and Territories. The drouth that occurred ten years before, though scarcely less rigorous, failed to diminish the yield of the precious metals to the same extent, as our miners were then just beginning to reap the first fruits of the rich and virgin placers of Eastern Oregon, Idaho and Montana, where the gold lay near the surface, and but little water was required. The limited rainfall of the past two years, however, has told upon the production of our great staple with disastrous effect: having nearly counteracted the gains that had been meantime effected through the introduction of more perfect machinery and improved process' aided by a valuable experience gained in the general conduct of the business and other beneficial results attained. Thus, the out-turn of bullion for the year 1870 did not exceed seventy or seventy-five millions, and for 1871 about $80,000,000; whereas, with the usual supply of water, the production should have been 10 or 15 per cent. greater.

After suffering from a drought so unprecedented for its stringency and long continuance, we have been visited by a season equally remarkable for its bountiful and almost superabundant rain-fall; the amount of precipitation for the past month having exceeded anything that has occurred within a like number of consecutive days for the last twenty years. Coming at an opportune moment, this copious outpouring has wrought a salutary change in the condition and prospects of the mining interest from one end of the country to the other. Being warm, as well as abundant, and coming in such timely installments as rendered them most effective for good, they have already afforded abundant water for starting up every branch of mining; creating activity, and bringing relief for the present, while insuring for us an extended period of future prosperity in this department of business. It frequently happens that these first storms result in snow upon the mountains, affording but little water till the month of March, or perhaps a later period in the spring. But this year they have made their advent in the form of heavy rains all over the foot hills and the lower slopes of the Sierras, where the principal mining districts are situated, only their higher ridges and summits being, as yet, covered with snow. As a consequence, the mountain streams have, for a month past, been running bank-full of water, with the reservoirs and ditches every where filled to overflowing. From this mildness of temperature results the further advantage, that the water used in washing acts with greater efficiency, while the miner performs his labor with much more ease and comfort than when the weather is cold and the water chilled almost to the freezing point.

Since the coming on of the rains, the greatest animation has pervaded the mining districts of California. The idle mills have been set in motion and kept incessantly running. The hydraulics have every where been started up and kept playing day and night, tearing down the auriferous banks, and relieving them of their precious contents. The rich gravel, taken from the drift claims during the summer, is being rapidly washed out, yielding the waiting and expectant miner a prolific harvest of gold. Rich localities, upon which water cannot be brought by artificial means, and which do not afford enough to be worked in ordinary seasons, now swarm with busy men, eager to avail themselves of the means afforded only at these long intervals for successful washing here, and through the aid of which they are generally enabled to realize large earnings while they last. Every old miner knows of "dry diggings" of this kind, to which he never fails to repair on the advent of a wet season earning often more at these places in a few weeks than he is able to do throughout the entire year besides.

Owing to there being an insufficiency of water for washing it at the time, a good deal of the gravel taken from the drift

claims during the summer, was kept on hand, awaiting the coming of the rain; many of the quartz miners, also, having accmulated considerablo quantitiee of ore at such times as they were unable to run their mills. So, too, bed-rock tunnels, where required, were run, and much other preliminary work done on their claims by the hydraulic miners, whereby very many of them had work in a state of forwardness, and their grounds every way in excellent order for effectual operations when the rains set in. As a result, heavy out-turns of gold will be realized from these several sources of production early in the season.

In consequence of the low stage of water prevailing the past two or three years, the tailings from many hydraulic claims had so accumulated in the gulches and canons, that serve as outlets for this waste material, that operations had become greatly impeded, and, in some instances, prevented altogether. With the floods resulting from the recent heavy rains, many of these tailings will be swept away, clearing out such channels, and relieving this class of claims from obstruction on this score for a long time to come. But for the occurrence of these periodical floods, to such an extent would these tailings gather in the course of a few years, that a large proportion of the hydraulic grounds in this State would be rendered valueless; it being difficult to see by what other means their removal could be accomplished.

Bullion Product for the Past Year.

As large quantities of the precious metals have, for some time past, been diverted from the channels through which they formerly sought this city, and been sent East by rail, it is no longer easy to compute, at this point, the annual yield of the entire coast with precision. This diversion has mostly taken place from Utah and Eastern Nevada, having consisted mainly of silver bullion. Gold dust and bars have also lately found their way East through new channels from Southern Arizona and Montana, thereby further increasing the difficulty of making these estimates with accuracy. Much silver has also escaped from the first-named localities in connection with the lead bars shipped to Eastern destinations, not to mention considerable quantities of high-grade argentiferous ores sent forward in that direction. But, notwithstanding, this partial diversion of products that once centred at San Francisco, we are able to estimate the yield of the past year with approximate exactness: there being reliable data to show that it could not have fallen much, if any, below $80,000,000. In some instances it has been placed at a much lower figure; but, if local authorities may be accepted as conclusive on this point, the above estimate is clearly within bounds, and even a great deal too low. For example, the Montana press found fault with us last year because we assigned for that Territory an annual production of but $14,000,000, whereas it was claimed to have reached $20,000,000—and this at the very time that statisticians, in other quarters, were reprimanding us for having already grossly over-stated the true amount!

But despite these discrepancies of opinion as relates to the past, we know from the well-ascertained yield of certain leading localities, that the aggregate production of the coast must have been large for the year just closed. Turning to a few of these, we find, for instance, that the bullion shipments from Virginia City and Gold Hill amounted for the year to $12,500,000, being the product of the Comstock mines alone, and which amount exceeded by $3,400,000 the out-turn of the previous year. From Austin there has been sent over two millions of dollars, being mostly the product of the mines in that vicinity, and all from the region generally designated the Reese River Country. From the White Pine District an equal if not greater amount has been shipped; while the Raymond & Ely, and other mines in the neighborhood, will have turned out nearly as much more. The Humboldt Country may be counted upon for a million; while the Eureka, Mineral Hill, Railroad, Columbus, and several other districts in that State will each be able to make a good report of their year's work, several of them being new contributors to the bullion product of Nevada, whose total production for the year will overrun $21,000,000. In Utah we have, also, a new and prolific ally, her rich and virgin mines having responded liberally to the means applied for their development. Looking to California, we find that while the lack of water has greatly crippled the productive energies of many of our mines, it has not prevented the more prominent localities from making a very fair showing for the year. Nevada County calls for a credit of seven millions, based on the gold extracted from her quartz and gravel mines during the past twelve months. Sierra and Yuba feel each entitled to half as much more, while Placer, Plumas, Amador, and Butte, with several other of our leading mining counties, have each turned out such an amount of bullion as will save the annual production of the State from falling greatly below the average of late years. From this cursory review of the field, it will be seen that our estimate, though it may seem large, in view of the dullness that has pervaded many localities, is not really excessive. The amount of treasure received during the year at San Francisco, through public channels, has, indeed, been much less; the entire sum transmitted through Wells, Fargo & Co.'s Express, including coin, being reported at $42,962,540. The receipts of this house reached $18,341,629 and $55,310,151 for the years 1870 and 1869 respectively, the coin receipts having been much larger for the latter than during the year 1871. During each of these years, a good deal of bullion was shipped directly East from Nevada, Utah, and Montana, the largest amount having gone that way during the year just ended. As regards the out-look for the future, and, more especially,

The Prospective Yield for the Incoming Year.

There can be no question but every thing wears a most cheering aspect, and that the product will prove to be unusually large. When we take into consideration the entire situation—the immense gains we have now made in the business of mining; the improved processes and machinery lately introduced, coupled with the great number of new reduction works erected, and the certainty of ample water supplies the approaching season, we find here an aggregate of recently accruing advantages that warrants us in predicting for the current year a yield of the precious metals equivalent to eighty-five or ninety millions of dollars; and should nothing transpire meantime to mar the present prospect, there would be little ground for surprise should the product reach a hundred millions by the end of the year.

Everywhere new ore-crushing mills have been erected, the most of them of large capacity, and nearly all capable of doing better work than the average of those before put up. Improved furnaces have been built for roasting the refractious ores, and a great number of smelting works constructed in the base-metal districts. In the ditches and reservoirs built in this State the past year, our water-supplying facilities have been increased fully twenty per cent., while capital, the most powerful auxiliary of all, has come to our assistance, with a freedom and readiness never before experienced—such aid having, in fact, never before been so fully deserved. With all these helps, and the many new discoveries being made and rich mines constantly developed, we fea confident, that, with no untoward turn of events, there will be gathered from the mineral regions west of the Rocky Mountains a hundred million dollars within the next twelve months.

Dividends, Profits, Etc.

With this free production, the profits arising from mining operations the past year have been correspondingly large, leading to liberal investment in stocks and properties of this kind, causing the latter to advance steadily, and, in some cases, with extreme rapidity. Many of the older mines, which had for a long time been worked with little or no profit, have been rescued from the assessment and restored to the dividend-paying roll. Others, which had never before contributed anything toward the cost of their development, have begun to yield pay-ore, and even afford in some cases handsome returns; while still another class, that had been struggling for years with an adverse fate, their stock depressed to mere nominal figures, have advanced many hundred per cent., and that without undue inflation, there being, to all appearances, a good margin for them to further appreciate on their merits. Several new mines, some of them only discovered, or at least brought to a productive condition, within the year, have already yielded large and profitable returns, sufficient, in some instances, to have reimbursed their purchase money, with cost of plant and other improvements. This has been the case with a number of mines in Nevada and Utah, while almost all the early locations on the Comstock Lode have so improved in appearance or actual ore production as to greatly enhance their value. The Crown Point and Belcher grounds, which, a little more than one year ago, could have been bought for less than one hundred thousand dollars, are now selling at rates that would eggregate more than three million dollars each. Nor are these rates at all extravagant, such large bodies of high-grade ore having been developed in these mines as fully warrant them. Already these companies are paying enormous dividends, and it is quite probable that their net profits will amount the current year to several millions.

Several other claims on the Comstock—such as the Yellow Jacket, Hale & Norcross, and Chollar—have also made large net earnings the past year, a state of affairs that they will, most likely, be able to maintain in the future. The Raymond and Ely, the Meadow Valley, Eureka Consolidated, in Nevada; several mines in Utah, and a number also in the Owyhee country, southwestern Idaho, have been advanced to dividend paying concerns, the first named just now heading the list for large and profitable production, though there is every reason to suppose some of the others may ultimately rival it in this respect. The gains made during the year in the Owyhee District amount to over one hundred per cent., the half-yearly shipments from that locality ending June 30, 1871, having reached over $600,000, against less than $240,000 for a like period the year before.

In California, we have had many hydraulic and drift claims paying immense dividends, the profits arising from the operations of these mines being generally large and sometimes enormous. A good proportion of our quartz mines have also afforded handsome revenues to owners the past year, though there is little doubt but their earnings, as well as those of every other class of mines in this State, will hereafter prove more satisfactory than they have done for the past two years.

The Comstock Lode.

As is the case in all capacious ore channels the pay chutes have, at different periods during the past twelve years, given out and come in at various points along the line of the Comstock Lode; nearly all the leading locations on it having, at one time or another, been in *bonanza*. First, we had, as large producers, the Ophir, Mexican, and Central, at the north end with several small claims at Gold Hill; large bodies of good ore being afterwards successively developed in the Gould & Curry, Chollar, Savage, and Hale & Norcross, and still later in the Yellow Jacket, Crown Point, Belcher and other grounds situate at the southern extremity, as the mass of pay ore gave out at the opposite end of the lode. Subsequently, the grounds of nearly all these companies became more or less impoverished, some of them losing their pay ore altogether. Recently, immense chimneys of rich ore have been opened up at great depths in several of these claims, those found in the Crown Point and Belcher surpassing in magnitude any thing ever before encountered on the Comstock range. The prospects are also improving, just now, in the Savage, Gould & Curry, and others of the older claims on the mother lode, which, with the great strikes made elsewhere, have steadily advanced the price of shares in all the companies located upon it, causing, even such grounds as have, under very extended and costly exploration, still remained barren, to greatly appreciate in value.

Thus, we have the Consolidated Virginia ground, made up of several early claims, covering in all some thousands of feet, lying between the chimney that formerly enriched the Ophir and adjacent grounds, and the Gould and Curry, and which for many years was considered worthless, now selling at prices that aggregate a very respectable sum. Yet no valuable deposits have been met with in this ground—the vein, though existing along its whole extent, having thus far proved nearly barren. And so, too, with the Imperial Company at Gold Hill, whose prospects were so desperate in July last that they shut down work, a move that was then considered almost equivalent to an abandonment of their mine, on which a costly system of prospecting had been carried forward without interruption for a series of years, the labor of this company constituting one of the most signal examples of perseverance yet exhibited in the history of mining exploration on this coast. A large and well-constructed shaft had been sunk here to a perpendicular depth of 1,300 feet, from the bottom of which drifts were run toward every point of the compass, with cross-drifts in all directions. From these excavations many winzes had been raised and shafts sunk, honey-combing their ground, without developing any pay-ore. As a consequence, the stock of the company dropped to a low figure. Under the influence of the strikes since made in the vicinity it has, however, rallied, and bids fair to reach a higher point than it has touched for a long time past, notwithstanding no new developments have been made in the mine, work having not yet been resumed upon it.

As the rich bonanza lately reached in the Crown Point and extending thence into the Belcher is not only rich but expands as followed up, giving to it an appearance of great permanency, and as there is such a general improvement along almost the entire length of the Comstock Lode, coupled with largely increased facilities and lessened cost for milling ore, there is no doubt but the product of that lode, which reached $12,500,000 last season will be much greater for the incoming year, many good judges estimating the latter as high as sixteen and even eighteen millions of dollars. That it will reach the first-named sum is very likely, nor is it at all improbable that it may equal and even surpass the latter.

All doubts and even speculations as to the Comstock being a true fissure and even one of the most masterly silver-bearing veins ever discovered, are now set at rest. Already it has been pursued to a depth of 1,300 feet at points separated by a linear space of more than one mile along it. At this depth it has been found strong and fertile, with a lateral expansion at many places of more than a hundred feet; the cross-cuts in the Crown Point and Belcher chimney having already attained that length without encountering the opposite walls of the ore channel.

The magnitude and productive capacity of the Comstock Lode become the more strikingly apparent when we consider a few of the more prominent facts connected with its past history. The total yield of this vein up to date, covering a period of active production of about ten years, amounts to something like $130,000,000, being a yearly average of $13,000,000.

The out-turn of some of the principal mines on this lode has been enormous. Twelve of them, up to the middle of August last, had produced, been assessed, and made dividends as follows:

	Bullion produced.	Dividends.	Assessments.	Price of Mines.
Ophir	$8,240,000 00	$1,324,400	$1,232,000	$420,000
Gould & Curry	15,555,232 24	3,826,800	833,000	494,000
Savage	14,437,456 43	4,288,000	468,000	592,000
H. & Norcross	4,485,475 12	1,598,000	690,000	800,000
Chollar	10,760,021 10	2,300,000	462,000	933,100
Imperial	5,074,584 95	1,067,500	490,000	200,000
Empire	2,629,339 94	513,600	90,000	36,000
Yellow Jacket	14,177,774 30	2,184,000	1,518,000	1,080,000
Kentuck	4,070,097 81	1,252,000	70,000	228,000
Crown Point	4,354,112 00	978,000	623,370	3,690,000
Belcher	1,570,370 00	.....	234,400	2,408,000
Overman	1,692,347 00	.....	724,288	76,800
Totals	$84,046,811 89	$19,900,300	$7,235,058	$10,857,900

Adding to the above sum the product of these mines since the middle of August, and that of all other claims on the Comstock range since they were first opened, we arrive at the grand total before named. The yield accredited to the Crown Point and the Belcher comes only down to the month of May, the end of their fiscal year, and does not cover their earnings and dividends for the following three months. From the foregoing it will be seen that these mines, deducting assessments from the amount of dividends declared, have paid the owners at the rate of about 20 per cent. per annum interest on their investments, calculating the value of those properties at the current market rates at the time this table was compiled.

Work Resumed and Old Districts Re-occupied.

With increased facilities for prosecuting work to a successful issue, suspended operations have been resumed on many mines and are now being carried forward with energy and very generally with good prospects for a final success; some of these delayed and even abandoned enterprises having already richly rewarded those venturing further expenditure on their account.

Among the more noted localities in this category, we have the mines at Copperopolis, where operations, after having been suspended for a number of years, have lately been recommenced, the prospect of soon enjoying railroad facilities for transporting the ore to market having been the principal cause moving to this course. In Hope Valley, the Rodger's Copper Mine is also being re-worked, after a long season of rest. About Virginia City, a number of mines, including the Lady Bryan and others once enjoying considerable notoriety, have recently been reopened and show good breasts of ore. In California, and, in fact, throughout all parts of the mining regions, this process of resumption and re-location has been going on, indicating a more stable condition of society and a growing confidence in this class of claims. In some sections of Nevada, districts which a few years ago were nearly deserted, have again become quite populous; the miners who first inhabited them having, after trying their luck elsewhere, come back and settled down, satisfied with the chances in these abandoned places.

In this connection, it is worthy of observation that some of the best districts in Utah and Nevada, as well as in Arizona, were thus run over and hastily left in the early day, and that several of the most prolific mines in California have in like manner been for years neglected and all but abandoned, because of some unfavorable turn in the ore or other incident having little to do with their actual merits. Thus the Alison Ranch property, which had been suffered to go into a decline and for a long time stand idle, was at once resuscitated and restored almost to its pristine state, under a more prudent and vigorous administration. But a few months ago, the famous Eureka mine, near Grass Valley, suffered an eclipse that would have caused a timid and irresolute owner to have forsaken it as worthless. Persistent exploration has revealed at greater depths a new body of ore which, though not yet equal to that lost above, has saved this property from dropping into the abyss of abandoned claims, and has even given ground to hope that it may yet take rank among our most valuable mines. With these facts before us, there is every reason for believing that the Southby and other well-developed and once noted quartz lodes in this State, upon which, for reasons not bearing on their actual merits, little or nothing has for a long time been done, would, upon their restoration to a working State, prove properties of large and permanent value.

In these and similar incidents, we have lessons that should teach our miners greater patience and restrain them from hastily abandoning a mine or leaving a locality because every thing does not at first glance seem auspicious.

Among the more encouraging events, and

Noted Occurrences of the Year,

We have to report the discovery of many promising lodes and ore deposits in eastern Nevada and portions of Utah Territory, drawing into those sections of country a considerable population and greatly stimulating mining enterprise in that quarter. Considerable money has been expended in the purchase of mining properties in that region, though the more experienced and cautious class of operators have been restrained from investing freely on account of the eccentric and uncertain character of the deposits there, few of them being lodged in regular fissures. Owing to this treacherous feature of these mines, capitalists—more especially Californians and those abroad in seeking a field for permanent investment—have given a preference to the quartz lodes and gravel mines of this State, into which large sums of money have been put the past summer; the freedom with which capital has been expended in this behalf constituting another marked feature of the year just closed. A large proportion of the funds thus expended has been on account of foreign—mostly English—investors; and while it would be difficult to determine exactly how much has been drawn from that quarter the past year, the aggregate sum has no doubt amounted to a very large figure—not less, perhaps, than three or four million dollars cash for the entire coast.

Generally these investments have been fortunate, and are likely to prove satisfactory to those making them; though there have been a few exceptions to this rule, the most of these latter occurring in the State of Nevada. It has also happened in a few cases that English parties have had to pay, if not an exorbitant price for their mines, at least a most extortionate fee for the services of "middle-men," some of those parties buying shares in these Nevada mines on the London market having furthermore suffered from purchasing the same after they had been unduly inflated.

We incline to the opinion that our British friends will find they have made their best ventures in the gravel mines of California, both as regards safety and profit. In this department they have, so far as our knowledge extends, uniformly done well, having gotten hold of some of the choicest properties of this kind ever yet opened in the State.

List of American Mines owned by English Companies.

The following is a list of the mines on this coast, including Colorado Territory, owned abroad and chiefly by English capitalists, as we find the same quoted in the stock schedule of the *London Mining Journal*, December 16th, 1871. To designate the respective localities of these mines, we have employed the following symbols: Those located in California are followed by an *; Nevada, by †; Utah, by ‡; Colorado, by ¶. We have also reduced, as near as may be, to dollars the English pound sterling, used in the *Journal*, for expressing the prices paid for stocks, amount of capital invested, etc.:

NAME OF COMPANY.	Number shares.	Price paid per share.	Last price paid.	Nominal amount of capital.
Colorado Terrible ¶	21,000	$25 00	$23 75	$525,000
Eberhardt & Aurora †	23,500	50 00	75 00	1,175,000
Sierra Buttes *	112,500	10 00	27 50	1,125,000
South Aurora †	60,000	25 00	11 25	1,500,000
Sweetland Creek *	15,000	20 00	16 25	300,000
Bird's-eye Creek *	15,000	20 00	21 25	300,000
Champion ¶	7,500	50 00	.....	375,000
Olifton ¶	6,000	15 00	.....	90,000
Eclipse *	100,000	5 00	5 25	500,000
Emma †	50,000	100 00	116 25	5,000,000
Exchequer *	60,000	5 00	.....	300,000
Flag-staff †	30,000	10 00	20 00	300,000
Great Western †	6,000	11 25	.....	75,000
Illinois ¶	12,400	20 00	.....	310,000
IXL *	20,000	20 00	.....	500,000
Kansas ¶	11,000	20 00	31 25	275,000
Mineral Hill †	30,000	50 00	90 00	1,500,000
Pacific †	15,000	35 00	21 25	525,000
Pinto †	26,000	25 00	.....	650,000
Richmond †	44,000	25 00	41 25	1,100,000
Silver Star †	150,000	50 00	.....	7,500,000
Snowdrift ¶	37,500	1 00	.....	37,500
South Utah ‡	13,000	25 00	.....	325,000
Tuolumne *	40,000	10 00	.....	400,000
Utah ‡	10,000	50 00	41 25	500,00

This list sums up a total of nominal capital equivalent to $25,187,500. In looking it over, we see the Silver Star Company accredited to Nevada. We do not remember of any company having been organized to buy or operate mines under any such name in that State, and incline to the belief that there is a mistake, both as to the locality and the amount of capital assigned to that company. There was a group of Utah mines, one of them named the "Silver Star," sold to an English Company not long since for $450,000, and it is possible that this transaction may be here referred to; but whether this be so or not, there is no doubt some mistake as to the amount of capital set down in this list. Wherefore, though ignorant of the actual facts in the case, we may as well deduct from the above total a sum of at least seven million dollars, reducing it to $18,187,500. Of this amount, perhaps one-fourth or a little less has been paid in cash to the original owners, who have besides, in many cases, received a large number of shares in the new companies. In addition to this, a million dollars, and perhaps more, has been paid or provided for by the purchasers for working capital.

The following mines, not included in the above list, have also been sold to English companies during the past year, viz: The Silver Cloud, Camp Floyd District, Utah Territory, for the sum of $350,000: the Independence, California, for $200,000; the North America (drift gravel claim), Sierra County, Cal., organized with a capital of $400,000, $50,000 of which is for working purposes; the Dunderberg (silver), Mono County, Cal., for $150,000; the Ferguson (quartz), Mariposa County, Cal., $100,000; the Schenectady Mine, in connection with several other lodes, situate in Arizona, for $100,000. These are all proven, and the most of them largely productive properties, and have probably been bought at reasonable figures. The present owners of the Silver Cloud are said to have been offered nearly one hundred per cent. more for that mine than they gave for it; while the North America claim could not to-day be bought for twice the sum for which it was bonded eight months ago. The Ferguson Mine is also said to have appreciated nearly one hundred per cent. within the past four or five months. Adding these sums to the above amount, and we have a nominal of capital of over twenty million dollars invested in our mines on English account, of which nearly one-third, including working capital, has been paid in cash.

Besides these absolute sales, a good many of our mines are being negotiated on the London market. In this category, rumor places the Redington Quicksilver Mine, for $1,100,000; the North Bloomfield Hydraulic mines, at something over a million dollars; the Dardanelles (drift and hydraulic), at $500,000, not to mention a number of others being treated for, and some of which will, no doubt, be disposed of at an early day.

In recurring to the foregoing list, it may be observed that the shares of nearly all these companies are set down thereon as being fully paid. But five of the entire number are accredited with having as yet paid any dividends. These are the Sweetland Creek, which has declared a dividend of £1 4s to the share; the Eberhardt & Aurora, £1; the South Aurora, 12s 2d; the Colorado Terrible, 8s; and the Sierra Buttes, 6s. Notwithstanding this meagre showing of dividends, the shares of many of these companies have appreciated largely; some of them over one hundred per cent., as will be seen by referring to the list. In some cases, they are not so high now as they were a few months ago, the shares of several of these companies having suffered a decline ranging from twenty to sixty per cent., partly in consequence of unfavorable reports from the mines, but chiefly because they had been run up to extravagant prices under a speculative feeling. That they still enjoy, to a great degree, the confidence of financial circles abroad is shown by the figures at which many of them continue to be quoted; nor can it be said that the rates ruling are excessive, the dividends as yet declared being no criterion of their value. Thus far the most of these companies have been obliged to use the earnings of their mines for the erection of reduction works, the purchase of supplies, the construction of roads, and other needed improvements, and sometimes also for the more thorough exploration of the mines themselves. With these preliminary labors completed, earnings will begin to accumulate and dividends in due time ensue.

The Experience of English Companies at White Pine.

In so far as the English public may have had recent cause for complaint, on account of losses sustained through mining operations, it has been mainly due to advances effected in the prices of American mining stocks through illegitimate means employed by their home financiers. As a general thing, the losses sustained by people abroad, through this class of investments, have been attributable to the manipulations of parties in London, rather than to any fault in the mines themselves, or any mistakes committed by the experts chosen to inquire into and report upon their merits, or

yet of those to whose management they have afterward been committed.

The most serious disappointments occurring, of this kind, have grown out of the purchase of shares in certain companies owning in, and operating, mines at White Pine. Having been able to make a fair showing, and to declare liberal dividends for a few months at the start, the stock of these companies appreciated rapidly in the London market, advancing, on their par value, several hundred per cent. in a short time; buyers not stopping to inquire whether these results were based on developments indicating a likelihood of their continuance, or whether they were merely accidental, or due, perhaps, to special efforts directed to that end.

Having reached extreme figures, these stocks soon after began to decline. Evil tidings came from the mines; the ore bodies, in the lower levels, began to show signs of exhaustion, having, in some cases, been already wholly depleted; while neither vertical nor lateral exploration always lead to such new deposits as served to sustain former rates of production. The average grade of millable ore also ran somewhat lower than at first. Certain of the newly-erected mills were found to be at fault; break-downs occurred, and some portions of the machinery proved defective; the water supply, guaranteed by the vendors to be unfailing and abundant, proved insufficient; the tramway built, at a heavy expenditure, in the hope that it would greatly reduce the cost of transporting the ore from the mines to the mills, failed to perform that service effectively; wherefore the outturn of bullion fell off; dividends ceased, and shares went down, falling, in some cases, 40 or 50 per cent., and, in others, almost to par, causing consternation among the shareholders generally, and entailing heavy loss on such as had purchased largely on a too buoyant market.

To add to the dismay of our English friends, in this unhappy conjunction of circumstances, an eminent mining engineer, engaged, about this time, in making an examination of certain properties in that vicinity, having been invoked for an opinion as to the apparent value of the mines of these companies, expressed some doubts on the score of their probable permanence at greater depths, and the consequent chances of long-continued ore supplies, or, as he laconically stated the case, while he considered that further prospecting should be done on these mines, he did not believe very large sums should be paid for the privilege of carrying it on.

And so these stocks have since remained depressed, notwithstanding a correction, meantime, of some of these mistakes and errors, the partial removal of others, and a marked improvement in the condition and prospects of some of the mines. In several of the claims belonging to the Eberhardt and North Aurora Company, fine bodies of ore have lately been met with, while, in the South Aurora, systematic exploration is being pushed with energy, a tunnel now being in course of excavation designed to open it up to greater depths, and with a good chance of developing new masses of ore.

This has, from the first, been one of the most largely productive and promising mines on Treasure Hill; and it seems hardly possible, that an ore channel so vast, should, though marked by some irregularities, the results, probably, of surface disturbance, fail in persistence in depth, or soon become wholly exhausted of its mineral contents. Should, however, the productive energies of this mine become seriously impaired, the vendors would, through their generous conduct in donating so large a sum toward defraying the expense of further exploration, command the hearty sympathy of the mining public, as they have always been entitled to respect for their fair and honorable course in negotiating the sale of this property.

That the quantities of ore at command in the mines on Treasure Hill will always greatly fluctuate, unless exploration be kept well in advance of extraction, may be expected, as the ore channels here, while large and fertile, have shown themselves to be of an extremely eccentric character. That the mills here need, with proper precaution, never be in short supply of ores, and that the latter will never wholly fail, are opinions entertained in very authoritative quarters. It is generally believed, however, that the past experience of this locality may be accepted as foreshadowing that to come—results will probably continue fluctuating and uneven, large masses of high-grade ore alternating with barren spaces of considerable extent, imparting, as heretofore, to the operations carried on, a hopeful, but, at the same time, a somewhat fitful and hazardous character.

English Investments Elsewhere on this Coast.

But whatever the mistakes made at White Pine, and however the investments of British capitalists may finally result in that district, they have, undoubtedly, fared better, and, in fact, almost invariably done well, in their recent investments elsewhere on this Coast. Look where we will, and we find that they have become, in almost every important district, partial owners in, or the sole proprietors of, some of the best mines there. In the Reese River country, in the Eureka, Pinto, Mineral Hill, Troy, and several other promising districts in Central Nevada, at a number of points in Utah, in southern Idaho, and in other mineral regions of California, they have become proprietors, partial or exclusive, of many of the most valuable mines yet found in those localities; these parties having generally confined their purchases to well-proven and actively-productive properties.

Going to the extreme southern portion of the metalliferous range in this State, and passing to its terminus, three hundred miles north, we find Englishmen owning and operating mines in every county throughout this entire distance. In Mayo, they own the Kellup—probably the best mine, and including mill, water privilege, tramway, and other improvements, by far the best developed, well-conducted, and valuable property in that section of country. Already forty stamps are in operation there, with fifty more soon to be added—to which the Ferguson Mine, lately sold to English parties, is opening auspiciously, indicating that they obtained it at a figure greatly within its real value. In Tuolumne, Calaveras, Amador, El Dorado, and Placer, we find further fortunate purchases made on London account, and embracing both quartz and gravel mining properties. In Nevada County, several such sales have been effected, with negotiations for others, promising to lure in still greater advantage to purchasers, still pending. In buying the Birdseye and Sweetland Creek hydraulic gravel mines, our English brethren have done well, as will soon be demonstrated, now that the embargo so long placed on their productive capacities by the drought has been removed. The same will prove true, and perhaps in a more eminent degree, of the North America group of gravel mines, also recently transferred to English parties. And so we might proceed, including in our list the Sierra Buttes and many other mines, until we had swelled it to much greater proportions; the instances already enumerated being sufficient to indicate the general character of the properties heretofore passed over to the proprietorship of foreign investors.

In this connection, it may be pertinent to supplement the able replies of Ross Browne and others to the inquiry "Why our mine-owners, having such good properties, are so willing to part with them?" by the further remark, that, under our liberal laws regulating the location and holding of mines, a single individual may, and, in fact, frequently does, become the owner of a great many properties of this kind; and that, very often, without having the means to develop or make any of them practically available. Hence his desire to part with a portion of his interests, that we may realize some ready cash, and be enabled, if he desire, to improve the remainder. Nearly every miner, though a laboring man, is the owner of a claim of some kind; and, if he sells it, knows just where he can go and take up another—a knowledge that the capitalist does not always possess, nor, if he did, could he readily turn it to practical account. The other reasons that might be assigned, in answer to the above inquiry, have already been so well stated, that they need not be repeated here.

Our General Progress the Past Year.

In further considering the progress made in the department of mining and its collateral pursuits the past year, it may be observed, that the business of prospecting has been very extensively and actively engaged in, leading to the discovery of new districts in all parts of the country, and the location of many additional and some very valuable mines. The principal field of these exertions and fortunate results has been central Utah and eastern Nevada; though we have had some discoveries of this kind to record in this State, with a creditable progress made also in other and more remote sections of the interior.

MECHANICAL PROGRESS.

Burnt Iron and Burnt Steel.

An English chemist, says the *Yale Courant*, W. Mattieu Williams, has recently made a series of experiments to ascertain the condition which is induced in iron and steel by overheating, and which is technically called "burning." Burnt iron is brittle, has a short fracture, is crystalline, and is devoid of the fibrous structure and silky lustre of good iron. Mr. Williams finds that iron in this condition contains, diffused through it, small particles of black oxide. Hence, to test the question, often important in practice, whether a given sample of iron is burnt, he places about a decigram in a test-tube, and pours upon it three cubic centimeters of nitric acid of sp. gr. 1.20. If the iron is burnt, these particles of black oxide are at first left undissolved, and, appearing in the liquid, render it dark and turbid. Their subsequent solution distinguishes them from the carbon which may also be present in the sample.

Mr. Williams believes that the function of the small quantity of carbon always contained in good wrought iron is to prevent this burning. When this carbon is removed, the iron partially oxidizes throughout as soon as heated, and becomes "burnt." Hence the impossibility of making merchantable iron by the Bessemer process, the iron, at this high temperature, beginning to oxidize even when the carbon present is as much as 0.25 per cent. The Bessemer product is steel therefore, and contains 0.28 per cent. of carbon.

Iron has its maximum toughness when the carbon is lowest. The skill of the blacksmith is shown therefore in exactly touching, in his work, the point at which the oxidation of the carbon ceases and that of the iron begins, without passing it; thus attaining the best result.

Steel, on the other hand, when "burnt," is brittle, can no longer be tempered, and cannot be used until it has been raised to a welding heat, rolled or hammered, and gradually cooled. Its fracture is coarse and granular, the facets of the granules being conchoidal, by which the burnt condition may often be practically distinguished. Mr. W. finds that when steel is heated, the carbon in it rapidly oxidizes, even throughout the mass. He explains "burnt" steel to be steel in which, by suddenly solidifying it when in a viscous condition, carbonic oxide evolved by the oxidation of carbon, is imprisoned. By slower cooling this carbonic oxide would have been expelled; hence the cavities or "toad's eyes" in the steel; which may be removed by welding, which operation, as above stated, restores the steel.

"Burnt iron" and "burnt steel," therefore, both owe their rottenness to intermingled particles of combustion-products; coming in the latter case, from the carbon; and in the former, from the iron itself.

NEW INSTRUMENT FOR MEASURING SPEED AT SEA.—The difficulties hitherto experienced in measuring the speed of ships, by any of the devices thus far produced, are said to be overcome by an ingenious instrument called the rhysimeter, lately invented in England. The indicator, which resembles a barometer in size and appearance, is located in the captain's cabin, a column of mercury showing constantly by its variations the speed which the vessel is making. Its accuracy is said to be perfect, there being no appreciable interference by friction or otherwise; and as the machine is self-registering, it may be made to keep a complete record of the speed of the ship throughout the voyage. The log and all substitutes for it heretofore employed have been found unreliable, especially in changeable weather, or under a heavy sea in either direction.

The rhysimeter is also designed for indicating the velocity of flowing liquids, which is in fact one of its most valuable uses, as it will greatly assist in the solution of many problems in practical hydraulics.—*Ex.*

NOTCHING RAILS.—The officers of several German railways have again reported on the necessity of notching the bottom flanges of rails, and it is stated by one railway company that on a line laid with cast steel rails without notched bases, a dangerous longitudinal shifting of the raile occurred. Generally, however, the practice is not found injurious, though it is thought preferable to have it done at the ends of the rails only, the corners of the notch to be carefully rounded off in all cases.

SCIENTIFIC PROGRESS.

Oxalic Acid and Plants.

The frequent reference in agricultural and other journals to oxalic acid as a constituent of plants has awakened considerable inquiry regarding the history and nature of the substance. The eminent Swedish chemist, Scheele, first discovered the acid, having found it in the juice of the common sorrel, where it exists as a binoxalate of potash. It is generally known under the name of "salt of sorrel, and is very sour to the taste, and poisonous when taken internally.

The crystals, in form and color, so closely resemble those of the sulphate of magnesia (Epsom Salts) that they have often been mistaken for them, and fatal cases of poisoning have resulted from the error. The name, oxalic acid, is derived from the Latin name of the common *wood* sorrel, *Oxalis acetosella*. The *field* sorrel, so plenty and so troublesome to farmers, belongs to an entirely different family of plants, the *Rumex acutosella*, and is classified among the *docks*. This contains considerable of the acid, as also do the lichens, in which it exists as oxalate of lime.

Oxalic acid is the most highly oxidized of all carbon compounds, with the one exception of carbonic acid. It belongs low down in the list of organized products, and may well be regarded as constituting the last stage in the oxidation of carbonaceous substances before they pass into the dead, inorganic condition of carbonic acid. In plants, it seems to be more the product of *decay* than of growth. In lichens, especially, this would appear to be true, as the oxalate of lime found in them forms nearly thirty-five per cent. of the weight of the plant, and it exists in them in its most insoluble form.

In garden rhubarb, the acid is found locked up with lime, and it is a significant fact that it is more abundant in old, than in the new plants. We incline, so far as its connection with plants is concerned, to class it with lignin and some other bodies,—a material which the plant has no further use for, and therefore deposits in the cells in an insoluble condition. All the vegetable acids are inactive agents in plant organisme. They do not appear to perform any leading part in vegetation, and in all their physical and chemical relations are widely different from the active soluble salts and other bodies which are found dissolved in the sap.

Its Artificial Production.

Oxalic acid can be produced artificially with great facility, and it is manufactured and employed in the arts in large amounts. It is curious that in *sawdust*, an utterly waste product, we have a material from which this acid can be produced to any extent, and nearly all of the substance found in the market is now made from sawdust. The sawdust is placed in large vats and moistened with a lye made of caustic soda and potassa. It is then taken out and dried on plates of iron, and the dry mass is washed with warm water to dissolve out everything except the sparingly soluble oxalate of soda. The mother liquors are evaporated to dryness and ignited, to save the potassa, which is used over again. The oxalate of soda is decomposed by boiling with caustic lime; the soda enters into solution and may also be used over again. The oxalate of lime in turn is decomposed by sulphuric acid, and the liquor decanted from the insoluble sulphate of lime, which upon concentration yields crystals of oxalic acid.

This is a brief, imperfect description of an interesting chemical process, and serves to illustrate how science triumphs over obstacles, and produces substances peculiar to vegetables from waste materials. The cost of production is very small, not exceeding a few cents a pound, and if the acid would act upon feldspar, and liberate the potash it contains, as some suppose, its employment might supply a cheap method of procuring this most valuable plant food. But this idea is erroneous, as we have endeavored to show in some former statements.

If the acid is at any time swallowed by mistake, an antidote to the poison is found in any substance containing carbonate of lime, or caustic lime; as such, when brought into its presence, convert it into insoluble oxalate of lime, a substance which is harmless. Chalk, whiting, or plaster from the walls of a room, will serve a good purpose, and either one of these in quantity equal to the amount of acid taken, should be stirred in water and drank as speedily as possible.—*Journal of Chemistry.*

Another Achievement of the Spectroscope.

A new and another most wonderful achievement of that remarkable instrument, the spectroscope, has just been announced by a German astronomer—Dr. Vogel, who has successfully applied this instrument to the measurement of the sun's rotation. The form of instrument used by him was that known as a reversion spectroscope. As originally constructed, it consisted of two direct vision prisms, with their refracting angles facing opposite ways. Hence a beam of light falling upon them produces two spectra, one of which has the colors above the other, and in an inverse order. The object-glass being divided horizontally, and each half being movable micrometrically, it is possible not only to juxtapose, but even to superpose the spectra, and to measure the distances of the lines with great accuracy.

The instrument was devised for the purpose of measuring the direction and velocity of astronomical motions, one of the problems proposed by the inventor being the very one now solved by Dr. Vogel. If the two spectra in the instrument represent, as they may be made to do, different and opposite limbs of the sun, then, since one is approaching us and the other is receding from us, there ought to be a difference in the position of certain spectrum lines. The difference in velocity is about a mile per second; an amount which Zöllner says ought to change the position of the sodium lines by a quantity equal to 1-80th of the distance between them.

With his instrument as originally constructed, he was unable to observe any displacement; but with a more powerful instrument, consisting of a circular train of five highly dispersive prisms thus arranged, which he furnished at Kiel, Dr. Vogel has been able to detect a displacement of the fine line F of the solar spectrum, by an amount which gives a velocity of rotation of 2 miles per second. Subsequent observations, made with more care and with a higher dispersive power, have reduced this number to 1.52 miles per second. This is only 1.28 miles more than the velocity given by Carrington's observations on the spots, which was 1.24 miles per second; an approximation which is remarkable.

PATINA OF BRONZE.—The term "patina" is used to designate a beautiful greenish coating which forms naturally upon the surface of bronze, under the influence of air and moisture; consisting in most cases of a carbonate of copper which adheres very closely, and not only imparts as beautiful appearance to the metal, but also protects it from further oxidation. The formation of this patina proceeds with varying degrees of rapidity in different localities. In some places, especially in large cities where coal is burned in considerable quantity, it does not develop itself, the metal assuming the appearance rather, of a dirty cast iron.

The difference in this respect has received the attention of a scientific body in Prussia, under the direction of which, numerous experiments have been made; and it has been ascertained that the formation of a good patina was not dependent upon the *composition* of the bronze, although the time required for this development may have something to do with the percentage of the different ingredients. It was furthermore discovered that by occasionally washing articles of bronze, exposed to the atmosphere, applying oil, and afterwards rubbing off with a soft rag all of this that could be removed, in the course of a few years a patina of the finest quality is developed irrespective of the location; and in this way the desired result can be, and actually has been produced on objects that had long refused to put on this desired exterior.—*Yale Courant.*

SUBSTITUTE FOR LITHOGRAPHIC STONE.—It is now proposed, but with doubtful promise, to substitute ordinary lithographic stone by the use of a smooth block of wood coated with glue or other gelatinous matter, or with a solution of silicate of soda and bichromate of potash, exposed to sunlight and washed. An ink or pigment is made with gelatinous matter dissolved in a saturated solution of bichromate of potash, with or without chrome, alum, and with a small quantity of ivory-black to render the ink visible. On the prepared block or slab the desired picture or other work is made with this ink, and when dry, exposed to sunlight. After exposure, the surface is covered with gum or glycerine, and is then ready for the printer.—*American Artizan.*

Mining Summary.

The following information is condensed mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

Imperial.—Monitor *Miner*, Jan. 20: The mining property lately kuown as the Imperial, having passed into the hands of a different Co., is to be opened up and worked in a worthy manner.

The sale of the IXL and Buckeye mines is to be followed at as early a day as possihle by the erection of hoisting works and a thorough opening np thereof.

The Tarshish mine is turning out good ore in abundance and it is thought the new 20 stamp mill can he kept running for the first year or so on fine grade ore.

AMADOR COUNTY.

Original Amador Mine. — Amador *Ledger*, Jan. 27: A sale has heen made of the Original Amador mine and mill, at Amador City to an English Co., the purchasers to take possession this week. The price paid has not fully transpired, hut report places the sum paid, from $500,000 to $1,300,000.

CALAVERAS COUNTY.

The Zacetara.—Calaveras *Chronicle*, Jan. 27: The Zacetara mine, near West Point, work upon which was resumed a short time since, extremely rich rock has been discovered and is heing taken out. We understand the quartz averages about $40. There is a mill and other machinery on the mine.

Good Rock.—The Steger mine, in the streets of West Point, is turning out first class rock. The machinery formerly used on the Radford claims in Chili Gulch. was hought hy Steger & Co., and transferred to their mine. It is in full operation, being of sufficient capacity to keep out the water and do the hoisting.

Corral Flat.—Champion & Co. have lowered the water in Corral Flat sufficiently to enahle them to take out gravel from the upper end. They are engaged in taking out a pillar of uew ground and there is no question but that it will pay largely.

New Mining Enterprise.—Richards, Griggs and Dower are about opening a hydraulic on the northern face of French hill. The Co. are already at work fixing ditches, etc. Active operations will be commemced the first of next week.

Jenny Lind.—Cor. same: I will give the names and a short description of a few of the principal claims: First is the Whisky Hill T. M. Co., who have completed a tunnel 800 ft. in length, which was run to ohtain the necessary fall to work their ground to advantage, and to be used as a tail-race. It is furnished with boxes 2 ft. wide, and everything will be ready for active operations in another week. The cost of this tunuel, as it stands, is $12,000. The owners have been 8 years engaged in its construction, but expect that a run of six months will pay a profit equal to the outlay. The adjoining claim, nearly as extensive, is owned and carried on by Myers, Anderson & Co. There are ahout 12 or 14 of this kind of claims here, all of which will he held hy government titles in a short time. The largest and most extensive is the Bunker Hill; they have 120 acres of land. They are putting in a 30-inch flume and expect to use 400 inches of water. The pipe, which conveys the water to the claim, is nearly half a mile in length; the flume is 750 ft. long, the hottom plancd, and on the top has a track and car for running out large rock. The Co. have been to a heavy expense quarrying rock for the purpose of lining the bottom of their flume.

Still "Pans Out."—The claim of Brackett & Co., in Chili Gulch, continues to pay largely. The yield last week was equally as great, in proportion to the number of hands employed, as ever before for the same length of time.

EL DORADO COUNTY.

Heavy Blast.—Placerville *Democrat*, Jan. 27: A blast of 1,500 lhs. of powder was put off in the Hook and Ladder claim, Spanish Hill, last week. It was a perfect success, completely shattering the hank.

Lootown.—Cor. same: The Pocahontas is in active motion. For 16 mouths in succession under the past administration, the flow of bullion was steady and continuous, but the levels ahove being worked out, it became necessary to sink a new shaft nearly 400 ft. in depth, and drift therefrom in each direction—northerly and southerly—some 200 ft. A new hoisting works, containing the largest boiler in the connty, 2 engines, hoisting and pumping machinery, were added to the real property of the Co. Now the mine is open, ore in sight will keep the mill running another 16 months or more, and the mill hammers away day and night.

Ella Quartz Mine.—A late numher of the Sac. *Union* gives the following: In Nov. last, J. J. Orr, discovered the rich croppings of the ledge; he related his discovery to G. W. Paget, and the two, after visiting the spot, determined to organize a Co. to develop the claim. The claim is on a point of land tending to the North Fork of the American river. The ledge is 3,000 ft. long and 6 ft. wide, with a shaft sunk to the depth of 30 ft. Quartz from this claim exhihits no gold to the naked eye, but it will yield $50 to the ton.

INYO COUNTY.

Bullion.—Inyo *Independent*, Jan. 20: Beaudry has about 3,000 hars of bullion at his furnace, awaiting shipment. Belshaw's, Beaudry's and the Swansea works are all in active operation, turning out metal by the cord.

Prospecting.—J. Sharpe, who has returned from the Inyo Range, was on the summit some 6 or 8 weeks. During the time he sunk 6 ft. upon one of his discoveries which he calls the Blne Belle, taking out 2 tons of not less than $200 ore in the operation. The ledge is of unknown width, having every indication of wealth and permanency.

NEVADA COUNTY.

Eureka.—Grass Valley *Republican*, Jan. 25: Work on the tunnel of the Jim mine is steadily progressing. The tunnel is in hetween 600 and 700 ft., and follows near the ledge for a portion of the distance. The ground is soft, and 2 men average 14 ft. per week. The Co. intend to push the tunnel ahead to the main shaft, which is 300 ft. from where they are working. When the shaft is reached the entire mine will be drained and opened and ready for the extraction of ore. Black & Young's mine is heing worked with profit. The ledge is 6 ft. wide, and averages from $10 to $12 a ton. The Erie Co. are running night and day and employ 24 men in their mill and mine. The ledge is 15 ft. wide, and the ore averages from $10 to $14 a ton. A Co. of miners from Virginia City are running a tunnel near Eureka for the Dillon ledge. They have been at work for nearly 2 years, and have their tunnel in about 1,500 ft.

A Good Yield.—Last week the Murchie Bros. crushed 60 tons of rock from the Independent mine, 2 miles ahove Nevada City, near Deer Creek, aud realized $3,600, or at the rate of $60 a ton. The rock is taken from an incline 200 ft. from the surface.

Will Start.—Black & Young's mill and at Eureka has been idle for some time on account of lack of wood. This want has recently heen supplied and work will be commenced again this week.

Discovery.—In the incline shaft of the Nevada quartz mine, 2 miles below Nevada City, a solid body of ore 10 ft. wide has been discovered within a few days. The ore it is said will average $17 a ton, aud is 50 ft. below the bed of Deer crcek.

Through Granite to Slate.—The incline shaft on the Nevada quartz mine, on Deer Creek has struck through the granite rock into slate, and the ledge at the hottom is incased in the walls of the latter.

Daisy Hill.—The machinery for pumping at the Daisy Hill mine started up yesterday for the first time. The machinery used was taken from the Dromedary mine, and is nearly as good as new. The engine for pumping has 10-inch stroke and the hoisting engine 8-inch. The pump commenced work yesterday and will probably free the mine from water by Monday next, The water in the incliue shaft yesterday was 50 ft. deep. The present incline is down 175 ft; 175 loads of ore from the mine has yielded $65 per load.

Red Diamond.—Nevada *Transcript*, Jan. 23: At the Cascades there is considerahle mining going on. The Red Diamond is worked with a full complement of hands and they have plenty of wator.

Providence Mine.—The Providence mine, upon which work was commenced a short time since is being worked regularly. The new incline is down about 90 ft. The works are being put in first rate order, and the mine will he opened hy Spring.

PLACER COUNTY.

Rich Strike.—Auburn *Herald*, Jan. 23: Rumors have reached town that a very rich quartz lead has been opened this week between here and the Greeu mine, and that one man has taken out some $1,500 in 3 days.

Ophir.—Cor. same: Greene & Co., have erected a double engine in the Greene mine, one for hoisting from the shaft, and the other for pumping purposes Some time ago the Co. let a contract to sink the shaft 100 ft. deeper. The contractors are getting along very well, and will complete their contract by early spring. The ledge in the shaft is of good size, looks well and will yield rich ore.

Along the Greene ledge, the next mine in operation is the original Peter Walter. This Co. has erected steam hoisting works and have a 25 horse-power engine. The levels that are heing run are at the depth of 116 ft. from the surface, and they find no variation in the quality or quantity of the rock, it continuing to look well, the quartz showing free gold and plenty of rich sulphurets. The ledge is a good size, and in a short time the mine will be opened thoroughly. The Co. contemplate erecting a ten-stamp mill as soon as the weather will permit.

North of the Peter Walter some 300 yards is the Bellevue, originally the Buckeye. This Co. have at their dump pile near 500 tons of ore that is No. 1. They intend to crush this ore at the St. Patrick mill, and will begin about the 20th of this month. The Bellevue Co. are still raising rock to the surface.

The St. Patrick mill contains 15 stamps, and with all the improvements, sufficient to save the gold and sulphurets, and adequate pans to work the blanket washings and sulphurets. This mill is run by steam, and in connection with it the Co. have a ledge called the Peachy that they are prospecting with a tunnel and shaft. The tunnel will cut the ledge about 130 ft. from the surface. The shaft is down to the depth of 75 ft., and they are running a level at this depth and finding a good sized ledge and good ore, showing as good a prospect as you will find in this dist. The St. Patrick mine is still in operation; they are running a hottom level with a good prospect. They are crushing ore from this mine at their mill, and judging from appearances, it is paying very well. They have a large pile of ore at this mine which they will finish crushing as soon as they get through with the Bellevue rock.

PLUMAS COUNTY.

Rich.—Quinoy *National*, Jan. 20: A few days ago the drift in the Betterton mine, near Mohawk Valley, developea a cross vein, the rock, at the point of intersection being extremely rich.

SOLANO COUNTY.

Vacaville Coal Mine.—Vallejo *Independent*, Jan. 23: Since the late heavy rains, work has been suspended on account of the impossibility of keeping the works clear of water. Dr. Dobbins, on whose land the mine is located, is very sangnine of obtaining a good quality of coal before a great while. A depth of 160 ft. has been reached, the prospects improving as they went down.

Quicksilver. — The quicksilver, mine near this city is in full operation, the smelting furnaces working to perfect satisfaction. The yield of quicksilver from the cinnabar worked is fully as large as anticipated.

TRINITY COUNTY.

A Good Beginning.—Weaverville *Journal*, Jan. 10: Southerlin, Hupp & McMurry have already stripped 12,000 ft. of hed-rock with one month's run of water. They will strip not less than 60,000 square ft. of bod-rock, and they know the grouud to be good.

Nevada.

EUREKA DISTRICT.

McGearry.—Eureka *Sentinel*, July 21: All of the mines show exceedingly well for the amount of work done upon them.

Prospecting.—The surrounding mountains are full of prospectors.

Pinto Mill.—The English Co.'s mill at Pinto is runuing splendidly and proves a most perfect success.

Bio Run.—The Consolidated furnaces turned out 19¼ tons of bullion in 24 hours on last Saturday, which is considered the largest run ever made hy those works. All of the furnaces are working to a charm, and the dumps at the mines are crowded with ore. The mines never looked so well. The new furnace, making 5 in all, is about completed, and will he ready for operation during the present week.

Gen. Lee Cons.—Since the change in management 12 men have been constantly employed in the various workings of the mine and the developments made are beyond all expectation. In the bottom of the old tunuel a shaft has been started which is now down ahout 10 ft., establishing the coutinuity of ore from the surface to that depth, disclosing a well defined and remarkably rich vein of ore 4 feet in width.

Maryland Mine.—The Maryland mine is looking hetter than ever before. At a depth of 280 ft, from the surface the largest body of ore yet found in the mine is being worked. The assays show $305 average, and the vein is from 3 to 9 ft. in width. A tunnel is heing run from the base of the hill, and is within a short distance of the main shaft, which will be tapped at a depth of 300 ft. The Michigan and other mines of the Co., are looking well.

ELY DISTRICT.

Bullion.—Pioche *Record*, Jan. 21: W. F. & Co. shipped since January 18 bullion valued at $19,107.41.

Raymond & Ely.—This mill is in course of construction and will be finished by the 1st. of April.

Raymond & Ely Mill No 2.—All the machinery for this mill is on the ground. The work is being rushed ahead with all possible speed, and in 30 days it will be working ore from the mine.

Fine Prospect.—Williams, Bell & Miller have opened a mine entitled the "Tiger." It is supposed they are on the "positive" vein of the Alps, and from indications such would appear to be the case.

Alps is steadily improving....Newton Booth still drifting on the ledge....The ore of the Page and Panaca, assays $313.75 at the 155 ft. level.

Struck it in No. 7 —Since our last issue Mr. Bowie, Supt. of Meadow Valley, concluded to work the mine for the benefit of the stockholders, instead of for the bears. The result is a large deposit of high grade free milling ore has been struck on the 600-ft. level of No. 7.

Inoomar S. M. Co.—At the depth of 185 ft. the Co. struck a fine hody of ore which gives an average assay of $175.45 to the ton in silver. A new contract was at once let to continue the incline 100 ft deeper on the ledge.

Bowery Mill.—The grading for the mill site is done. Part of the machinery has arrived.

HUMBOLDT.

Bullion.—Unionville *Silver State*, Jan. 27: Amount shipped from the Arizona mine since onr last issue was $4,447.

Arizona Cons.—This mine is looking hetter than it ever did. The south incline is down 150 ft. and the ledge still maintains its regular size and richness. In all the other drifts to the east, the ledge is looking unusually well and is yielding a larger amount of shipping ore in proportion to the quantity mined, thau heretofore. The ore shipped yields at the rate of about $500 per ton.

Brazil Series — Arabia Dist. — The Brazil Series consists of 5 ledges, not far from the Montezuma mine, being in a northerly direction therefrom, distant abont a half mile. A shaft has been sunk on the principal ledge of the series to a depth of 25 ft. exposing a well defined vein about 4 ft. thick all the way down. The ore taken from this shaft assays from $100 to $300 per ton—the entire body between the walls being pay ore. This ledge can be traced on the surface of the ground a distance of 1,500 ft.

Dun Glen. —Cor. same: Mines long neglected are now being looked to with interest by their owners, since the erection of Sprague & Co's. new mill. The mill is a dry crusher, without stamps. It is about one mile above town, in Dun Glen Cañon, and near the Auld Lang Syne mine, which belongs to the Mill Co., and is one of the best in the district. The Co. has out at present about 100 tons of ore which they think will pay $100 per ton. The Auburn mine, a gold-hearing ledge, is looking well, and work is being vigorously prosecuted on it. Some 50 tons of ore from this mine have been worked by Sprague & Co., the result of which was $200 per ton of gold. The Tallulah tunnel is being vigorously pushed. The tunnel is being run for the purpose of striking the lodes, of which there is a series, at a perpendicular depth of 300 ft. below the upper level, and 500 ft. from the surface. It is the intention of the Co. to connect the upper and lower works, by raising a shaft on the lode, thus ventilating the mine, and making room for working plenty of men. This has proven itself to be a good mine. The ore is of a high grade; the last shipment of ore, from the upper level, of 13 tons, was sent to the Swansea, working something over $500 per ton, the tunnel is in over 700 ft., and still driving. The George Peabody mine, a new location is yielding large quantities of good ore. They have shipped some 20 tons to Reno, which yielded about $600 per ton. They have a large qnantity on the dump, ready for shipment.

McCann has struck it rich abont 5 miles from town. He intends pntting up a horse whim, aud putting on a numher of hands.

REESE RIVER.

Shipment for 1871.—Reese River *Reveille*, Jan. 22: The entire shipment of bullion from this city during 1871, is 1,453 bars 121,404 pounds, valued at $1,222,489.81.

Struck It.—Neal & Flynn who are working one of the Florida series of ledges, struck some very good ore yesterday. They have drifted from their incline a distance of 100 ft. to get what appears to be a fine and extensive body of ore.

WASHOE.

Savage Mine.—Virginia *Enterprise*, Jan. 26: The new main incline of the Savage is 180 ft. below the tenth level, 40 ft. above which it starts. The incline is run upon an angle of about 34° and has, therefore, attained a perpendicular depth of about 100 ft. At this point they are engaged in putting in the station timbers for the eleventh level, which will be 1,400 ft. in depth below the surface. While the drift on the eleventh is being run, work will be continued on the incline till it has reached the further perpendicular depth of 100 ft.

Parke & Bowie's mill, on Six-mile Cañon, is steadily running on tailings, of which they have an almost inexhaustible supply.

Eureka Mill.—Rapid progress is being made in the work of setting up the big Eureka mill on Carson River.

Enlarging.—The Crown Point shaft is being enlarged by the addition of another hoisting compartment; this gives the shaft three compartments.

Good progress is being made in putting in the two new engines. When they start up again they expect to take out from 600 to 700 tons of ore per day.

Ophir Mine.—Sinking upon the main shaft was discontinued at the depth of 1,250 ft. Drifting at the 1,100 ft. level is being vigorously prosecuted. The rock, which was so hard at first that but about 3 ft. per day could be made, is of a more favorable character, and the drift is being pushed ahead at the rate of 4 ft. each day. Some work is being done on the 700-ft. level.

WHITE PINE.

Wand Beecher.—White Pine *News*, Jan. 20th: Sinking and drifting in the East end of the Phillpotts chamber, for the purpose of connecting with the East drift of the Lady's chamber.

South Aurora.—Since last report, F. A. Benjamin has resigned the position of Supt. of the South Aurora Co.'s mines, and M. J. Goodfellow has been appointed in his stead. The Sheridan and Mitchell shafts connected with the lower tunnel last week. A drift was started from the bottom of the Sheridan shaft, running west to the spar seam. The foreman is of the opinion that all the shafts will be connected in two weeks from date.

San Juan del Rio.—There is a force of 5 men at work sinking. The ore pitches off at an angle of 45 degrees, and has the appearance of forming into a true fissure vein. Average assays of the first-class ore go $250 to the ton. There are about 70 tons on the dump, which asseys $60 and $70 to the ton.

North Aurora.—Since last report the force of men in the Risdele has been increased. There is a fine body of high-grade ore in sight in the south end of the chamber. The south drift of the Lady's chamber is showing about as usual. Bunches of high-grade ore come in, which is sacked below and shipped separately to mill. Hoisting as usual through the Engine shaft and shipping by tramway to mill.

Second Ex. of Original Hidden Treasure.—A drift was started up recently, running in a southerly direction from the bottom of the Anchor tunnel incline. There is a body of fair ore in sight. The drift running east from the north shaft is in a distance of 19 ft., with ledge matter and black spar in the face.

Gen. Lee.—A drift will start up about the 25th of the month, to run from the ore chamber eastward, and following the spar seam, carrying ore each side. There are about 200 tons of low-grade ore on the dumps, which will be milled in the spring.

Original Hidden Treasure.—A force of men will be put on when the ore broken down is cleared away. The Big Smoky mill is running on Co. ore as usual.

Eberhardt.—Mention was made last week of the West drift running from the Keystone shaft. A body of low-grade ore is in sight in the drift. The work of running ahead was stopped last week, and a shaft started down, for the purpose of testing the depth of the ore body.

Silver Wave.—Work in the Chainoweth, Lyford, and Perkins shafts goes ahead as usual. The Roswell shaft, near the south line of the Original Hidden Treasure, is down to ore. There is also fair ore in the bottom of No. 4 shaft.

Pocotillo.—Driving the main tunnel ahead, in a body of fine ore, and piling on dumps, which will be assorted and shipped to mill in the spring.

Iceberg.—Work was suspended last week, but the usual force of men will be put on after hearing from headquarters.

Noonday.—The ore body holds a width of about 10 ft., and assays about as usual.

Outside Dists.—Piermont.—Work progresses as usual on the mine. The mill is running steadily on Co. ore.

Troy Dist.—Mr. Newton, the manager of the Troy S. M. Co.'s property, reports work going ahead as usual. The hoisting works on the mine will soon be completed.

Friebeng.—Judge Goodwin is making extensive preparations to work the mines. Furnaces are in course of erection in the vicinity.

Schell Creek.—Col. O'Connor's agent arrived at Schellburn last week, and arrangements have been made to commence operations on the mines; and also for the building of mills, at an early day. New shafts and cuts have been started up on locations heretofore unprospected.

Arizona.

Mines and Mining.—Prescott *Miner*, Jan. 13: Porter and Moreland arrived from the Gila mines on Tuesday. The most valuable ledges which had been discovered up to the time of their departure, were the Silver Queen, in the Pioneer Dist.; the Cur, in Nevada dist., and the Yellow Jacket, just outside the latter dist. and close to the waters of the Gila. The Silver Queen is 18 ft. in thickness, and traceable for several miles. The ore containing only a mere trace of lead, with a very large proportion of copper. The Cur is likewise 18 ft. in thickness; a fissure vein which crops out boldly for a considerable distance. The ore is of different character from that of the Silver Queen and not nearly so rich. The Yellow Jacket is a new discovery and had not been prospected.

The operations in Welker and Hassay ampa Dist. have been unusually active. The work of taking out ore from the Benjamin, for shipment to S. F., is progressing apace. Mr. Kelly gives it as his opinion that the 7 tons which are to be sent to S. F. as one of the conditions of the sale, will yield the purchase money, $15,000. The Cornucopia, Prescott and Bismarck, on the dividing ridge between Hessayampa and Walker Dists., and only a few miles from the Benjemin, will be offered for sale in S. F., next month.

In Wallapai Dist., the Keystone ledge, the principal one yet discovered, is considered to be a true fissure vein. Excavations have been made on it to the depth of 45 ft. in which it continues to carry a uniform width of from 4 to 6 ft., the ore worked having yielded from $700 to $800 per ton, in silver. The ledge has been traced and located for a mile.

The Tiger mine is improving rapidly. Col. Heed and G. W. Bowers, this week, brought over with them, specimens of ore showing about as much silver as ore.

Jackson & Co., are still running their mill.

Poland and Gaviu are fixing up for arastraing ore on upper Lynx creek.

The Vulture Co. are doing well.

Mohave Co.—Cor. same: The following mines in this locality are being worked vigorously: The Telegraph, Keyetone, Fairfield and Mayflower. The Washington will be worked from this on, work having been commenced to-day.

Mining and prospecting are being pursued quite lively on all sides. There are more than fifty ledges being worked in this dist.

Three assays of rock from the Fairfield went from $200 to $400 to the ton.

The 5-stamp mill here has not been running recently. The cause, is a want of chemicals.

At Parkerville, an effort will be made to work arestras. Several discoveries of rich galena ore have been made here. The Keystone has 2 shafts, one 40 ft. and the other 50 ft.

Colorado.

Caribou.—Cerihou *Post*, Jan. 13: Parker & Bailey have taken author contract on Wahash, to sink 13 ft. which will make the whole depth 60 ft. This shows constant improvement as depth is gained.

The grand view is opening out splendidly, now sunk to the depth of 45 ft. and with every foot in depth giving evidence of the exhaustless treasures of a true fissure vein of silver. The owners of the Jones lode, west from the Carihou, have built a house over the main shaft, and are prepared to prosecute work in any weather.

Gardiner & Berger have sold the Grey Eagle lode to a Denver party for $5,000.

Hopper & Moore are working the Seven-Thirty.

C. H. Hook, has bought into the Saginaw lode, a very promising silver vein on Pomeroy Mt.

Patterson & Co., owners of the Kearsing furnace purpose to commence smelting early in the Spring.

In Cardinal the Trojan is worked, and the surface and second-class ore is yielding handsomely in the 12 stamper set to the water-power of the Boulder creek.

Enterprise Lode. — The Enterprise Lode, an eastern extension of the Gilpin Co., is improving rapidly, as the work of development progresses. The shaft has reached the depth of 100 ft., disclosing a crevice of pay material from 20 inches to 2 ft. in width, On the north wall there is a vein of mineral 2 or 3 inches in width, principally zinc-blende galena, with occasional spots of brittle silver.

The gangue rock, principally white quartz, feld spar and a proportion of talcose matter, is considered a very good indication of lodes opening out into fine crevices of ore in this locality.

Wand.—The following mines are being worked this winter: The Columbian, on 2 locations, one being the Ward M. Co's. property, No. 10, east; the Menhattan and Celestial lodes, and the Discovery claim on the Sucker. The Ward Co's. 20-stamp mill will be kept running most of the time.

Montana.

New Silver Lode.—Deer Lodge *New North West*, Jan. 13: Mr. C. Bennett returned a few days since from the famous Jefferson silver mines, 20 miles from Helena, where he has been prospecting for the past 2 months. Mr. B. and his partner have succeeded in discovering what bids fair to be one of the richest and most extensive veins found in this country for some time past. They have sunk on it about 12 ft , and at that depth have a body of almost solid galena some 21 ft. in width, which assays from $45 to $100 per ton in silver, and increases in richness with the depth.

Phillipsburg. — The Tudor mine is looking well, showe an 8 ft. veiu of milling ore and is improving in quality. They have a 30 ft. incline and are taking out ore rapidly night and day. A shaft will he driven down on the ledge in the open cut or level now being worked immediately, in order to open it thoroughly and make room for another gang of miners. Brown & Pleisted purpose sinking another working shaft immediately on No. 1, northeast, to open a 100 ft. level on the vein. Upon the "Comanche Ex." they have passed through about 7 ft. of barren rock and struck it better than ever. An incline will be driven down from the tunnel—now about 75 ft. deep—on the vein. There is about 20 ft. face on the vein.

Utah.

Bullion.—Salt Lake *Tribune*, Jan. 20: W. F. & Co. received on the 18th. 17 bars of bullion, 2,626 lbs. valued at $50,726.54 from the Raymond & Ely mine; consigned to New York. On the 20th they received 7 bars, 772 lbs. valued at $9,009.81, from the Meadow Valley Co. also consigned to New York. They forwarded to New York on the 16th, 6 bars, worth $7,456.69 from the Meadow Valley works, and from the Pioche M. Co. 6 bars valued at $9,253.16.

Camp Floyd.—The Camp Floyd M. Co. have 3 mines in the above-named dist. the Sparrow Hawk, Merion and Lest Chance. The Co. is opening the Sperrow Hawk by exposing a large face of the mine with a view of employing 50 men. The whole width is streaked with fine rich veins of ore.

The Co. is preparing to bring water to the mine a distance of 2 miles to supply steam for an engine intended to propel a 30-stamp mill. The mill is intended to be ready for running inside of 90 days.

The Mormon Chief and Grecian Bend are being worked by the Omaha Co. with a steady and favorable development.

The Emery lode is giving employment to a number of hands.

The Queen of the West, Washington, Gen. Lee, Lone Star and other lodes are being developed with favorable results.

Emma Ore.—There are about 1,200 tons of this ore piled up at Sandy Stetion, the present terminus of the Utah Southern. Some 90 tons of this ore were taken out of the mine daily during last week, but the Co. is thinking of dropping down to about half that amount. The ore which is now coming out of the mine is of a higher grade than was ever taken out before; 3 lots of 100 tons each gave an average assay of $275 to the ton.

S. F. Stock Exchange Board.

San Francisco, February 1, 1872.

The mining share market has been active and firm throughout the week. The sales at the Board for the week ending January 24th, amounted to the large sum of $4,540,000. About $93,000 have been received from the Meadow Valley mine since January 6th. On the 25th ult. $5,000 were shipped from the Alps mine. The superintendent of the Raymond & Ely sends down $49,000, and says that he is sending 75 tons of ore daily to each of the two mills. The trustees of the Globe Mining Co. have been elected as follows: A. K. P. Harmon, (President,) J. D. Fry, J. C. Flood, C. B. Land and D. A. Jennings. W. E. Dean was elected secretary. Over 1,000 tons of ore were extracted from the Crown Point mine, last week, assaying $25.36 per ton.

Comparative Prices—Extremes. Advance and Decline.—S. F. Stock and Ex. Board.

	Jan. 25.	*Highest.*	*Lowest.*	Feb. 1.	*Adv.*	*Dec.*
Alpha	$24	27	22	—	—	—
Amador	—	—	—	—	—	—
Belcher	695	670	595	670	65	—
Buckeye	4¾	5	4¼	4¾	¾	—
Challar-Potosi	50	56	47	51½	1½	—
Caledonia	17	17	14	15½	—	1½
Cons. Virginia	24	29	21	29	5	—
Crown Point	656	715	625	—	—	—
Daney	—	2¾	2	2¾	—	—
Eureka Cons	24½	26¾	24	26¾	2	—
Eureka	19¾	21	17½	18½	—	1¼
Empire	—	—	—	—	—	—
Gould & Curry	130	130	116	125	—	5
Golden Chariot	17	18	12¾	—	—	—
Hale & Norcross	185	187½	155	175	—	10
Imperial	—	77	55	77	—	—
Ida Elmore	16	16½	15	16½	½	—
Kentuck	205	227½	200	—	—	—
Mammoth	60c	60c	45c	55c	—	5c
Meadow Valley	17½	17½	15¼	17½	—	—
Occidental	—	—	—	—	—	—
Ophir	55	68	53	67½	12½	—
Orig. Hid. Treas.	7¼	10¼	7¼	—	—	—
Overman	52	68	45	68	16	—
Pioche	14¾	14¾	10	12	—	2¾
Raymond & Ely	112	121½	108	121	9	—
Savage	67½	67½	61	63½	—	4
Sierra Nevada	27½	28	20	24	—	3½
Silver Wave	—	—	—	—	—	—
Wash. & Creole	5¼	5¼	4¾	5	—	¾
Yellow Jacket	64½	69¾	61	67½	—	2
St. Patrick	—	—	—	—	—	—
Seg. Belcher	65	91	54	80	15	—

Latest Prices—Bid and Asked.

	BID.	ASKED.		BID.	ASKED
Alpha Cons	27	27	Ida Elmore	16½	16¾
Amador	—	—	Imperial	75	75
Belcher	660	670	Kentuck	225	227½
Challar-Potosi	50	51	Meadow Valley	17	17¼
Crown Point	670	675	Ophir	66	66½
Daney	2¾	2¾	Orig. Hid. Treas	—	—
Eureka Cons	26¾	26¾	Overman	62½	63
Eureka	18	18½	Savage	66	66¾
Golden Chariot	15	15	Raymond & Ely	117	118
Gould & Curry	122	123	Sierra Nevada	—	—
Hale & Norcross	165	170	Yellow Jacket	66¾	67

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the Scientific Press and other San Francisco journals.]

ASSESSMENTS.

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT	DAY DELINQUENT.	DAY OF SALE.
Alhambra Hill M. Co., Nev., Dec. 9, 50c.	Jan. 13	Feb. 5*
Buckeye G. & S. M. Co., Nev., Jan. 9, $1.	Feb. 13,	Mar 14
Cherokee Flat, Butte Co., Jan. 3, $2.50	Feb. 6 -	Feb. 23
El Dorado M. Co., Cal., Dec. 7, 25c.	Jan. 24—	Feb. 14
Emerald Hill M. Co., U.T., Jan 11, 25c.	—Feb. 19,	Mar. 14
Empire M. & M. Co., Nev., Jan. 5, $10.	Feb. 8—	Feb. 26
Golden Chariot, I. T., Jan. 31—$2 50,	Mar. 9,	Mar. 30
Hale & Norcross, Nev., Dec. 14, $5.	Jan. 18—	Feb. 7
Ida Ellmore, Idaho, Dec. 30 $3.00	Jan. 31—March	4
Imperial S. M. Co., Nev , Jan. 5, $10	Feb. 8,	Feb. 26
Kentuck, Nev., Jan. 20, $10	Feb 24—	Mar. 13,
Kincaid Flat M. Co., Dec. 11 $2.50	Jan. 17—	Feb. 14*
Lemon, Nev., Jan. 6, 50c	Feb, 10—	March 2
Mammoth, White Pine, Dec. 13, 10c	Jan. 18—	Feb. 8
Mina Rica M. Co., Cal., Jan. 16, 20c.	Feb. 19—	March 11*
Monitor & Magnet, N. T. Dec. 4, 25c	Jan. 23—	Feb. 17
Mt. Jefferson M. & M. Co., Cal., Jan 8, 25c.	Fe 5—	Fe 22*
Nevada L. and M. Co., Nev., Jan. 9. 4c.	Feb. 13—	Mar. 4*
Ophir S. M. Co., Nev., Dec. 20, $2	Jan. 24—	Feb. 14
Overman, Nev., Feb. 22, $4	Feb. 22—	Mar. 11.
Phœnix, Nev., Jan. 18, 75c	Feb. 22—	Mar. 13.
Piermont M. & M. Co., N., Jan. 20, 80c.	Mar. 1,	Mar. 23*
Pioche S. M. Co., Nev., Dec. 18, $1.50	Jan. 25—	Feb. 16
Quail Hill M. and W. Co., Dec. 19, $5.	Jan. 23—	Feb. 13*
Silver Wave, White Pine, Dec. 19, $3.	Jan. 25—	Feb. 23*
Silver Wave, Nev., Jan. 30, $1	Feb. 26—	Mar. 19.*
Succor. M. M. Co., G. H., Jan. 3, $1.50	Feb 6	Feb. 27
Tecumaeh, Cal., Jan. 23, $4	Feb. 27—	Mar. 16.*
Union G. M. Co., Cal., Jan. 4, $1,00	Feb. 5—	Feb. 26*
Wm. Penn, Nev. Jan. 16, 50c	Feb. 10—	Mar. 11.*

MEETINGS TO BE HELD.

Central S. M. Co	Annual Meeting Feb. 28
Cherokee Flat Blue Gravel Co.	Annual Meeting, Feb. 3

LATEST DIVIDENDS—(Within Three Months).

Belcher, $10	Jan. 10
Challar Potosi, $1	Payable Dec. 11
Challar Potosi, $1	Payable Jan. 10
Crown Point, $10	Payable Jan. 12
Eureka Gold M. Co., $1	Payable Jan. 6
Meadow Valley, $1.50	Payable Dec. 15
North Star G. M. Co., $3	Jan. 10
Raymond & Ely, $5	Payable Dec. 18
San Francisco T. & M. Co	Annual Meeting Feb. 5
Yule Gravel M. Co., 50c	Payable Dec. 5

—*Advertised in this journal.

Mining Sales.

Eleven mines, amounting in all to 18,200 feet, in Rush Valley District, have been sold to New York capitalists. This sale is reported as being the first ever made of Utah mines in New York direct, and will give an impetus to mines in that district. The company will immediately proceed to develop their property.

It is reported that the Trenton mine near Galena, has been sold for $100,000.

The extensive mining property known as the Hidden Treasure, about half a mile below Monitor, Alpine Co., has been sold to Eastern parties.

The Queen of the West mine, Camp Floyd District, Utah, has been sold to English capitalists for $175,000.

Artesian Wells.

Why they are so Called—How They are Made—Experiments in Chicago.

Artesian wells are so named from the ancient province of Artris, in France, where natural overflowing wells were found. It is only about eighty years ago that much attention was paid to sinking them by means of machinery. In 1841, after eight years work, a well was sunk at Grenella, near Paris, 1,800 feet deep, which was then considered a great triumph of art. Spangler and Mars, who have sunk nearly all tbe wells in Chicago, bored 2,900 feet at Columbus, Ohio, before they struck a good supply of water. The deepest well in the world is at the sugar refinery in St. Louis, but tbere is so much mineral in the water that it is only used for flushing the floors. This well is considerable over 3,000 feet deep.

Tbe first artesian well sunk in Chicago was the one on Chicago Avenue, at the stone quarry. This was bored under the direct supervision of unseen spirits (?). They directed the doings for the purpose of getting oil. When it would not yield oil they bored deeper for a brine spring, but were content at last to put up with a good yield of passably good fresh water, that is said to bave improved in quality in the last few years.

There are now more than twenty in and about the city. Our reporter visited one of tbese, now being bored at the corner of Franklin and Monroe streets, aud gained the following information in conversation with tbe foreman of Spangler & Mars, who have taken the contract.

Reporter.—I want to learn how to make an artesian well. Can you tell me?

Foreman.—Oh yes; very easily. We muet have power, so we have this strong derrick and steam engine. This derrick has been used a good many times before. We hitch a traveling crank to a beam fastened to the axle of the driving wheel of the engine, which will give us about 45 down strokes a minute. To the other end of this beam we fasten the drill, which works in a swivel, so that the drill can be turned around easily. This is the drill, as you see, about 2 feet long, 4½ inches wide and 2 inches thick, and looks like a very blunt chisel. This drill works up and down in the hole it makee, crushing the rock under it.

Wben the drill gets down about thirty feet we screw on another one of these long poles, thirty-six feet long, and keep it working.

Reporter.—But the hole gets clogged up with dirt doesn't it?

Foreman.—Not so fast as you might think. We change the drill now—as we are going through limestone—once every three hours, in order to put in a sharp tool. The drill has made 8,100 strokes in tbat time, and we get about a pailful of sand.

Reporter.—How do you get the sand out of the hole?

Foreman.—With this sand pump. You see it is just like an old-fashioned wooden pump, with a valve in the bottom. We work this up and down, and the downward plunge opens the valve and allows the sand and water to be forced into the tube, and the upward movement closes the valve so that in a short time the hole is entirely cleaned out, and all the sand is forced into the tube. The pump is then drawn up and emptied.

Reporter.—How fast do you go down?

Foreman.—About eight feet every 12 hours through this limestone, makiug sixteen feet a day, as we work day and night, But when we come to the hard white sandetone like the stone used for making grindstones, we make much less headway, as the drill has to be taken out every twenty minutes, frequently, and a new one put in its place. You can see how even the limestone wears the iron, as this drill is polished smooth, and looks as if it was zinc instead of iron.

Reporter.—What kind of horings do you find here in Chicago?

Foreman.—The first 100 feet is blue clay, and then comes 450 feet of limestone, followed by 250 feet of shale, a kind of soapstone, which is porous and allows a passage for water.

Reporter.—It must have been in that strata that Kimball struck water.

Foreman.—Prohably, as his well is only about 619 feet deep. Well, as I was saying, below the shale we come to 80 feet of sandetone, and then 200 feet of limestone again, with 25 feet of sbale below, in which most of the water about Cbicago has been found; and below this shale we fiud sandstone as far ae any borings have heen made. Tbese are rough figures, that vary a good deal in different wells, but they give the average pretty well.

Reporter.—How do you keep the bore perpendicular?

Foreman.—The dropping is of course as true as a plumb, but if any hard or round stone should turn the drill at all, that tendency is corrected by the "slide" in the first pole. This slide is thirty feet above the drill, and is the same size as the hole. The first joint is the working one. It weighs about niue hundred pounds, and its weight is sufficient, by the incessant pounding and turning which the man at the top gives it, to pulverize the hardest stone. If all the poles acted as one working joint it would jar them dreadfully, but this slide, about two feet long, allows the drill to rebound, when it strikes the hard rock, and takes a great strain off the poles. We are on our tenth pole now, having gone down three hundred and twenty feet.

Reporter.—How much water do you expect a 4¾-inch bore will yield?

Foreman.—That will depend on the pressure. Prohably four hundred or five hundred gallons a minute, enough, at any rate, to flood a floor or a roof in a minute or two. The Bank of England can flood their floors and roof in two minutes, hut I believe they have no artesian well.

Reporter.—What hindrances do you find in horing?

Foreman. — Caving in is one of the worst. When we etrike a quicksand we must put a tube down the size of the bore, to prevent the sand from clogging the drill. The well at the Chicago Alcohol Works has hothered us some by caving in; and then, we frequently meet with boulders, as in the well at Humboldt Park. These are very hard and very trying on the tools. The breaking of the tools is another serious hindrance. Sometimes we break a drill every week, and then there is great delay in getting the broken tools out. Why, it took fifteen months to get the broken tools out of the deep well at Paris; but they manage these things much better here in America. We are not often delayed long in getting out these old stumps.

Reporter.—Pulling teeth witb nine pair of forceps a quarter of a mile long must he ticklish husiuess.

Foreman.—Yes; but we do it after we learn the trade well.

Reporter.—How much does it cost to sink a well.

Foreman.—About $4 a foot for the first 800 feet, and fifty cents a foot advance for every fifty feet below that.

Reporter.—Does it pay to sink wells?

Foreman.—In distilleries, where they pay $2,000 a year for water, a well that costs from $4,000 to $6,000 pays for itself in two or three years. Even the deepest wells pay for tbemselves. The one at Lincoln Park is the deepest one in the city, being 1,555 feet deep, and yet it will pay for itself by saving hydrant water for private consumers.

Reporter.—You must make them much cheaper than they used to do.

Foreman.—Yes. At first they only used seven-feet poles, but Malot, in the deep Paris well, used twenty-seven feet poles, while we uee, as you see, tbirty-six feet ones. Then we can get forty-five to fifty strokes per minute with poles, while the most we could get with cables was forty-one strokes. It takes a Yankee, anyway, to find out how to do things cheaply. We are puttiug down wells cheaper, perhaps, considering everything, than any one else in tbe world, and manage to make our living, at least hy it.—*Chicago Mail.*

Post Office Changes.—The following changes in the Pacific States and Territories, for the week ending January 6tb, 1872, have been announced:

Postmasters appointed—Julian, San Diego County, Cal. Harvey W. Harver. Warm Springs, Deer Lodge County Montana, E. Gerard; Springville, Jefferson County, Montana, John Bayliss; Cacharas, Huerfano County, Colorado, John F. Read.

Name and site of Barrett's Mill, El Paso County, Colorado, changed to Southwater, on the Denver and RioGrande Railroad, and Pierce Walliban appointed Postmaster.

California Fruit in Boston.—Tbe first shipment of California pears ever made to tbis city direct, came to the market this week over the Pacific Railroad, consisting of 400 boxes, each box containing three pecks, of those large, luscious pears for which the Golden State is so celebrated for raising. Tbey were shipped from Sacramento by C. W. Reed, and arrived in splendid condition. The freight bill was $700, and the fruit was consigned to Hilland, Smith & Co., and attracts tbe attention of all who pass by their stall.—*Boston Bulletin*, Jan. 6th.

Singular Explosions.

A correspondent of the *Scientific American*, writing from Norwalk, Ohio, furnisbes that paper with the following particulars of a somewhat remarkable explosion: "I was about to temper a common reamer, by plunging it into sulphuric acid. The moment the heated steel came in contact with the acid, an explosion took place, throwing the acid in all directions, accompanied by a report equal to that made hy a well-loaded shot-gun. The acid was thrown againet the ceiling, about 16 feet high, and over my clothing, face, and left arm, causing very painful sores, and threatening me with loss of sight. The vessel coutaining the acid was a wide-mouthed crockery jar, and there was about two gallons of acid in it at the time. The jar was not broken, but the reamer was blown away from me, and was found much sprung or twisted. I have used this acid very frequently, and have seen many others use it for tempering purposes; but this is the first instance, that I have ever heard of, of an explosion occurring. Indeed, the same lot of acid was afterwards used for tempering, without any indication of a blow up.

I send you this imperfect description of the occurrence, hoping that some of your correspondents will explain the mystery. So many persons are using tbis acid for tempering steel, that any danger attending its use should be pointed out and understood. The lucky escape I had, from heing made blind for life, prompts me to ask you to call attention to this point in your widely circulated and eagerly read columns."

The editor of the *Scientific American* thinks the explosion was caused by the generation of hydrogen during the oxidization of some metallic fragments introduced into the tempering pot through accident or design. This gas mixed in the proper proportions with the air above the acid would form a violently explosive mixture.

Another Singular Explosion.

The N. Y. *Standard* of Jan. 13th, gives the following somewhat singular occurrence in which a man's head was hlown off by the explosion of a beer-barrel:

Yesterday morning, a man named Gillrain, employed at the Long Island brewery, took one of the empty beer-barrels for the purpose of cleansing it. Hot water and lime were put in the barrel, it was then stopped, and submitted to a vigorous shaking. While this process was in operation, gas generated in the barrel, and it exploded with great force. The head of the harrel struck Gillrain in the head, and took his head off, killing him instantly. John Quinn, who was near, or aiding Gillrain at the time, was blown about 12 feet and knocked insensible. His injuries are not of a fatal character. One of the beams in the brewery was nearly cut in two by the head of the barrel after it had taken the head of Gillrain off.

The Brunswick Mill.

The Carson *Register* of the 21st instant, givee the following descriptive details concerning this magnificent new 56-stamp mill, situated on Carson river, just below Empire, beside the track of the Virginia and Truckee railroad: It started into operation on Saturday last, in tbe presence of quite an assemblage of interested spectators, mill-men and others. Every piece of machinery in that vast labyrinth of moving iron, wood, leather, etc., worked like the mechauism of a clock, smooth and almost noiseless. Fifty-six 850-pound stamps were driven up to 88 drops per minnte with scarcely a jar of the floors and without the slighest vibration of the batteries. Tbe whole machinery is driven hy water—about 1,000 cubic feet of water passing tbrough two turbine wheels each minute. One of the turhines is a Lind and the other a Lefelle wheel, each being 48 inches in diameter. These two little wheels, the water having 25 feet fall, give 380 horse power, tbe whole of which may be and is commuuicated to the macbinery by a single helt 42 inches in width. The 56 stamps are partitioned off into 5 and 4-stamp batteries, and the battery hlocks or bed ars set into the solid bed-rock of the hill. The crushing capacity of the mill is from 150 to 165 tons of ore in 24 hours. There are 26 improved Horn pans, each 5 feet in diameter, with an aggregate capacity of 2 tons; 13 settlers, each 8½ feet in diameter, and four wooden agitators, each 10 feet in diameter. The dump, built under the railroad track so that the ore falls from the cars directly into it, will hold 1,200 tons. From this the ore is let down through strong gates raised by iron cogs to the batteries, where there is an immense patent rock crusher. In front of the main building is situated two immense boilers for heating water for the pans, and inside is a little donkey pump for hoisting water to the top of the building or for flooding it almost instantly in case of fire. In the rear are the retails. The tail-race is covered with a double floor, forming a foundation for two large reservoirs for tailings. The force of gravity conducts everything from the ore cars at the top and rear of the building to the agitators far below and thence to the tailing reservoirs.

Artesian Wells of San Jose.

Editors Press:—It is to be regretted that the artesian well system, or rather the system of subterranean lakes of our valleys has not attracted more attention from scientific men. A mistaken notion widely prevails among agriculturists as to the effects of artesian wells upon the surface soils. Many contend that frequent borings have a tendency to dry up the land everywhere, except in the immediate vicinity of the wells. That this idea is erroneous will be readily seen upon a fair statement of the facts.

Taking this valley as a criteriou, we have indubitable proof that the water supply is in subterranean lakes, or basins, hermetically roofed over with a lid of hard-pan, so compact and homogenous that even water cannot penetrate it from above or below. This underground basin has a sort of corrugated conformation — or, more plainly, its hed is full of solid ridges and hillocks which cause the water to remain in beds and channels at various depths from the surface. Tbis accounts for the remarkable difference in the depths at which water is reached in borings in the vicinity of each other. Almost anywhere on the eastern and northeastern side of this city, water can he made to flow abundantly by boring from 45 to 60 feet, while in the heart of the town the same result cannot be effected witbout penetrating from 250 to 500 feet deep.

The reason is obvious. The water lies in independent channels hetween the ridges and hillocks of impenetrable hard-pan. If this be true, there is little danger of the flow of water from the wells in our part of tbe valley depleting the supply of those in another locality. In penetrating to his hidden reservoir, the auger almost invariahly passes through the ordinary alluvial sub-deposits of soil, gravel, sand and boulders, until it reachee the ever present stratum of tougb clay, or "hard-pan." If the well horer has heen eo fortunate as to escape a ridge or hillock, the moment he perforates the clay stratum of gravel, old logs and other pluvial preserves, the water will instantly rise—eometimes with incredible force.

Now, in this operation three or four points are quite apparent. In the first place, the different depths at which the water is reached, indicates that each channel or water bed is separate and distinct from its neighbors.

Secondly. The water beds, no matter how great their distance from the surface, invariably contain drift-wood, and even large logs in a perfect state of preservation, which proves that tbey have, since their deposition, been excluded from atmospheric action.

Thirdly. The supply of water is always obtained in every locality, the moment we pierce through the air-tight lid of hard-pan, thns proving that the entire system of water channels, or water beds are hermetically sealed under a common covering of tough clay.

If it be true that this uuiversal clay stratum is air-tight and water-proof, how in the name of good sense can tapping it and lettiug the pent-up water flow to the eurface, cause the land to become dry in the vicinity? If tbe suhterranean beds and channels are distinctive and independent of each otber, as they doubtless are, how can boring wells on one side of the valley effect those on the other side? The idea is absurd and the sooner we can get to the surface all the water we can from below, the better it will he for the land and the people.

B. F. S.

San Jose, Jan. 20th, 1872.

The supply of India-ruhber is eaid to be inexhaustible. Each tree can be tapped for twenty successive years, and yields on an average three tablespoonfuls aday; 43,000 of tbese trees have heen connted on a tract of land thirty miles long by eigbt wide.

The amount of raiufall iu Shasta for the seasou, up to uoou ou the 5th of January, was 50.14 iuches.

Useful Information.

Vegetable Soap.

Many plants in different countries furnish useful substitutes for soap to the natives, when there are no conveniences or materials for manufacturing ordinary soap. Examples of these are the soapworts, *(Sapindus,)* so called from furnishing, either in the pulp of the fruit or in the root or bark, a vegetable principle called sapoine. Thus the Hindus use the pulp of the fruit of *Sapindus detergens* for washing linen. The capsula of another species, when bruised, forms suds if agitated in hot water; and the natives of India use this as a soap for washing the hair, silk, etc. The aril which surrounds the seed of a South American species is used as a soap. The fresh bark of the root of *Mounina polystachia*, called "*yalhoi*," pounded and moulded into balls, is used by the Peruvians in place of soap.

The *Canadian Naturalist*, from which this portion of our account is taken, also states that the bruised leaves of the European *Saponaria officinalis* forms a lather which much resembles that of soap, and is similarly useful in removing grease-spots. The bark of *Quillaia saponaria* of Central America answers the same purpose, and is used as a detergent by wood-dyers. It has been even imported largely into France, Belgium, etc., and sold in the shops as a cheap substitute for soap. A vegetable soap was prepared some years ago in Jamaica from the leaves of the American aloe, which was found as detergent as Castile soap for washing linen, and had the superior quality of mixing and forming a lather with salt water as well as fresh.

In Peru, the leaves of the *Maguey agave* are used instead of soap. The clothes are wetted, and then beaten with a leaf which has been crushed; a thick white froth is produced, and after rinsing, the clothes are quite clean. The pulpy matter contained in the hard kernel of a tree called "*Del Jaboncillo*" is also used for the same purpose. On being mixed with water, it produces a white froth. In Brazil, soap is made from the ashes of the bassena or broom-plant, *(Sida lanceolata,)* which abounds with alkali. There are also some barks and pods of the native plants used for soaps in China.

The California Soap Plant.

The soap-plant of California *(Phalangium pomeridianum)* is a notable example of this class of vegetable productions, and is found exceedingly useful. The bulbous root, which is the saponaceous portion, resembles the onion, but possesses the quality of cleansing linen equal to any olive soap manufactured. Large amounts of washing fluids are made from this root at the Standard Soap Works in this city (San Francisco).

This soap plant grows all over California. The leaves make their appearance about the middle of November or about six weeks after the rainy season has fairly set in. The plants never grow more than a foot high, and the leaves and stalk drop entirely off in May, though the bulbs remain in the ground all summer without decaying. It is used to wash with in all parts of the country, and by those who know its virtues it is preferred to the best of soap.

The method of using it in its natural state is merely to strip off the husk, dip the clothes into the water, and rub the bulb on them as with soap. It makes a thick lather, and smells not unlike brown soap.

The husks are also utilized in large quantities, by being worked up into an imitation of hair for mattrassee, for which purpose they are found to be a very good substitute.

At St. Nicholas, one of the Cape Verde Islands, they make a soap from the oil of the *Jatropha curcas* seeds, and the ashes of the pawpaw-tree leaf. The oil and ashes are mixed in an iron pot, heated over a fire, and stirred until properly blended. When cool, it is rolled up into balls about the size of a six-pound shot, looking much like our mottled soap, and producing a very good lather.

Small Danger of Ballooning.—Mr. Henry Coxwell, the aeronaut, replying to the hypothesis "that one-half the number of professional aeronauts had been killed in the exercise of their vocation," says that, of the 3,500 ascents executed in Europe and America, fifteen deaths only have been recorded.

If four quarters make a yard, how many will make a garden

Electro-Plating.

In France, where the process of electro-plating is regulated by law, every manufacturer is required to weigh each article when ready for plating, in the presence of a comptroller appointed by the government, and to report the same article for weighing again when the plating has been done. In this way the officers show to the fraction of a grain the amount of the precious metal that has been added, and puts his mark upon the wares accordingly, so that every purchaser may know at a glance just what he is buying.

In ordinary plating an ounce and a half of silver will give to a surface a foot square a coating as thick as common writing paper; consequently, when silver is worth $1.25 per ounce, the value of the silver covering a foot square would be about $1.87. At this rate, a well plated tea or coffee pot is plated at a cost in silver of not more than $1.50 to $2; and the other expenses, including labor, would hardly reach more than half that amount.

Electro-gilding is done in like manner. The very best electro-gilding does not necessarily add a great deal to the cost of the article plated. A silver thimble may be handsomely plated so as to have the appearance of being all gold for five cents, a pencil case for twenty-five cents, and a watch case for one dollar.

Deformed and Monstrous Insects.

We are not greatly surprised to find monstrosities among cattle, as they are of frequent occurrence. A neighbor owns a cow that has six legs, and it is not unusual to meet all kinds of monstrosities among domesticated animals, and the cause is usually attributed to close in-and-in breeding or attempting to cross widely different races. But how are we to account for such freaks when they occur among lower forms of life, for instance, among insects? Such monstrosities do sometimes occur even among minute forms as well as among the larger animals. Beetles, for instance, have naturally six legs; but not long since a specimen of *Pterostichus Prevostii*, Dejeen, was found in Switzerland, having two supplemental legs affixed to one of the ordinary hind legs.

That insects fight and often become maimed is well known to every observer; but whether such deformities have any effect upon the future progeny is a question I leave for Darwinians to answer. I have a specimen of *Carabus* that has one eye in the proper place and the other half hidden in a depression on the under side of the thorax. Perhaps my capturing of this specimen has presented the evolution of a race of cross-eyed beetles; if so, what a pity.

Old Shoes.—You probably think that if you look sharply at an old shoe, when you throw it away, you will know it again if it ever comes back to you. But that doesn't at all follow. One of these days you may button up your dress with an old pair of slippers, comb your hair with a boot, or grasp a cast off slipper while you eat your dinner. You don't see how this can be? Well we'll tell you. Old shoes are turned to account in the following manner: They are cut into very small pieces and kept for a couple of days in chloride of sulphur. The effect of this is to make the leather hard and brittle. Next the material is withdrawn from the action of the chloride of sulphur, washed with water and then dried. When thoroughly dried, it is ground to powder, and mixed with some substance like glue or gum, that causes it to adhere together. It is then pressed into molds and shaped into buttons, combs, knife handles, etc. So you see how it may come to pass that you will comb your hair with a boot and fasten your clothes with a slipper.

Liquid Polish.—The preparation of blacklead ready for use in a fluid state, is a recent English invention. The composition adopted consists of black lead, such as is used for polishing stoves and for other uses, combined with turpentine, water, and sugar or saccharine matter, and the proportions which have been found to answer well are, to each pound by weight of blacklead, one gill of turpentine, one gill of water, and one ounce of sugar; but these proportions may be varied; and in some cases all the ingredients are not necessary.

Elastic Varnish for Leather.—Take two parts by weight of resin, and one of india rubber, and heat them in an earthenware vessel till they are fused together; after which they should be stirred till they are quite cold; a little boiled linseed oil may be added while the materials are hot.

Good Health.

Glycerine Lymph.—Prussia is avowedly the country where regular re-vaccination is most generally practiced, the law making the precaution obligatory on every person, and the authorities conscientiously watching over its performance. As a natural result cases of small-pox are very rare. It has, however, been objected there as here, that lymph is scarce. To make the most of such lymph as there is, some of the European governments have tried its application mixed with glycerine, and the result has been so successful as to lead to a public recommendation of the mixture to official vaccinating surgeons. The manner in which the glycerine lymph is prepared is thus described:—

The pustules of a healthy vaccinated person are opened with a needle, and the effluent matter carefully removed by means of a lancet, the same instrument being gently applied to assist the efflux. The lymph is then best placed in the hollow of a water glass, and there mixed with twice its quantity of chemically pure glycerine and as much distilled water. The liquids are thoroughly well mixed with a paint brush. The mixture may be preserved for use in capillary tubes or small medicine glasses. The lymph thus procured is considered equal in effect to pure lymph; care must, however, be taken to shake it before use. As the same quantity that now suffices for one is made to suffice for five, the discovery ought to be extremely useful in crowded cities like ours.

Heartburn.—Why the sensation occasioned by the presence of an acrid acid in the stomach should be called heartburn it is difficult to say, as the distress is not even in the immediate vicinity of the heart. Common parlance, however, has sanctioned the misnomer, and like many other erroneous terms in general use, it is a fixture in our language. Bi-carbonate of soda is usually given for heartburn; but it merely neutralizes the acidity for the time being, and does not prevent a speedy return of the complaint. In fact, all the alkaline solutions given to relieve the burning, serve to weaken the stomach and thereby aggravate the cause of the ailment, viz.—indigestion. What is needed in such cases is something, which, by toning and invigorating the gastric membrane and thus promoting a free flow of the secretion which dissolves the food, accelerates the work of digestion and assimilation. Avoid nostrums and consult a physician.

Sleeplessness.—The cure of sleeplessness is sometimes difficult, particularly in those who carry grave responsibilities. The habit of sleeping well is one which, if broken up for any length of time, is not easily recovered. Often a severe illness, treated by powerful drugs, so deranges the nervous system that sleep is never sweet after. Or perhaps long continued watchfulness produces the same effect; or hard study, or too little exercise of the muscular system, or tea and whisky drinking and tobacco using.—*Home and Health.*

Linseed Syrup.—To make linseed syrup for a cough, boil one ounce of linseed in a quart of water for an hour; strain it and add to the liquid the juice of two lemons and a half pound of rock candy. If the cough is accompanied by weakness and loss of appetite, add half an ounce of powdered gum arabic. Set this to simmer for half an hour, stirring it occasionally. Take a wine-glass full whenever the cough is troublesome.

Diarrhea and Bowel Cordial.—The following is an excellent formula for a cordial to keep in the household, and was prepared by a physician who used it with great success in his practice: Chalk mixture 3½ oz.; tincture of Jamaica ginger, ½ oz.; laudanum, 1 drachm. Mix and keep in a cool place. Shake the bottle before using. Dose for an adult, one teaspoonful as often as necessary; children, half dose or less.

Pulse of Various Animals.—The pulse of our domestic animals, as given by Vatel, in his Veterinary Pathology, is as follows: Horse, from 32 to 38 pulsations per minute; ox or cow, 25 to 42; ass 48 to 54; sheep, 70 to 79; dog, 90 to 100; cat, 110 to 120; rabbit, 120; guinea pig, 140; duck, 135; hen, 140.

There is no rule of health more important than "keep the feet dry and warm, and the head cool."—An old story, but one worthy of being often repeated.

Persons afflicted with eruptive diseases should not use salt fish.

Expanding the Lungs.—Step out into the purest air you can find, stand perfectly erect, with head and shoulders back, and then, fixing the lips as if you were going to whistle, draw the air through the lips into the lungs. When the chest is about half full, gradually raise the arms, keeping them extended with the palms of the hands down, as you suck in the air, so as to bring them over the head just as the lungs are quite full. Then drop the thumbs inward, and, after forcing the arms backward and the chest open, reverse the process by which you draw your breath, until the lungs are empty. This process should be repeated immediately after bathing, and several times during the day. It is impossible to describe, to one who has never tried it, the glorious sense of vigor which follows this exercise.—*Home and Health.*

Why the Color of Blood Changes.—The cause of the change of color in blood—darkening when exposed to carbonic acid, and brightening when under the influence of oxygen—is not as yet thoroughly understood. It is thought, however, that the red corpuscles contained in the blood are rendered flatter by oxygen gas, while they are distended by the action of carbonic acid. It is not improbable that under the former circumstances they may reflect the light more strongly, and thus give a more distinct coloration to the blood; while, under the latter, they may transmit more light, and so allow the blood to appear darker and duller. Both of those theories have able advocates.

Darkness in the Treatment of Small-Pox.—If a patient, in the beginning of the attack, be put in a room from which absolutely all light is excluded save that of a candle, the effect is to arrest the disease in the papular or vesicular stage; the skin between the vesicles is never inflamed nor swollen; the large scabs of matter never form over the face; there is no intense pain, and only trifling itching, and the smell is either very slight or altogether wanting.—*London Lancet.*

A Word about Cider.—Alexander Fraser, in the *Independent*, says: "For many bilious complaints, sour cider is a specific, and in such cases is one of the good things to be received with thanksgiving. Cider guzzlers are an abomination, but, if dyspeptics will take a little with their dinner, they will find digestion greatly aided. We go in for the manufacture of a good, pure article, and, in the use of it, to let our moderation be known to all men."

Oakum as a Dressing for Burns.—Mr. Robert L. Snow says of oakum, as a dressing for burns, that it induces the healing of extensive sores with remarkable rapidity; it induces healing action in those indolent ulcers that are the result of defective hygienic conditions; it prevents all smell; it is cheap, saves time and trouble; and, most important of all, the resulting scars do not contract.

It is said that cod liver oil may be taken as agreeably as a sardine, if a small quantity of salt be first placed on the tongue; and castor oil may be made perfectly palatable by rubbing two drops of oil of cinnamon with an ounce of glycerine and adding to it one ounce of the castor oil.

For Chronic diarrhea the following is said to be very efficacious, in many cases: put a tablespoonful of wheat flour in a tumbler of water, heat until it foams, and drink immediately. If the patient is thirsty, more water may be added. It should be taken four times a day; before meal times and on going to bed.

Cure for Ingrowing Nails.—Heat a small piece of tallow in an iron spoon; drop two or three drops between the nail and outside flesh. It will not be necessary to repeat this if proper pains is taken to so apply this liquid as to cause that it will insinuate itself in every interstice under the nail. Repeat, if necessary.

The Clover Cancer Cure.—Dr. Needham, in the *Journal of Materia Medica*, advises the use of the fluid extract of clover in cancer, and from the testimony of other medical journals it would appear that it has a far better claim than cundurango to be considered a specific in that disease.

To Purify the Blood.—A well known physician says that he considers the following prescription for purifying the blood as the best he has ever used: One ounce yellow dock, one half ounce horseradish, one quart hard cider. Dose, one wine-glass full four times a day.

Scientific Press.

W. B. EWER.....Senior Editor.

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San Francisco:

Saturday Morning, Feb. 3, 1872.

Gold and Legal Tender Rates.

San Francisco, Wednesday, January 31, 1872.—Legal Tenders buying 91¼; selling, 92. Gold in New York to-day, 109¾.

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Eds. Press:—Will you he kind enough to inform me what is the proper composition to put into a oylinder to grease it.

A. B.

Good clean tallow is generally considered the hsst luhricant. Much of the tallow—especially the cheapsst—in the market has more or less acid, deleterious to the cylinder, which is put in in "doctoring" or manufacturing the tallow. Lard oil is nsed largely in locomotives and is increasing in general use for steam cylinders. In the West Indies, oocoa oil is used with first-rate effect. The hsst lubricant, however, appears to differ with different cylinders—prohahly on account of the hardness of the grain of the metal—sometimes oil and semetimes tallow proving to he the hest. Instances are known when neither operate favorahly, in which case the introdnction of plumhago is made with the oil or tallow.

Two Years in Advance.—Messrs. Chamherlain and Chaffse, of Garrote, Tuolumne Co., have taken the advantage of our offer to furnish the Press for two years for the sum of $7 in advance. They take hoth the Scientifio Press and the Paoifio Rural Press on the same terms—sending us $14. No douht they will read our weekly issue with a little extra satisfaction, that they are ahead of the time in their patronage, while such friendship and confidence placed in us will certainly stimulate onr efforts to give them hetter puhlications weekly, ere their suhscription ends.

On File.—Communications from "Eagle Quill" and "L. B. H."

Earnest Talk to Miners.

[For the Press—By Our Miner—No. 1.]

THE MINING tNTEREST.

It is a very remarkahle fsct, that the mining interests of the Pacific Cosst exsrciss less influence over legislation than any other hranch of productivs industry.

Manufacturers are proteoted hy tariff laws, capital is encouraged hy partial immunity from taxation, meohanics, artisans and lahorers in almost every department of industry, exoept mining, have had their hours of toil shortened hy law, while the mining interest appears to bs scarcely considered in either the State or National legialatures. Of the oountless laws passed within the past ten years, relating to mining, the grest majority were framed to henefit speculators aud land grahhers at the expense of the miners.

It cannot he fairly slleged in explanation of this nsglect of the mining interest, that its importance is suhordinate to that of other interests which are encouraged hy spscial legislation and other privileges. It cannot be denied that the mining intorest laid the foundation and sustains the States of California and Nevada, the Territories of Arizona, Idaho and Montana. The commerce and trade of these States and Territories, now so important, would prohahly never have existed hut for the development of this intersst; the great transcontinental railway, and the many lines of steamers which conuect San Francisco with China, Japan, Australia, Mexico and the islands of the Pacific, would not have heen estahlished in our day and generation hut for the development of the mining interest.

It is unnecessary to enter into details of the henefits the people of the whole Repuhlic have derived from the development of the mining interest of the Pacific Coast. It is presumed that every intelligent reader will admit that a department of industry, which in a little more than twenty years has produced upwards of a thousand million dollars worth of hullion, is of sufficient importance to ohtain much more consideration from the State and National Governments than it has received heretofore.

In view of the efforts heing made hy spsculators to induce the Federal Government to sell in large parcels the mineral lands of the puhlic domain, agaiust the wishes of the miners, it becomes a question of great importance to every one connected with the mining interest on the Pacific Coast, either as owners of a mine, miner or lahorer, to ascertain why their wishes are disregarded and their interests neglected hy the State and National legislatures. An investigation of the suhject will show that the cause of this neglect springs from a want of unity of action among the mine owners and miners.

The census of 1870 shows that, with the exception of agriculturists, the miners form the largest class of producers in the State. From what we know of them, as a class, we feel certain that this want of unity and consequent loss of influence is not the result of ignorance; hecause we know that among the ranks of the miners of California are gentlemen of ripe scholarship, good hnsiness capacity, great enterprise and energy, we desire to call their attention to this very important suhject of unity of action. We shall devote our hsst efforts to remove this cause of degradation and neglect of the mining interests. For this purpose we respectfully hut earnestly solicit the aid of the miners throughout the Pacific States and Territories to aid us hy their advice and counsel.

We desire to obtain materials for framing a correct estimate and reprssentation of the mining interest, which we helieve can he best obtained through the opinions of individuals who write from their own experience and ohaervations.

We dssire that every psrson who feels an intereat in this important suhject to send us their opinion upon all matters relating to the mining interest of the Pacific Coast, which we will condense and embody in a series of articles which we helieve will he of very great advantage to that interest.

Hints to Miners.—No. 9.

In our last number we promised to continue the suhjsct of

Cleaning and Rstorting Gotd Amalgam,

and accordingly proceed to do so. When the coarse fragmonts of iron or quartz are removed and the quicksilver fesls homogenous the sponge is again used to remove all the wster. A piece of soft unglazed paper is then plunged through the mercury until it is dry. A small piece of hlanket or flannel five or six inches square is then held hy two corners and drawn toward the operator, while it is lying flat on the surface of the quicksilver. This will clear it of the iron, which, hy a dexterous turn of the cloth may he removed. The hands are again plunged in and hy the agitation, more iron and sand comes to the surface and is taken off as hefore. This operation is repeated until the mercury is perfectly liquid and clean, and until no more impurity rises to the surface when freshly agitated.

The Quicksilver.

The quicksilver is then poured iuto a linen bag of the proper texture, which retains most of the amalgam. By retorting the mercury which passes through, the halance may be removed. It is not usually thought hest to remove the last traces of gold from the quicksilver, except in a general clean up, or after some special run, where it is required to determine the full yield of a certain lot or sample of rock; for it is found that meroury containing some gold (when there is no hase metal contained in it) works much hstter than freshly retorted and consequently pure mercnry.

When the amalgam has drained sufficiently, it must he removed from the hag and placed with the comparatively olean amalgam from the copper plates.

Squeezing the Amatgam.

To make the cleaning perfect, all the amalgam is squeezed in a piece of chamois leather or cotton rag, and the hard hall plaoed in a olean iron pan and hroken down with the thumh. By this treatment it hecomes soft and any fragments of iron or quartz left accidentally in the copper-plate amalgam hecome disengaged and may he removed. The whole of the amalgam is again squeszed and the process of "hreaking down" with the thumh repeated, until it hecomes homogenous and hard. It is then rsady for the retort.

Retorting.

The operation of retorting is so simple that it hardly requires a description, still as many inexperienced persons may read this, it will he given.

For small operations, the retort used is a deep cast-iron vessel, shaped somewhat like a bowl. The top edge is planed level and upon this fits a cover also planod level and true, so that when put together the two parts form a perfect joint. From the cover, an iron tuhe rises and hends downward at an angle of ahout 20° from the horizontal. The cover is fastened hy a clamp and set screw. A mixture of wood ashes and clay is prspared hy making them into a thick paste with water. When all is ready, the halls of amalgam are placed in the bowl, the mixture of ashes is put thickly around the edge; the cover is fitted, clamp adjusted, and the whole firmly fixed hy means of the set screw; all the superfinous luting is removed and the retort placed in a furnace over a moderate fire. The end of the pipe must dip just helow the surface of water, placed in any convenient vessel; if the fire is kept well under control there will he no necessity of cooling the pipe. It sometimes happens that when the amalgam has bson imperfectly cleaned that the gold will stick to the retort; this may he obviated hy ohalking the interior of the retort or putting a piece of oommon writing paper undsr the ball. However, when the amalgam is clean and free from baseness, it will come out easily.

A Convenient Method.

A very convenient way to retort is, to drive two stakes into the ground and to fasten a small iron rod to each at a convenient hight. Upou this ths retort is hung, and around it a fire of small wood is built.

Wheu the retort has attained a dull red heat, and no more mercury distils over, the fire is put out and the retort allowed to oool; tho cover is taken off and the hullion removed. It will be found to he metallic in appearance and of a gold color. It is ready for the melting pot as soon as taken out.

Caution in Opening the Retort.

It is never safe to open the retort before it is cool, nor will it stand being cooled in water. Many persons have done themselves great injury in their impatience to see the result of an importaut run hy opening the hot retort and inhaling the poisonous mercurial fumes.

Retorting Ouicksilver Alone.

When it is required to retort quicksilver, the retort is usod in the same way as amalgam, with this exception; a handful of shingle nails is plaoed ou the surface of the mercury which prevents any violent ehullition of the metal.

In all quartz mills there should he a small room expressly for the amalgamator where the amalgam should be taken for treatment. It should he furnished with a strong trough. Just ahove the water, a shelf should be placed upon which to set the pan while cleaning the amalgam. Any quicksilver accidentally spilled while washing may he removed at any time by drawing off the water. The trough should be furnished with a hydrant, which should furnish an abundant supply of water.

Geological Museum.

Mr. Henry G. Hanks, the assayer, whose fine collections of minerals at the late Mechanics' Institute Fair attracted so much attention, has estahlished a claim on the gratitude of the mining community hy giving free access to his collection. He has gone to considerable expense and trouhle in fitting up a large room with fine cahinets and cases in which the numerons minerals, fossils, etc., aro placed and appropriately lahelled. Mr. Hanks, while following his husiness of assayer, chemist and teacher, during a long rssidence in this State, has labored assiduously and successfully in collecting specimens of the various ores, etc., from different parts of the world, and now has a rare and valuahle collection.

Differing from the general custom of collectors, Mr. Hanks has kindly thrown open his doors to the general puhlic and cordially invites both residents and visitors to the city to call and sce his specimsns. Miners, tourists, school children (accompanied hy their teachers) have free access to the muscum at all times. All young men and old ones, too, who are interested in geology and mineralogy and who are desirous of psrfecting themselves in the knowledge of judging the character of ores will find this an excsllent opportunity of which to avail themselves. More can be learned in one hour hy examining these correctly labelled specimens than hy poring over soms technical work for a month. Miners from the interior who wish to see the diversified character of the ores of the Pacific slopo have here a chance to do so. In a short time free of cost they can acqnire a better knowledge of the different ores and minerals than could be gained hy traveling among the mines for years.

The collection is too varied to admit of any special mention, hut we hope all of our friends in the interior will bear in mind to call and see it dnring their visit to town. We are sure from our acquaintance with Mr. Hanks that thoy will be recsived politely and every facility given them for minute observation. The mnseum is sitnated at No. 649 Clay street, hetween Montgomery and Kearny.

The Highest and Lowest Prices of Mining Stocks During 1871.

The fluctuation of mining stocks is proverbially great, and in order that our readers may see the difference that has existed at different times during the year, we give below the highest and lowest prices with the time of occurrence, of the more prominent mines dealt in at the San Francisco Stock Board.

Alpha was highest in September and October, $20, lowest in January, $3.
Amador $390 in April, $265 in August.
Belcher $450 in December, $6¼ in January.
Chollar-Potosi $90 in April, $27 in Sept.
Crown Point $170 in December, $15¼ in Jan.
Cons. Virginia $18¾ in April, $1¾ in Feb.
Daney $12¼ in September, $2½ in January.
Eureka Cons. $29 in November, $7¼ in Jan.
Eureka $365 in January, $11 in August
Empire Mill $25 in May, $1 in April.
Gould & Curry $178 in June, $40 in March.
Golden Chariot $85 in Feb., $4¼ in Nov.
Hale & Norcross $145 in July, $51 in April.
Ida Elmore $20¼ in December, $2 in Nov.
Imperial $85 in May, $3¼ in September.
Mammoth 80 cents in March and October, 22 cents in February.
Meadow Valley $36¼ in November, $13¼ in March.
Ophir $33¼ in December, $3¼ in January.
Original Hidden Treasure $12¼ in June, $3 in February.
Overman $41 in Aug., $2 in Jan. and Feb.
Raymond & Ely $150 in October, 15 in Jan. and July.
Savage $80 in March, $33 in August.
Segregated Belcher $45 in October, $1¼ in January and February.
Sierra Nevada $33 in December, $3 in Aug.
St. Patrick $55 in May, $20 in September.
Yellow Jacket $80 in March, $8¼ in Dec.
Pioche $28¾ in September, $4 in December.
Washington & Creole $8¾ in September, $4 in November.

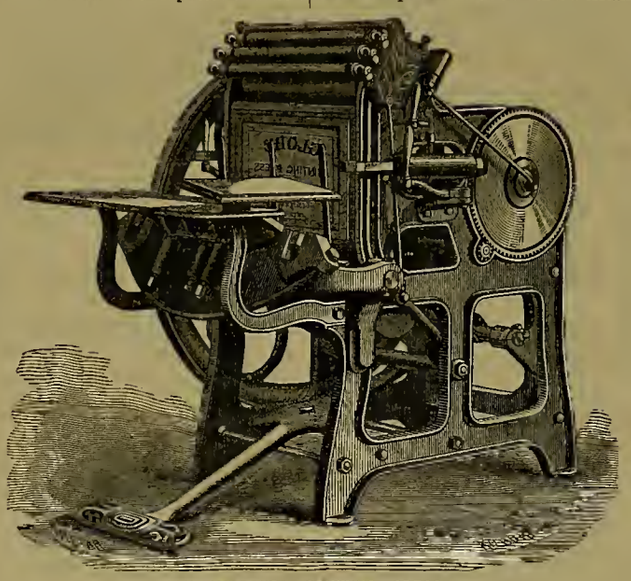
Marysville Foundry.—This well known foundry, which turns out a good share of the best mining machinery on the Coast, being in a favorable location for that work, has its advantages further increased by the addition of a new partner to the firm. Mr. W. R. Eckart, who has been successful as an engineer, superintendent and draftsman on this Coast, and whose name is connected with the well known Scott and Eckart cut-off engine, has entered the establisbment as one of its proprietors. Messrs. Prescott & Scheidel are well known men in their line of business, and we are certain that with their accomplished assistant, Mr. Eckart, in their firm, their business will be increased still more to the satisfaction of themselves and patrons. Making a wide range of mining, farming and other machinery suitable to the times and locality, this pioneer establishment has, we believe, suffered less from continued dull times, than any other foundry in the State of equal size and importance. We should like a report from month to month of the work the new firm turns out, as it surely indicates more or less of the thrift and industry of various and important sections of the interior.

The Snow Blockades.—Overland travel has been seriously impeded this winter by some blockades, and the one now existing on the Union Pacific is rather serious. We hear continually of snow-bound trains, heavy storms, dissatisfied passengers, delayed mails, etc. A good deal of valuable freight is lying at different points on the routs and provisions and fuel are becoming scarce, not only on the trains but also at the different stations along the road. The mails for this city are some nine days behind time and nobody knows when they will arrive. This puts business men and everybody else to considerable inconvenience, but it cannot be helped. We have become so used to the morning mail from the East that we have almost forgotten the days when it came by steamer and was so long on the way.

Lumber Drying Apparatus.—Messrs. Lord & Hall have utilized the escape steam at Vesler's sawmill, Puget Sound, by turning it into an air-tight chest made for the purpose of drying lumber. The *Dispatch* says that the experiment works well, and that lumber can be taken from the log and thoroughly dried by this process in forty-eight hours.

An Improved Printing Press.

There is no department of mechanical construction in which more ingenuity has been exercised or more progress made, than in the construction of printing presses. The illustration which is herewith given represents one of the most approved machines for all classes of job work, and is known as the "Globe Press," of which there are three sizes manufactured. The sheets are placed upon the platen, opposite to, and inclined from, the bed in front of the pressman, whose position can be apprehended by observing, that the foot rests on the treadle. The bed of the press upon which the type are fastened, shows the word Globe in the form in this representation. The type are inked by the passage over them of the rollers, seen in the engraving at the point of distribution, on the inking cylinder. The action of the press is entirely automatic, the power being given by the foot on the treadle or by a belt to a driving wheel. The presses of this kind are now for the first time received in this city, by the California Type Co., of which Mr. Geo. L. Faulkner is agent. They are considered a decided improvement in several respects on machines of this pattern which



AN IMPROVED PRINTING PRESS.

have heretofore been known to the craft in the United States. The enterprising manufacturers have been for some time industriously at work to remedy the defects which experience had shown to exist in the early presses of this pattern, and now, while all the good features are retained, and some new ones added, they are building a press that is pronounced much more simple and compact than formerly, and quite as strong and durable, and fully equal in ornamental design and finish, to any press in the market. *Round's Printers' Cabinet*, standard authority in these matters, says that "experienced pressmen now pronounce them equal in all respects to any press made, while the peculiar features for which they are particularly noted, commend them to many as decidedly superior.

Some of the advantages of this press consist in throwing off the impression at will; the accessible vertical position of the bed in plain view of the operator; the long period of "rest" of the platen, favoring a careful laying of the sheets; detention at will of vibrating rollers on an unusually large distributing cylinder; a simple and quick fastening and releasing the chase; easy and precise adjustment of the grippers, while placed flat on the tympan sheet, and the impression arms which grasp the yoke of the platen and with a gentle pull giving the impression with a dwell quite preferable to that obtained by the crank motion of other presses.

Loss by Abrasion.—The milled edges of our coin causes more loss in weight from abrasion than is generally supposed. We frequently meet with a piece of coin, the edges of which has become smooth by use; but unless it is refused by some prudent storekeeper in exchange for goods, little attention is paid to it. The government is the loser. Julius Jeffreys, F. R. S., says that a single bank has lost £7,000 in one year by light gold through abrasion, and thinks a good deal is due to the steel edges of the banker's shovels. On one occasion when entering the Bank of England he was struck by the glittering aspect of the whole counter, upon which the sun was shining. Myriads of particles of gold were reflecting the sunlight to the eye. It was manifest that these particles had been struck off from the sovereigns which had changed hands over the counter that day, and mainly by the sharp steel edges of the shovels in each endeavor to undermine the coins. It was also plain that in the mutual friction of the coins the milled edges must do the work of mutual raspings as effectually as any form that could be chosen with that design.

To White Pine Subscribers.—We have received the positive assertion that a certain postmaster in White Pine county, Nevada, has asserted that the goodly numbers of copies of the Scientific Press sent to that post-officears "in the way;" that he delivers copies to whoever calls for them "regardless of names;" that he *gave* "a batch of them to a miner from a certain canon who wanted some reading matter;" that he has upon an occasion said: "Some one has robbed the office of all the Scientific Presses it contained, etc. Now if these are facts, we think the aforesaid postmaster will recognize this article, if some subscriber will present him a marked paper; if that don't do him any good, we will show it to the Postal Agent for this Coast, with names of person and place. If there are any other like postmasters to whom respectable newspapers are "in the way," we hope our subscribers will report them. Postmasters generally are very obliging to our subscribers, and we know our interests are mutual. Although a freely abused class of officers, we know that most of them are very worthy and obliging. It is really for their interest to be so. The particular post-office alluded to above was formerly complained of for having a "grab-box" in which all the newspapers were put, and subscribers were obliged to help themselves to their papers out of it—if they could find them. That style of "keeping post-office" has ceased in California, and ought to be abolished in Nevada—if it isn't.

General Lee Consolidated.—It is reported that this mine, located in Eureka District, has changed owners at large figures, the principal purchasers being J. B. Haggin, Lloyd Tevis, Geo. Hearst and Henry A. Fox, all of this city. Extensive improvements are contemplated.

Wren's Ore Concentrator.

Our readers will naturally look with interest to anything that promises improvements in the mode of working silver ores, and their attention is directed to the following notice of the improved concentrator of Mr. Thos. Wren, which appears in the Reese River *Reveille* of a late date:

This new and so far successful invention has, after provoking delays and innumerable obstacles, been set at work in good earnest.

The machinery consists of a twelve-horse power engine; a Wheeler's crusher of the largest size; a revolving screen, set at a slight angle, open at both ends, the upper and greater part of the screen covered with a No. 60 wire screen or sieve, the lower lesser part with a coarse sieve; and the necessary appurtenances, running gear, etc., for the whole.

The process is simple, though entirely scientific. The rock, after being thoroughly dried in the kiln, is fed into the crusher, whence, by means of a spout, it is conducted and fed into the upper end of the revolving screen. The pulp passes through the fine screen, while the waste passes through the coarse screen. The pieces of rock too large to pass through either sieve of the screen are discharged at the lower open end.

The rock discharged through the end of the screen is carried by an elevator back to and passed through the crusher and screen. By these means low-grade ores, which have heretofore been worthless on account of the cost of milling, can be worked at a profit. The expense of running the works are: one engineer, one man to feed the crusher, one man to tend the drying kiln, and one cord of wood per day. The capacity of the apparatus will probably be considered over 20 tons for a working day of ten hours. The principle of working this exceedingly cheap and simple apparatus is this: Mineral-bearing rock is friable at those parts containing the mineral—therefore it is the more easily fractured at that point. The crusher has both a crushing and a grinding motion; the rock being broken into small pieces exposes its mineral surfaces, which, grinding against each other, is disintegrated from the gangue; and, being in fine particles, is passed through the screen in the form of pulp. It is then further concentrated by means of water, the fine particles of granite, quartz and sand being washed off.

We have not room at present for a more detailed statement; but any millman or mechanic will be able to see at a glance the principle of the invention.

It is now running on the old waste dump of the Savage mine. The dump is largely mixed with granite or clay and will average about $25 per ton as it lies. From this comparatively worthless grade of ore three tons are reduced to about one ton of pulp, assaying fully $60, the residue assaying about $5 per ton. The $60 pulp is then further reduced by water to an amount assaying at the rate of $150.

New Mining Law.—The telegraph informs us that the Legislature of Utah has under consideration a new mining law for that Territory. It provides that in order to hold claims, $50 worth of work shall be performed for every 200 feet located, and for every tunnel site, $500 worth of work must be done. All locations and transfers must be recorded in the County Recorder's office of the respective counties, locators to hold their claims as real estate. It is said that the miners are strongly opposed to the bill.

Coal Mines on Fire.—We understand that the Bellingham Bay Coal mines are in danger of being destroyed by fire. It has been smouldering for some time, but has recently got beyond control and threatens to consume the whole seam. A few days ago the flames drove out the workmen, and it is now suggested to deluge the mine in order to save the workings from destruction.

Received, from Gov. Potts, of Montana, the Report of the Auditor and Treasurer of that Territory, for the years 1870-71. As an encouragement to stock-raisers, which he thinks in the future will be one of the strongest dependences for the revenue of the territory the Auditor recommends that all thoroughbred stock brought into the territory be exempt from assessment and taxation for the first year.

DOMESTIC ECONOMY.

The Heating of Our Houses.

Entering the door of one of our "comfortable" modern houses, what meets us? A puff of scorched air from a register, redolent of burning iron—or of boiled air from a steam heater. The thermometer is standing at about 744°. We advance to the parlor. There matters are even worse, for no outside cold has entered with momentary freshness. The plants in the window look yellow and forlorn. Ominous cracks are visible here and there in the furniture—nay, a strip of ornamental veneer has actually split off from the piano and lies on the carpet. Our hostess, coming forward to greet us, is wrapped in a little shawl, and remarks that it is an awful day; that she hasn't been out, of course, but even in the warm house has felt the cold. In effect, she looks blue and pinched. Whereat we wonder, for the room *feels* insufferably hot; but we place ourselves beside her where she sits cowering over the register, and conversation goes on with what spirit it may under these circumstances.

At the end of an hour we are surprised to find ourselves a little chilly. That is, our head is hot enough—a little too hot, perhaps—but both hands and feet are cold, and we are inclined to agree with our friend when she opines that "the girl" must have let the fire go down. But glanciug at the thermometer, we stare to see that the mercury has risen instead of falling. It is now at 80°. And, after all, why should we wonder? Nature is inevitable in her retributions, and we, no less than the poor geranium in the window, must suffer the penalty of a deranged circulation when we violate her laws of temperature.

Bad enough, if this were all! One can live and be useful under the trifling discomfort of cold extremities, as our worthy forefathers sufficiently proved. But how much of life and of life's best energies, of thought, of wit, of good-humor, of aspiration, goes down through those holes in the floor into neither silence? As from some Kobold's cave, the invisible gnomes of the furnace climb, emerge, and steal from us the choicest, finest, most intangible part of ourselves. No man ever lived and worked his best in a room heated over 68°—a sentence we should like to engrave in letters of gold on the iron plate of every register and the front of every steam heater in the land from this day forth and forever.—*Scribner.*

REMNANTS OF FOOD.—A dish that has no more than the *appearance* of palatableness has at least as much to recommend it. Nicety of appearance is inexpensive and within the reach of the humblest. We have in mind special reference to the serving of the remnants of food, which, above all dishes, require dainty arrauge-ment. If cold meat is to be served, it should be thinly sliced and laid on a clean platter. Remnants of food should never be put away in gravy, if inteuded to be eaten oold. Warmed-up vegetables, stewed fruits, sauces, puddings, etc., should appear on the table in clean dishes, and not in the dish they were sent from the table in, unless cleaned. Some housewives send warmed-up food to the table in the same dish in which they were warmed, which is always untidy. A dish which is presentable at table should not be subjected to the heat required in cookery, excepting, of course, pie and puddiug dishes.

STARCH POLISH.—Take common dry potato or wheat starch sufficient to make a pint of starch when boiled. Then add half a drachm of spermaceti, and add half drachm of white wax, and then use it as common starch, only using the iron as hot as possible. In this manner a brilliant polish is produced. Epsom salts have also been recommended for use in starch. To each bowl of starch add one teaspoonful of Epsom salts, and dissolve in the usual way by boiling. Articles starched with this it is said will be stiffer and will be rendered to a certain degree fire-proof.

SWEET POTATO BALLS.—First boil the potatoes, then carefully mash the farinaceous part. Boil in the meautime a pint of milk, put in some lemon peel, a couple of small lumps of sugar and a little of salt. When the milk boils, take it off the fire and add the potatoes, so as to form a pasts, or rather a tolerable thick mush. Wheu cool, make it into balls; cover these with crumbs of bread and yolk of egg. Fry these to a nice browu color and serve them up with sugar stewed over them.

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This Amalgamator Operates as Follows:
The pan being filled, the motion of the muller forces ths pulp to ths eenter, whers it is drawn down through ths appertura and between the grinding surfaces.—Thence it is thrown to the peripbery into the quieksilver. The curved plates again draw it to the centor, where it passes down, and to the circumference as before. Thus it ie constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powdor, and ths metal amalgamated.
Setlers made on ths same principle exesl all others They bring the pulp so constantly and perfectly in contact with quicksilver, that tbe partielos are rapidly and completely absorbed.
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New subscribers for the year 1872 may have, without charge, the number for the last quarter of 1871 of such periodicals as they may subscribe for.
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HUCKS & LAMBERT.
The expsrience of OVER TWENTY YEARS, specially devoted to the preparation of tbis articlo, has enahled the proprietore to effect a combination of lubricants calculated to
REDUCE THE FRICTION ON AXLES,
And thus Relievs tho Draft of the Team,
Far beyond the reach of any who have hut recently gone into the husiness; and as the H. & L. AXLE GREASE can he obtained hy consumers AT AS LOW A RATE as any of the inferior compounde now being forced upon the market,
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Proprietor of Watson's Hydraulic Champion.
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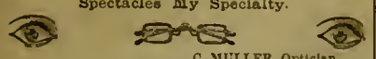

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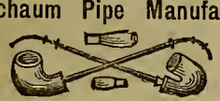

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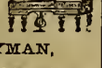

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Would respectfully call the attention of the officers of Railway Companies, and Engineers having charge of New Bridge Constructions, to their new

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Glass reservoir, with white metal coupling cast on.
Substantial brass stem, with graduating plug—V slot on one side, as shown in magnified cut—in the top.
The best and cheapest OILER in the market; perfect lubrication on loose pulleys and all kinds of bearings. Any kind of Oil in any kind of weather. Price, $4.50 per dozen Liberal discount to agents and to the trade.
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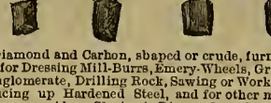
DICKINSON'S
Patent Shaped Diamond Carbon-Points.

Fig. 1 *Fig. 2* *Fig. 3* *Fig. 4*



Diamond and Carbon, shaped or crude, furnished and set for Dressing Mill-Burrs, Emery-Wheels, Grindstones, Conglomerate, Drilling Rock, Sawing or Working Stone, Truing up Hardened Steel, and for other mechanical purposes. Also Glaziers' Diamonds. See Scientific American, July 24th, Nov. 20th and 27th, 1869; Engineering and Mining Journal, Jan. 17th, 1871; Journal of the Franklin Institute, Philadelphia, June, 1870. For Circulars descriptive, and Prices, send stamp to
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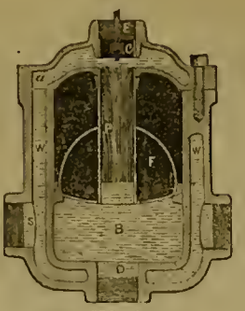
The undersigned, having completed the working course of Chemistry in La Fayette College, Easton, Pa., including Dry Assay of Ores and Blowpipe Analysis, desires a situation requiring a

Practical Knowledge of Chemistry.

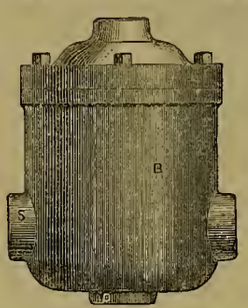
By permission refers to Dr. Traill Green, Professor of Chemistry in La Fayette College.
B. CHAMBERS, JR.,
20v23-3m Chambersburg, Pa.

CRAIG & BREVOORT'S
Patent Condenser for Steam PUMPS, &c.



NO. 1.

The annexed engravings represent a Condenser intended to be attached to the ordinary steam pump, thereby bringing it within the class of low pressure, or more properly speaking, of condensing engines; the steam, when it has done its work in the cylinder, instead of being exhausted into the atmosphere, is conducted to the condenser, on its entry into which, it meets the water drawn by the pump, and is immediately condensed.
The Cut No. 1 represents a vertical section of the Condenser, and No. 2 an elevation.
The flange D is bolted to the suction orifice of the pump, and the flange S to the pipe leading to the well, or whatever source of supply the pump may have; W is a water jacket surrounding the main chamber of the condenser, B, and with which the suction pipe, S, communicates, permitting a free circulation of water within the jacket and into the hollow cover or top through the series of openings, one of which is shown at A, and from thence into the body of Condenser, B, through pipe P, carried by float F; the pipe P also acts automatically as a valve to enlarge or contract the space through which the water enters it, by which means the possibility of the condenser being at any time flooded is avoided. The pipe P, it will be observed, also acts as guide to float F.
The valve, C, (shown in Cut No. 1), which is raised or lowered by means of screwed stem—shown coming through elbow in Cut No. 2—is for the purpose of increasing or decreasing the flow of water according to the capacity of the pump to which it is attached.



NO. 2.

The exhaust pipe from steam cylinder is screwed into cover at E; the exhaust steam is thus thrown directly into contact with the water entering the condenser on its way to water cylinder of pump through D. A vacuum being of course immediately formed, acts on the exhaust side of the steam piston, aiding it in its work. If at any time it is desirable to run the pump without the condenser, it is only necessary to turn the three-way cock, which is placed in the exhaust pipe, into such a position as to cause the steam cylinder to exhaust into the atmosphere; when this is done the pump is perfectly free from the condenser, and acts as if it were not attached. This condenser is specially useful for pumps running in mines, or any other position where trouble is experienced in getting rid of the exhaust steam. Address H. L. BREVOORT,
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With Punctuality, Cheapness and Dispatch.
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The Library of Reference, the Library, Reading Room and Chess Room are open from 8 A.M. until 10 P.M. every day, (except Sundays and Legal Holidays).
The Society possesses a Library of 18,000 volumes—the most valuable technical and scientific library on the Coast, embracing the transactions of the leading Scientific Societies of the United States and Europe, (among which are the philosophical transactions of the Royal Society of Great Britain, complete), and the standard, scientific and technical works; and is in immediate receipt of all new standards publications.
The Reading Room is supplied with the current periodicals and newspapers of the day.
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Mortise Chisels, Blind Chisels, Crotchet Chisels, and also all kinds of Screws for Stair Work and Sash Joints on hand and made to order.
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Either Brass, Reed or String.

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GRAY & HAVEN,
ATTORNEYS AND COUNSELORS AT LAW,
In Building of Pacific Insurance Co., N. E. corner California and Leidesdorff streets,
SAN FRANCICO.

New Incorporations.

The followiug have filed certificates with the County Clerk, San Francisco.

NORFOLK M. Co.—Jan. 25. Object—To miue in Ely Mining District, Nevada. Capital stock, $3,000,000. Trustees: J. B. Haggin, R. F. Morrow, A. E. Head, Joseph Clark aud B. B. Minor.

REVENUE CONS. SILVER M. Co.—Jan. 24 Object—To miue iu Wallapai District, Arizona. Capital stock, $2,500,000. Trustees: H. McPherson, J. G. Riley, Wm. H. Mintzer, H. G. Blakely and L. B. Edwards.

EMPIRE M. Co.—Jan. 26 Object—To mine in the County of Owyhee, Idaho Ter. Capital stock, $2,500,000, divided into 25,000 shares. Trustees: Hill Beachy, Geo. W. Beaver, J. W. Gashwiler, James S. Kennedy and Martin Herman.

WELLINGTON M. & SMELTING Co.—Jau. 27. Object—To mine in the Little Cottouwood District, Lake county, Utah. Capital stock, $2,500,000; 50,000 shares of the value of $50 per share.

SAN FRANCISCO STREET SPRINKLING Co.—Jau. 27. Object—To sprinkle the streets of the city with water. Capital stock, $250,000. Trustees: Samuel J. Waters, A. S. Perly, J. B. Lauiger, E. Shifler, James Tompkinson, F. Kayser, C. H. Conant, John Sanboru, Philo Doud, D. A. McKinley aud A. B. Smith.

BALTIMORE M. Co.—Jan. 27. Object—To mine for gold aud silver in Storey county, Nevada. Capital stock, $1,500,000, iu 30,000 shares of $50 each. Trustees: Geo, W. Prescott, E. J. de Ste Marina, E. Strother, Edward Landers and J. W. Moyle.

UNION PACIFIC SILK MANUFACTURING. Co.—Jan. 29. Object—to manufacture all kinds of ribbons, piece silks, threads, machine twists, sewing silks, trimmings and silk goods generally. Capital stock, $100,000, into 1,000 shares Trustees: T. Tobin, R. Rutter, C. W. Coney, J. D. Stewart and Joseph Warburton.

LA PAZ M. Co.—Jau. 30. Object—To mine in the Ely Mining District. Capital stock, $3,000,000, divided into 30,000 shares. Trustees: J. B. Haggin, Joseph Clark, Wm. Willis, B. B. Minor aud W. W. Blow.

CORRECTED CERTIFICATE.—The Western Lancet Publication Association filed another certificate of incorporation with the County Clerk on the 30th in lieu of the one filed some time ago, in which the name was erroneously given as the *Pacific* Lancet Publication Association.

Mining Accidents.

James McCormick, while working in the 200-foot level of No. 3, in the Meadow Valley mine, fell through the side or trap door at that level, and down the shaft to the 280-foot level. He died in a few hours from the injuries received.

T. R. Warren, while hoisting with a block and tackle at the Idaho mine on Saturday last, was severely injured by being struck on top of the head by a block of wood weighing about seven pounds.

While raising a 3-ton boiler up the oañon to the shaft of the Eclipse mine, for the hoisting works, on the 15th inst., a chain gave way and the boiler rolling back some 30 ft. badly injured Isaac Jackson. But for the fortunate interposition of a block of wood, he would have been killed instantly.

ORE SAMPLED.—The following lots of silver ore have been crushed and sampled during the month of Jannary, 1872, by J. W. Thurman, No. 413 and 415 Mission street, (formerly Howlaud & Co).

From the Arizona mine, Humboldt District, Nev., three lots respectively, 70,53 and 81 sacks; 41 sacks from the Sheba mine, same dist; 111 sacks from Golconda mine, same district. Two lots of 61 and 37 sacks from the Wallapai mine, Prescott dist., Arizona; 112 and 66 sacks from Sacramento dist., Arizona; 15 sacks from Prescott dist., 110 from Benjamin mine, same dist. Two lots of 40 and 80 sacks from Mexico. All these lots of ore are high grade, running from $300 to $5,000 per ton, and were purchased and sent to Liverpool, with the exception of one small lot.

There were also sampled 170 sacks of copper ore from the Ella mine, Nevada, and two lots of 200 and 140 sacks from Battle Mountain, which were also sent to Liverpool.

LEATHER.—The proprietors of the Pacific Tannery at Stockton shipped last week 5,000 pounds of skirting and harness leather to Los Angeles, and 8,000 pounds to this city to be re-shipped to Japan.

San Francisco Metal Market.

[Corrected weekly by Hooker & Co., 117 and 119 Cal. street.]

PRICES FOR INVOICES

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

THURSDAY, February 1, 1872

IRON.—			
Scotch and English Pig Iron, ₱ ton	$52 50	@	55 00
White Pig, ₱ ton	45 00	@	— —
Refined Bar, bad assortment, ₱ lb	— 04	@	— 04½
Refined Bar, good assortment, ₱ lb	— 05	@	— 05½
Boiler, No. 1 to 4	— 05	@	— —
Plate, No. 5 to 9	— —	@	— 05
Sheet, No. 10 to 13	— 05½	@	— —
Sheet, No. 14 to 20	— 06	@	— —
Sheet, No. 24 to 27	— 06	@	— —
Horse Shoes	7 50		
Nail Rod	10		
Norway Iron	8		
Rolled Iron	5		
Other Irons for Blacksmiths, Miners, etc.	5	@	6
COPPER.—			
Sheathing, ₱ lb	— 24	@	— 26
Sheathing, Yellow	— 24	@	— 25
Sheathing, Old Yellow	— 11	@	— 11½
Composition Nails	— 24		—
Composition Bolts	— 24		—
TIN PLATES.—			
Plates, Charcoal, IX ₱ box	12 00		— —
Plates, I C Charcoal	10 00		10 50
Roofing Plates	11 00		— —
Banca Tin, Slabs, ₱ lb	— —		— 45
STEEL.—English Cast, ₱ lb	— 16		— 17
Drill	16		17
Flat Bar	17		20
Plough Points	3 75		
Russia (for mould boards)	12½		
QUICKSILVER.—₱ lb	— —		— 85
LEAD.—Pig, ₱ lb	— 05½		— 06½
Sheet	— 08		— 8½
Pipe	— 9		— 10
Bar	— 08		— 09
ZINC.—Sheets, ₱ lb	— 10		— 10½
BORAX.—Refined	— 25		— 30
Borax, crude	— 5		— —

Leather Market Report.

[Corrected weekly by Dolliver & Bro., No. 109 Post st.]

SAN FRANCISCO, Thursday, February 1, 1872.

SOLE LEATHER.—The demand is still equal to the supply, and prices still continue firm.

City Tanned Leather, ₱ lb			26@29
Santa Cruz Leather, ₱ lb			28@29
Country Leather, ₱ lb			25@28

The market has well supplied with French stocks, and prices have a downward tendency. Heavy California skins are firm, with an upward tendeucy.

Jodot, 8 Kil., per doz	$68 00@		
Jodot, 11 to 18 Kil., per doz	76 00@	95 00	
Jodot, second choice, 11 to 15 Kil. ₱ doz	60 00@	80 00	
Lemoine, 16 to 19 Kil , ₱ doz	95 00@		
Levin, 12 and 13 Kil., per doz	68 00@	70 00	
Cornellian, 16 Kil., per doz	70 00@		
Cornellian, 12 to 14 Kil., per doz	60 00@	68 00	
Ogerau Calf, ₱ doz	54 00@		
Simon, 18 Kil., ₱ doz	65 00		
Simon, 20 Kil. ₱ doz.	68 00		
Simon, 24 Kil. ₱ doz.	72 00		
Robert Calf, 7 and 8 Kil	35 00@	40 00	
French Kips, ₱ lb	1 00@	1 30	
California Kip, ₱ doz	65 00 to	80 00	
French Sheep, all colors, ₱ doz	15 00		
Eastern Calf for Backs, ₱ lb	1 15@	1 25	
Sheep Roans for Topping, all colors, ₱ doz	8 00@	13 00	
Sheep Roans for Linings, ₱ doz	5 50@	10 50	
California Russett Sheep Linings	1 75@	5 50	
Best Jodot Ca f Boot Legs, ₱ pair	5 25		
Good French Calf Boot Legs, ₱ pair	4 50@	5 00	
French Calf Boot Legs, ₱ pair	4 00		
Harness Leather, ₱ lb	30@	37½	
Fair Bridle Leather, ₱ doz	48 00@	72 00	
Skirting Leather, ₱ lb	34@	37½	
Welt Leather, ₱ doz	30 00@	50 00	
Buff Leather, ₱ foot	17@	21	
Wax Side Leather, ₱ foot	18@	29	

Rainfall at Sacramento.

[By T. M. LOGAN, M. D., Secretary State Board of Health.

Jan. 17, 1872. Rainfall for the season to date..16.451 inches
" 30, " " from Jan. 23 " " ...0.020 "

Total for the season up to Jan 23, 1872.....16.471 Inchs.

REMARKS.—The above small amount, added to the previous rainfall, was not actually the result of rain; but the measurement of mist or fog collected in the rain-gauge. In fact, during the prevalence of the light northerly winds, which prevailed from the period of our last report up to the 23d, when a heavy norther set in, we have been immersed, in the lower part of the valley, in a sea of fog, while those in the more elevated regions have been basking in the general sunshiue.

Besides so many new facts and the large amount of useful knowledge derived through these official sources, the mining public are likely to find in the recently published work of J. S. Phillips a valuable teacher and assistant. This book, which treats in an intelligent and practical way on almost every topic connected with mining pursuits, should be in the hand of every millman, metallurgist, prospector, and miner on the Pacific Coast. Even the capitalist, and, in fact, every person already engaged in, or likely to become interested in the business of mining, will find in this comprehensive work an amount of information that they cannot afford to dispense with.—[Commercial Herald on Geological Survey, etc., Jan. 26th.

MARAVILLA COCOA.—No breakfast table is complete without this delicious beverage. The *Globe* says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoas, but we doubt whether any thorough success had been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma, they have produced an article which supercedes every other Cocoa in the market. Entire solubility, a delicate aroma and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homœopaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers, Original Homœopathic Cocoa and Soluble Chocolate Steam Mills—Brick Lane, London. Export Chicory Mills, Bruges, Belgium. fe25-1y

The Evangel, Office, 414 Clay street, San Francisco. Terms, $4 per year, in advance. THE EVANGEL is the organ of the Baptist Denomination for the Pacific States and Territories. All efforts on the part of brethren and friends to extend its circulation will be gratefully appreciated. $3, for one year's subscription, will be received from new subscribers, strictly in advanco. Address "Evangel, San Francisco, Cal." Sample copies furnished free. 4v3-1amhptf

UNIVERSITY OF CALIFORNIA.—The Preparatory Department is under the charge of five Professors of the University, and six tutors.

Besides the studies of the public schools, Algebra, Geometry, Latin, Greek, German, French, Spanish and Book-Keeping are taught.

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Of the SCIENTIFIC PRESS can be had from January 1, 1854, to date, at $3 per single vol. or $6 a year. They afford the cheapest and best information on mining and the industry of this coast of any work published.

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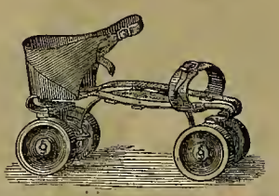
PATENTED 1871.



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This Skate is Positively no Infringement

Of anyhody's patent. It is made in the most substantial and workmanlike manner, and possesses the following points of merit: Beauty, Elasticity, Ease of Movement, Strength, Lightness, and does not injure the skating floor as much as the ordinary skate.

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The undersigned, Manufacturers of "HILL'S PATENT EUREKA GANG PLOWS," take this method of calling the attention of Agriculturists throughout the Pacific States and Territories to the merits of the above named Plows, and offer the following reasons why they are entitled to preference over any other Plow in use.

They are made of the best material, and every Plow warranted.

They are of light draught, easily adapted to any depth, and are very easily handled.

They will plow any kind of soil, and leave the ground in perfect order.

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These Plows took the First Premium at the State Fair in Sacramento, in 1870; at the Northern District Fair in Marysville, 1870 and 1871; and at the Upper Sacramento Valley Fair, Chico, 1870 and 1871. At the Mechanics' Fair, held in San Francisco in 1871, a Silver Medal was awarded these Plows; and the State Agricultural Society, at the last Fair, offered a premium of $40 for the best Gang Plow. The committee was composed of practical farmers from the agricultural counties, who, after a fair test and thorough competition with the leading plows of the State, awarded the premium to the Eureka Gang Plow. From this it will be seen that these celebrated plows still maintain their reputation over all competitors. Patented Sept. 7, 1869.

Champion Dsep-Tilling Stubbls Plow,

which took the First Premium over all competitors at the State Fair, 1871. It turns a furrow 14 inches deep and 24 inches wide.

This Gang Plow combines durability with cheapness, being made entirely of iron by experienced workmen, of the best material. Over three hundred are now in use, and all have given entire satisfaction.

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4v24-1ys1amr

Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the Scientific Press we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

Alhambra Hill Mining Company—Location

of works, Alhambra Hill, Pinto District, White Pine county, Nevada.

Notice—There are delinquent upon the following described stock, on account of Assessment (No. 1) levied on the Ninth day of December, 1871, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No of certificate.	No. shares.	Amount.
Andreas Fisher	not issued,	251	$126.50
R. Beverly Cole	" "	253	126.50
R. Mayrisch	" "	253	126.50
C. F. Schmidt	" "	253	126.50
R. Steinheimer	" "	253	126.50
J. Hausmeister	" "	253	126.50
D. H. Jackson	" "	506	253.00
L. Schumacher	" "	161	80.50
J. Naptialy	" "	161	80.50
D. B. Arrowsmith	" "	161	80.50
John Shoenbar	" "	161	80.50
Thos. J. Reed	" "	80½	40.25

And in accordance with law, and an order of the Board of Trustees, made on the Ninth day of December, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction by Maurice Dore & Co., at No. 327 Montgomery street, on the Fifth day of February, 1872, at the hour of 12 o'clock M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

HENRY G. LANGLEY, Secretary.

Office—612 Clay street, San Francisco, Cal. jr20-4w

Kincaid Flat Mining Company—Location

of works, Tuolumne County, State of California.

Notice.—There are delinquent upon the following described Stock, on account of Assessment levied on the 11th day of December, 1871, the several amounts set opposite the names of the respective Shareholders as follows:

Names.	No. Certificate.	No. Shares.	Am't.
F. Vassault	93	50	$125 00

And in accordance with law, and an order of the Board of Trustees, made on the 11th day of December, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the Secretary's Office, No. 220 Clay street, San Francisco, California, on Wednesday, the 7thday of February, 1872, at the hour of 10 o'clock A. M. of said day, to pay said delinquent assessment thereon, together with costs of Advertising and expenses of sale.

R. H. CORNELL, Secretary.

Office, No. 220 Clay street, San Francisco, Cal. j203t

POSTPONEMENT.—The above sale is hereby postponed until Wednesday, February 14th, 1872, at the same hour and place. By order of the Board of Trustees.

R. H. CORNELL, Secretary.

fl-2w

Mina Rica Mining Company—Location of

works, Auburn District, Placer county, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 16th day of January 1872, an assessment of Twenty (20) cents per share was levied upon the capital stock of said company, payable immediately in United States gold and silver coin, to the Secretary at the office of the company, room No. 2, 418 California street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Monday, the 19th day of February, 1872, shall be deemed delinquent, and will be duly advertised for sale by public auction, and unless payment be made before, will be sold on Monday, the 11th day of March, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

GEO. R. SPINNEY, Secretary.

Office—Room No. 2, third floor, 418 California street, San Francisco, California. ja2-5w

Mount Jefferson Milling and Mining Company—Location of works, First Garote, Tuolumne county, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 8th day of January, 1872, an assessment of Twenty-five cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the company's office. Any stock upon which said assessment shall remain unpaid on Monday, the 5th da of February, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before the hour of 2 o'clock P. M., will be sold on Thursday, the 22d day of February, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. W. CLARK, Secretary.

Office, 418 California street, San Francisco. ja13-4w

Nevada Land and Mining Company—Location, Spruce Mountain, Antelope and Clifton Districts, Elko County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 9th day of January, 1872, an assessment of four cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the company's office, Room 5, No 302 Montgomery street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Tuesday, the 13th day of February, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 4th day of March, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

By order of the Board of Trustees.

WM. H. WATSON, Secretary.

Office, Room 5, No. 302 Montgomery street, San Francisco, Cal. ja13-3w

Piermont Milling and Mining Company—

—Location of works, Pierpont Mining District, White Pine County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the Twenty-fifth (25th) day of January A. D. 1872, an assessment of eighty(80)cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of said company. Any stock upon which said assessment shall remain unpaid on Friday, the first day of March, A. D. 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the Twenty-third day of March, A. D. 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. J. W. CLARK, Secretary.

Office, No. 418 California street, San Francisco, Cal. fl-4w

Quail Hill Mining and Water Company—

Location of works, Salt Springs Valley, Calaveras County, State of California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the 19th day of December, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. certificate.	No. shares.	Amount
F. S. Spring, Trustee	41	120	$600.00
E. F. Donnison	42	1	5.00

And in accordance with law, and an order of the Board of Trustees, made on the 19th day of December, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the company, No. 409 California street, (up stairs,) San Francisco, Cal., on the 13th day of February, 1872, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

T. F. ORONISE, Secretary.

Office, No. 409 California street, (up stairs) San Francisco, Cal. jr27-3t

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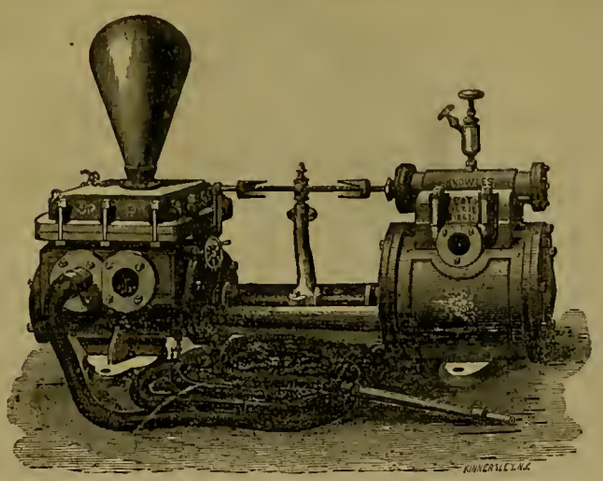
Over all Competitors, at Mechanics' Institute Fair of San Francisco, 1871; also Special Medal and Diploma at State Fair.



It has no Cranks or Fly-Wheel, and has no dead points where it will stop, consequently it is always ready to start without using a starting-bar, and does not require hand-work to get it past the center. Will always start when the steam cylinder is filled with cold water of condensation.

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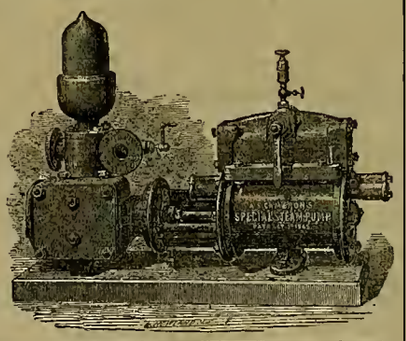

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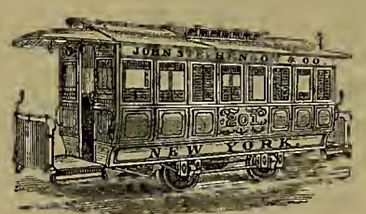

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ALL ORDERS EXECUTED AT THE SHORTEST NOTICE. 5v24-6m

Silver Wave Mining Company----Location

of works, White Pine Mining District, White Pine county, Nevada.

Assessment of Three ($3) dollars per share, levied December 19th, 1871, having been rescinded by vote of the Board of Trustees.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 2 th day of January, A. D. 872, an assessment of One Dollar per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company. Any stock upon which said assessment shall remain unpaid on Monday, the 26th day of February, A. D. 1872, shall be deemed delinquent, and will be duly advertised for sale, at public auction, and unless payment shall be made before, will be sold on Tuesday, the 19th day of March A. D., 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. J.W. CLARK, Sec'y.

Office, 418 California St., San Francisco. jr27-4w.

Tecumseh Gold, Silver and Copper Mining Company.—Location of works, Gopher District, Calaveras County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 23d day of January, 1872, an assessment of Four ($4.00) dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, F. J Herrmann, at the office of the company, No. 516 Kearny street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the 27th day of February, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the 16th day of March, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

F. J. HERRMANN, Secretary.

Office 516 Kearny street, San Francisco, Cal. jr27td,

Union Gold Mining Company---Location of works, Howland Flat, Sierra county, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 4th day of January, 1872, an assessment of one dollar ($1) per share was levied upon the capital stock of said Company, payable immediately in United States gold coin to the Secretary, at the office of the Company, Room No. 22, Merchants' Exchange, California street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the 5th day of February 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before will be sold on Monday the 26th day of February, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

ALFRED K. DURBROW, Secretary.

OFFICE—Room No. 22 Merchants' Exchange, California street, San Francisco, Cal. jn4-4w.

Wm. Penn Consolidated Mining Company

—Location of works, Storey and Lyon Counties, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 26th day of January, 1872, the assessment of 50 cents per share levied on the 16th day of January, was rescinded, and an assessment of $1.00 per share was levied, payable immediately, in U. S. gold coin, to the Secretary, at the office of the company, No. 338 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Thursday, the 29th day of February, 1872, shall be deemed delinquent, and be duly advertised for sale at public auction, and unless payment be made before, will be sold on Thursday, the 21st day of March, 1872, to pay the delinquent assessment thereon together with cost of advertising and expenses of sale. By order of the Board of Trustees.

feb3-4t HENRY TOOMY, Secretary.

Office, No. 338 Montgomery street, Rooms 3 and 4.

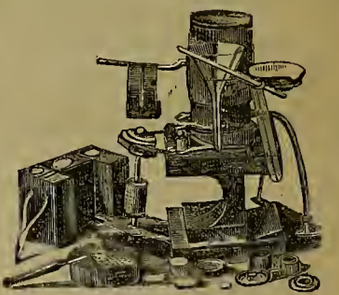
J. S. PHILLIPS, M. E.,

Examiner of Mines, Consulting Engineer, Mineral Assayer, Analyst, Etc., Etc.

Author of "The Explorers', Miners', and Metallurgists' Companion."

Inventor of the Explorers', Miners', Millers', and Smelters' Friend, the Prospectors'" WEE PET" Assaying Machine, etc., which obtained a Gold Medal at the San Francisco Mechanics' Institute Fair of 1869.

Patented September 7, 1869.



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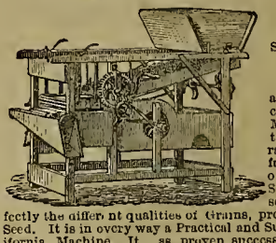

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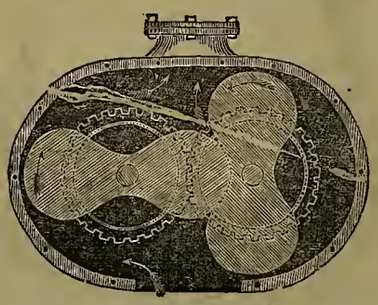

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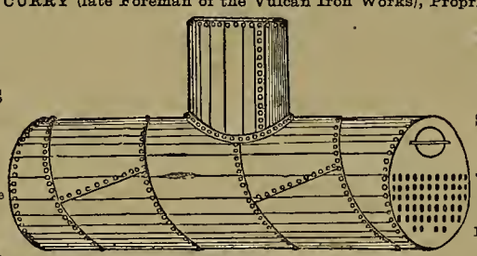

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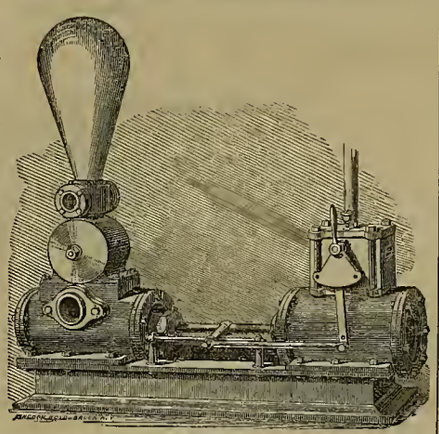

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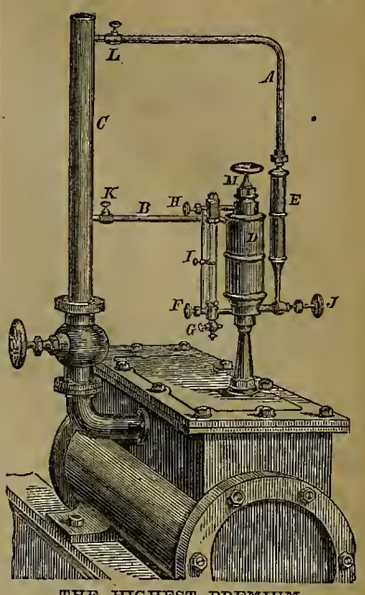

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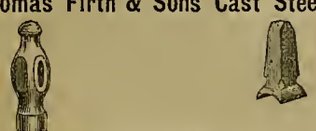

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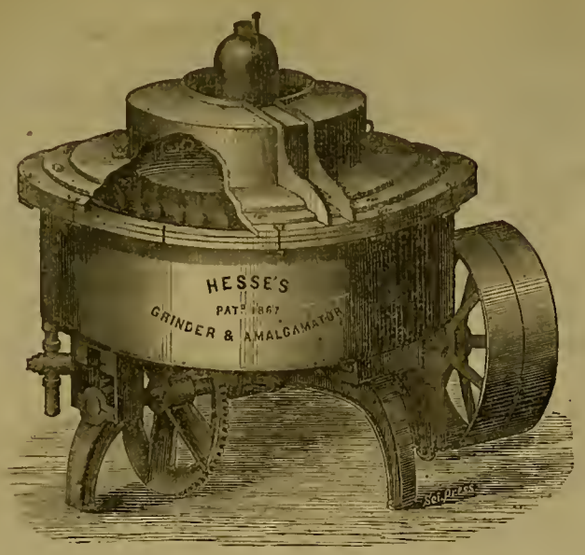

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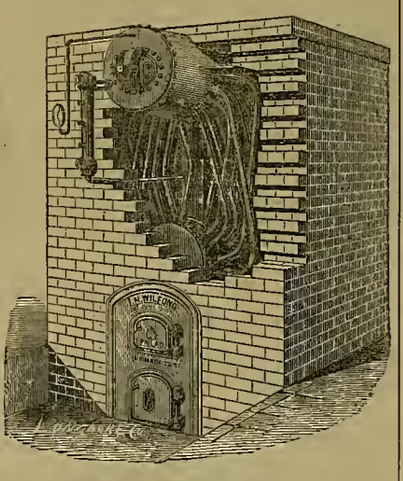

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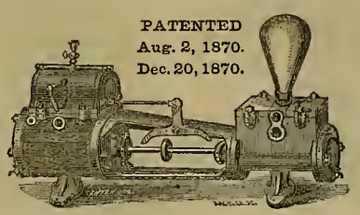

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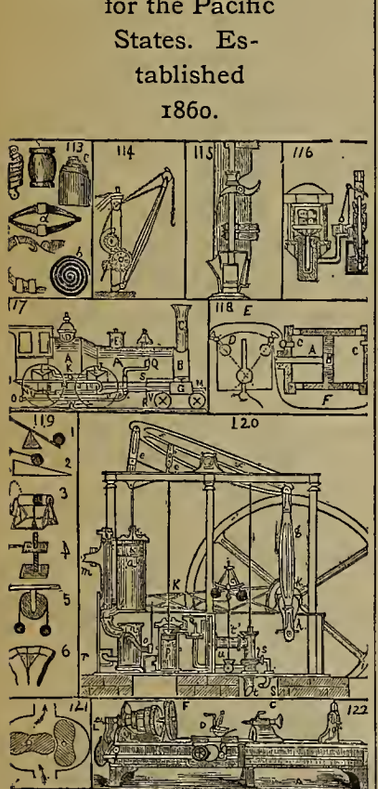

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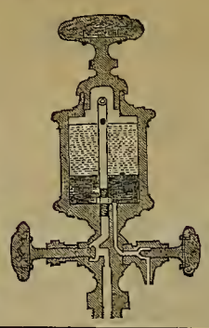

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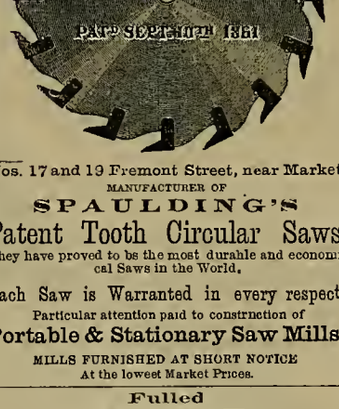

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Travelers' Guide.

CENTRAL PACIFIC RAILROAD.
February 1st, 1872.

San Francisco & Sacramento.

LEAVE.	LEAVE.		ARRIVE.	ARRIVE.
*4.00 P M	7.00 A M	San Francisco	8.30 P M	*2.20 P M
4.35 P M	7.35 A M	Oakland	8.00 P M	1.50 P M
4.10 P M	7.50 A M	San Jose	8.30 P M	2.10 P M
5.35 P M	8.35 A M	Nilee	7.05 P M	12.35 P M
8.48 P M	11.50 A M	Stockton	4.07 P M	9.07 P M
10.45 P M	1.49 P M	Sacramento	2.20 P M	7.15 A M
ARRIVE.	ARRIVE.		LEAVE.	LEAVE.

San Francisco & San Jose.

LEAVE.	LEAVE.		ARRIVE.	ARRIVE.
.....	3.30 P M	San Francisco	10.40 A M	.....
7.10 P M	8.40 P M	Nilee	8.35 A M	5.30 P M
8.30 P M	5.30 P M	San Jose	7. 0 A M	4.10 P M
ARRIVE.	ARRIVE.		LEAVE.	LEAVE.

Stockton, Lathrop & Merced.

LEAVE.	LEAVE.		ARRIVE.	ARRIVE.
.....	3.35 P M	Stockton	10.20 A M	.....
*9.45 A M	8.25 P M	Lathrop	9.30 A M	*3.20 P M
11.35 P M	9.45 P M	Modesto	8.13 A M	6.45 P M
2.40 P M	12.15 A M	Merced	5.45 A M	3.30 P M
ARRIVE.	ARRIVE.		LEAVE.	LEAVE.

Sacramento, Colfax, Reno & Ogden.

LEAVE.		ARRIVE.
2.00 P M	Sacramento	*2.00 P M
5.15 P M	Colfax	10.20 A M
12.45 A M	Reno	2.10 A M
9.10 A M	Winnemucca	4.15 P M
12.00 M	Battle Mountain	1.25 P M
4.40 P M	Elko	8.45 A M
6.20 A M	Ogden	5.20 P M
ARRIVE.		LEAVE.

Sacramento, Marysville & Red Bluff.

LEAVE.	LEAVE.		ARRIVE.	ARRIVE.
*8.45 A M	2.35 P M	Sacramento	1.05 P M	*4.45 P M
10.25 A M	3.25 P M	Junction	12.15 P M	3.25 P M
1.50 P M	5.15 P M	Marysville	10.20 A M	12.00 M
8.00 P M	8.35 P M	Tehama	6.50 A M	5.30 A M
.....	9.20 P M	Red Bluff	6.00 A M	.....
ARRIVE	ARRIVE.		LEAVE.	LEAVE.

San Francisco, Vallejo & Calistoga.

Leave	Leave		Arrive.	Leave
*4.30 P M	7.30 A M	San Francisco	8.00 P M	*12.15 P M
6.30 P M	8.30 A M	Vallejo	6.05 P M	10.30 P M
7.28 P M	10.40 A M	Napa	4.50 P M	9.30 P M
9.10 PM	1.00 P M	Calistoga	3.00 P M	8.00 A M
Arrive	Arrivo		Leave.	Leave.

San Francisco, Vallejo & Knight's Landing.

Leave	Leave		Arrive	Arrive
†7.30 A M	*4.00 P M	San Francisco	*12.15 P M	†8.00 P M
9.35 A M	6.35 P M	Vallejo	10.30 P M	6.05 P M
12.05 P M	10.10 P M	Davis	7.10 P M	3.3 P M
1.00 P M	11.45 P M	Knight's Land'g	5.30 A M	2.30 P M
Arrive	Arrive		Leave	Leeve

San Francisco & Healdsburg.

Leave	*2.00 P M	San Francisco	*11.00 A M	Arrive
.....	4.35 P M	Donahue	8.45 A M	.....
.....	5.00 P M	Petaluma	8.20 A M	.....
.....	6.00 P M	Santa Rosa	7.30 A M	.....
Arrive.	6.45 P M	Healdsburg	6.45 A M	Leave.

Stockton, Milton & Oak Dale.

.....	Leave		Arrive	.....
.....	*11.25 A M	Stockton	*4.25 P M	.....
.....	12.42 P M	Peters	3.02 P M	.....
.....	1.32 P M	Milton	2.12 P M	.....
.....	1.44 P M	Oak Dale	2.00 PM	.....
.....	Arrive		Leave.	.....

CAL. P. R. R. CO.'S STEAMERS.

Leave.	Leave.		Arrive.	Arrive.
*4.00 P M	*4.00 P M	San Francisco	*10.00 P M	*8.00 P M
6.00 P M	.....	Vallejo	.....	6.00 P M
7.00 P M.	6.00 P M.	Benicia	6.00 P M.	5.00 P M
.....	2.00 A M	Stockton	2.00 P M	.....
2.00 A M	.....	Sacramento	.....	12.00 M.
Arrive.	Arrive.		Leave.	Leave.

Explanation.

For trains running "from" San Francisco, take the left hand columns and read downwards, or "Eastward."
For traine running "towards" San Francisco, take the right hand columns and read upwards, or "Westward."

OAKLAND BRANCH.—LEAVE SAN FRANCISCO, 7 00, 8 10, 9 2 , 10 10 and 11 20 a. m., 12 10, 1 50, 3 00, 4 00, 5 15, 6 20, 8 05 9.20 and *11 30 p. m. (9 20, 11 20 and 3 00 to Oakland only).
LEAVE BROOKLYN, *5 30, 6 40, 7 50, 9 00 and 11 00 a. m., 1 30, 2 40, 4 55, 6 10, 7.40 and 10 10 p. m.
LEAVE OAKLAND, *5 40, 6 50, 8 00, 9 10, 10 00, and 11 10 a. m., 12 00, 1 40, 2 50, 3 50, 5 05, 6 20, 7.50 and 10 20 p. m.

ALAMEDA BRANCH.—LEAVE SAN FRANCISCO, 7 20, 9 00, and 11 15 a. m., 1 30, 4 00, 5 30, and 7 00 p. m. (7 10, 11 15, and 5 30, to Fruit Vale only).
LEAVE HAYWARDS, *4 30, 7 00 and 10 45 a. m., and 3 30 p. m.
LEAVE FRUIT VALE, *5 25, 7 35, 9 00 and 11 20 a. m., 1 30, 4 05 and 5 30 p. m.

*Sundays excepted. †Sundays only.

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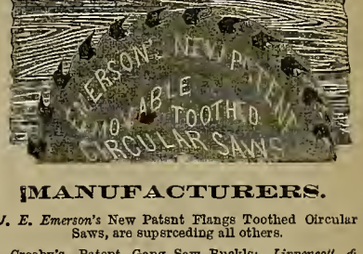

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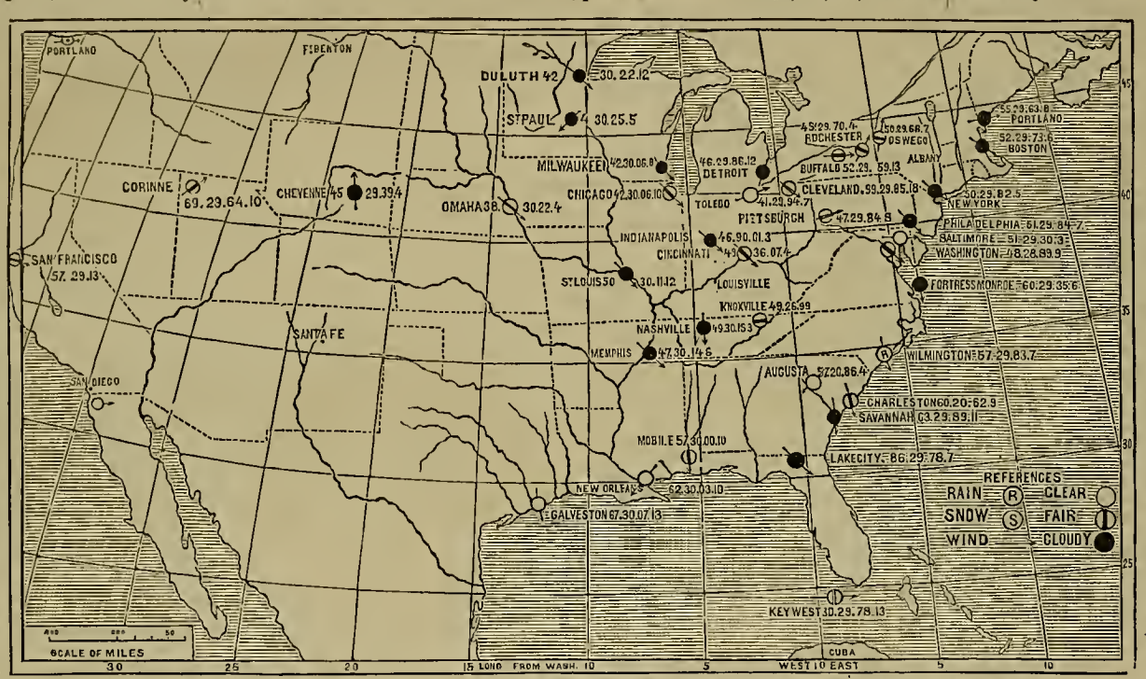
BY DEWEY & CO., Patent Solicitors.

SAN FRANCISCO, SATURDAY, FEBRUARY 10, 1872.

VOLUME XXIV. Number 6.

United States Signal Service.

In our issue of January 6th, we gave a sketch of the extended system of meteorological reports, which has recently been introduced by the War Department at Washington, for the benefit of navigation, and the people generally, and alluded to the ability and general plan of the system. To-day we are enabled to give a specimen of the weather map which is daily published in Washington and several other of the principal cities of the Union, and which will convey to the reader a more definite idea of the character of the information given, and the facility with which it may be presented on a map. The accompanying map is a *fac-simile*, on a reduced scale — a portion only of the stations being given — of the one published September 27th, 1871. This map can be prepared at any station from the regular weather reports which are first transmitted from the several stations to the chief station at Washton, and there tabulated and sent out as a whole, to all the chief commercial and business cities of the country.



SPECIMEN OF THE WEATHER MAP AS DAILY PUBLISHED BY THE UNITED STATES SIGNAL SERVICE.

The use of the characters indicating rain, snow, clear, fair and cloudy will be readily understood; the arrow flies with the wind; the figures placed in immediate connection with the characters are explained as follows: The first figures show the state of the thermometer; the middle four figures show the velocity of the wind in miles per hour; the absence of the arrow and figures showing velocity of wind indicate calm weather.

The popular belief in man's ability to forecast the weather is as old as history, and "weather sharps" have always been met with in every community, savage or civilized. But it is only since the telegraph has enabled a single observer to extend his observation, simultaneously over an immense region of country, that weather predictions have been reduced to something like a science. By the aid of the telegraph the observer at Washington, is enabled to become informed of the existence of a storm, a thousand miles or more away, to study its motions and characteristics, and thus mark out its future course and give the necessary warnings to be prepared for its coming. Although the Signal Service has already proven of immense practical value to commerce, for the advance of which it is more especially intended, it is as yet by no means claimed that sufficient data have been collected to establish it as an exact science; but it is believed that the system now inaugurated, will, if faithfully persevered in, lead to developments which will be far more useful than it now is to the public.

FOR THE PROTECTION OF MINERS.—The following bill was recently introduced in the Assembly for the purpose of protecting the health and lives of miners. The first section reads as follows:

Section 1. It shall not be lawful for any corporation, association, owner or owners of quartz mining claims within the State of California, where such corporation, association, owner or owners employ twelve men daily, to sink down into such mine or mines any perpendicular shaft or inclines beyond a depth from the surface of three hundred feet, without providing a second mode of egress from such mine in case of fire or other accident that might occur to the main shaft or incline.

The remainder of the bill requires all mine owners included within the first section, to commence to sink an additional shaft to connect with the main working level. If any mine owner or corporation shall fail to provide for the proper egress, and any accident shall occur on that account, the owner or corporation shall be liable for damages, and when death shall ensue, the heirs or assigns of the deceased may maintain action for damages under "the Act requiring compensation for causing death by wrongful act, neglect or default, approved April 26th, 1862." The law shall take effect six months after its passage.

THE snow blockade still continues, but the postmaster here expects to receive an Eastern mail to-night.

The Excitement in Stocks.

The Stock Brokers have had quite a lively time of it for some days. Ever since the announcement on the evening of the 2d inst. that a rich body of ore had been struck in the Savage mine, which carried that stock up and influenced many others, California street has been in a high state of excitement. On Saturday the sales at a single session of the San Francisco Stock Exchange Board, amounted to the large sum of $1,300,000 and with the sales in the new Board and on the street the total for the day is estimated at $2,000,000. Of course a number of the sales were on time. Monday's transactions were thought to have amounted to the unprecedented sum of $3,500,000, and on Tuesday the sales at the morning session alone aggregated a million dollars during a three-hours session. The mines that have appreciated in value within the past few days are principally on the Comstock lode. There is little doubt that considerable bodies of fine ore have been recently discovered in mines located on the lode, but there is not much reason to suppose that dividends can be declared in proportion to warrant the wonderful advance that certain stocks have taken. However this is a matter of opinion, and people when they get excited in stock operations seldom wish to be warned or advised as to their investments, still it will be well perhaps to call the attention of our readers to the experiences of 1863 and the White Pine fever, and suggest that if they have any spare dollars safely lodged in the savings bank, to let them rest there and trust in the legitimate increase, rather than risk hard earned savings in "stocks" with the hope of sudden fortunes.

It is of course to be hoped that the rich developments said to have been made are matters of fact and that the mines which have so materially increased in value will prove themselves worth the highest prices paid for them. Thus far however there are no means of judging of the facts for want of reliable information on the subject.

California Academy of Sciences.

The regular meeting of the Academy of Sciences was held on the 5th inst., and the following named gentlemen were elected resident members: Dr. J. Bluxome, Dr. C. M. Bates, John O. Earle, C. A. Wetmore, Henry Carleton and O. D. Munson. Eight new members were proposed.

Due notice having been given, the consideration of the following addition to the by-laws was taken up and adopted:

Resolved. That the officers of this society are prohibited from incurring any indebtedness on behalf of this society, unless authorized by the Board of Trustees, or by a vote of the Academy at a regular meeting.

Donations.

F. Emile Durand presented a combination of sulphate of baryta and sulphate of lime, taken from the Redington quicksilver mine, in Lake county; also, two curious crystallizations of oxide of zinc, reproducing the coral form, and showing how near crystalline form can reproduce the appearance of organized bodies.

The Secretary announced the receipt of 61 specimens of bird skins and a variety of seeds from the New Zealand Academy of Sciences in return for a collection of California cones sent to them.

The subject of inviting inventors to produce their inventions, with a general discussion of their merits before the Society, was discussed, but it was considered unnecessary so to do as the Society had dropped the word "Natural" from its corporate name with a view of extending its sphere of usefulness by permitting discussions on all branches of Science.

Dr. Cooper announced that the Mechanics' Institute had tendered for the use of the society, at a moderate rent, the upper floor of its building, which would much better accommodate the Academy than the rooms now occupied.

SACRAMENTO VALLEY BEET SUGAR COMPANY.—This company with a view of largely extending their operations, propose to increase their capital stock—which is now $100,000—to $200,000, and have given notice for a meeting of the stockholders for that purpose. This does not look much like a backing down of the new enterprise, and we congratulate the stockholders of the company on their successful endeavors to place this valuable industry, on a permanent and paying basis.

CORRESPONDENCE.

Mining and Other Matters in Montana.

EDITORS PRESS:—Having occasion to pay a visit to Meagher County, the past week, I heg the privilege, as your occasional correspondent, to jot down some items gleaned during my trip to that iuteresting portion of our Territory. In company witb a friend we sleigbed from Helena to Staffordsville—formerly Cañon Ferry, on the Missouri river, about 18 miles distant. The ferry appurtenances were there, but we crossed the river upon ice 16 inches thick, and were glad to arrive at the hospitable door of mine host, Capt. Stafford. Around his genial hearth we met several honest miners, sturdy ranchmen, and stockmen, wbo were "snowhound"—all enjoying tbe indoor comforts, the more pleasureable hy contrast with the severe cold and deep snow without. We tarried a day and gathered much valuable information for the PRESS from the weather-bouud visitants.

A Snowless Region.

From Mr. Weatley Basey we learued that about 900 head of cattle had heen driven from the Deep Creek country—when the snow was two feet deep—to the Mussle river—where there is no snow, only about 30 miles distant eastward. About 1,100 remained, and the ranchmen were proposing to remove the remainder to that section.

It is passing strange that whilst all over the Territory so much snow has fallen and now lays upon the ground, about two feet on a general level, that the portion of country alluded to extending over many miles, should he exempt. The bunch grass was 18 inches high, seeded, and nutritious, and thousauds of cattle could he wintered there, safe from the voracious wolves, and in danger only from the possible appearance of vast herds of huffalo which were in the Judith basin, or might at any time cross the range to that inviting paeture.

Desirable Locality.

The captain has one of the most inviting, romantic, and profitable locations in Moutana. It is the concentrating point for the miners and rauchmen; whilst, as he informed us, 30 or more strangers have found comfortahle heds with bim during this present "cold spell." He will have a new wire rope soon, to span the river—which is 500 feet wide just helow the cañon. We noticed two or three yoke teams busy hauling saw-logs to the mill from the adjacent hills—which gives employment to a dozen or more men, choppiug timher. When they came in at night they seemed to be men of

"Happy yesterdays, and confident to-morrows."

The cackling of hens, cooing of pigeons, equealing of numerous swine, and lowing of the herds as they come in from the foothills, reminded us forcihly of Gray's celebrated elegy, and, altogether, presented a picture of this far-off mountain country, which in comfort and pleasantness would not suffer by comparison with any portion of our higbly-favored land.

We were also informed that the Trout Creek Ditch, which has been in progress for the past two yeare, will surely be completed early this epring, and will give employment to a large numher of miners, as it is estimated that at least 600 acres of hench placer mining will he brought into productiveness. The capacity of the ditch is 1,000 inches, and length 14 miles.

After the warm parting greetings and a "sleigh cup," the next morning, early, with eleigh-hells jingling, we dashed off up the valley. The snow outside of the well-beaten tract was about 2½ feet deep. We passed several ranchos on the way; the houses were comfortahle looking, and around the large ricks of hay and straw-etacks the cattle in great numbers were grouped, seeming to be well cared for.

Blackwell's Station or Glenmore.

After a two hours drive of twelve miles over the crisp snow, we arrived at the hospitable home of the Messrs. Blackwells—Glenmore, we named it, formerly called Blackwell's Station. Here, in the wintor time, all travelers, helated or otherwise, find all the comforts of the aristocratic English farmer's warm welcome, with fire places as large as their hearts, cosy heds, groaning tables, and a welcome so hearty that tbe frost at once melts from our heards and we indeed feel "at home."

Tbis rancho needs more than a passing notice. Ahout five years ago four poor English boys with their aged parents settled here, and have, hy their own industry and energy, now an inviting home and the largest aud most productive farm upon the Missouri valley. The land lays just along the foothills which here are very precipitous, and extend outwards and along the high hench of land overlooking the river from a distance. It is watered hy White's gulch. The system of irrigation adopted here is the most complete we bave seen. They have about 200 acres in cultivation and will add more next year; tbey had 80 acres in wheat, which yielded 30 bushels to the acre; the wheat is the Chili and Cluh wbeat, and makes splendid flour. It is perfectly free from smut and every other impurity. Their oat crop yielded 40 husbels to the acre and weighed 40 lbs to the hushel, and is of the "Surprise" variety. The grains are almost as large as the celebrated Montana rye. Their potato crop yielded 200 hushels per acre.

The stock upon this farm looked better than any we saw, as they had good shelters and an ahundance of hay and straw. The horses and cattle bave lived for the most-part upon the hunch grass growing upon the steep declivities of the hillsides.

In my next letter I will write about matters, etc., in and about Diamond City.

EAOLE QUILL.

Helena, Montana, Jan. 17, '72.

Inyo County Mining Matters.

EDITORS PRESS:—Having missed your correspondent "Crowquill's" letters from the columns of your valuable paper, for some time, I thought I would take up the cudgel and drop you a few notes of the doings of our couuty. Winter has set in iu earnest. The mountain ranges on either side of the valley of the Owens river are covercd to the depth of several feet with snow; and times are looking brighter for the miners and furnace-men and for everybody in general, than they have for some months previous. The furnaces in Cerro Gordo, Swansea, and Lone Piue, (Cervantes) are in full blast.

The Kearsarge Co.

After au expenditure of nearly $40,000 through mismanagement and ignorance in amalgamating the ores, have closed their lahore for the season with liabilities of ahout $20,000; for which an attachment rests upon the property. It seems strange that, with the amount of capital this company has invested, that when they get a man in their employ that *does* understand the amalgamation of tbeir ores, and make a profit to the compauy, that a few dollars more or less, in the shape of salary, should deprive them of his eervices—yet such is the fact.

The Eclipse Co., duriug the present season, have completed 30 stamps in their new mill and have them runuing, and under correct managemeut, this will he a success.

A Tramway and Hoisling Works.

A tramway 2½ miles in length connecting the mine with the mill is nearly completed and is a great saving even now, in the transportation of the ore; hut will he of vastly more saving when connected with the tramway of the incline shaft of the mine.

Steam hoisting works are now in course of erection at the mouth of the mine, which, when completed will add to the profits of the working of the different ores contained in this mine.

Something Unusual

Is to he seen in this mine. Directly under the hanging wall is a belt of argentiferous galena, sub-lying which is a helt of silver-bearing quartzite, similar to the ores of Cerro Gordo, and of equal richness, whilst underneath, the ledge is composed of gold-bearing rock, and which is worked hy mill process for tbe free gold it contains. The whole ledge being nearly 9 feet in thickness. Mr. A. J. Close of this place is now erecting a emelting works for this company, on the same plan in use in other parts of this county, which will be in running order by the 20th of Jan., 1872. The furnaces are of about the same capacity as those of Mr. W. Belsbaw & Co. of Cerro Gordo.

Waucoba District.

This district is attracting considerable attention at present, so in view of that fact I think a description will not he amiss in this place.

The district is named after one of the Indian chiefs of that section and was located by Mr. I. Freehorn & Co., some three years ago. It is situated 30 or 40 miles east of Independence, on the eastern slope of the Inyo mountains and contains an ahundance of wood and water and is destined to he a formidahle rival to Cerro Gordo in the smelting reduction of its ores; the veins being chiefly of the hase metal order.

The Mines of Cerro Gordo

Are improving in extent and richness daily. A rich strike was made in the Wittekind a few days ago.

The Omega Tunnel Co. have struck a heavy mass of galena in tbeir tunnel and are ruuning it to the surface as fast as posihle.

The Santa Maria Mill has just heen sold by the Sheriff for the sum of $101,000 to Mr. P. W. Bennett, to satisfy a judgment in his favor for $97,000 and costs of suit, and is now being worked to its fullest extent hy Mr. B. & Co.

EXILE.

San Diego Mines.

EDS. PRESS:—Since my last letter, we have had quite a miniug excitement, in fact, greater than we have ever experieuced in this camp hefore. After the rich clean-up of the Big Blue Co., many

Prospectors

Visited that locality, which is situated half a mile east of the Helvetia, to hunt for the extension; they did not prospect long until the Bush brothers struck a very rich deposit or ledge, said to he richer than the Big Blue; then Mr. Puntney, from San Felipé, found another near hy, for which the Bush boys paid him $50, he having worked on it only one day. M. A. Lewis found auother rich deposit or ledge, on which he pounded out $27 from four pounds of rock, and the Bush hoys paid him $400 for his claim to prevent any conflict of title; this raised a big excitement, and for many days Big Blue Hill had from 100 to 150 men on it prospecting, a numher of whom found and located rich deposits of quartz. Some half dozen tunnel sites have heen located, and tunnels commenced for the purpose of runuing into the hill to strike the main ledge, which everyhody supposes is the origin of the rich float rock and slides which ahound in this vicinity. The Bailey hrothers in San Felipé Cañon, have completed their large overshot water whcel, which works like a charm, running their small five-stamp hattery, crushing four tons of ore per day from the

Ready Relief,

Which is paying well. It is the southern exteneion of the Redman mine; the boys are in a fair way to realize a fortune; they run the ore in cars within ten feet of the hattery, have a ledge six or eight feet wide, and it costs them but a trifle to crush it; they first burn the ore in a furnace uear the battery; they do all their own work in the mine and mill, so that the returns from the ore are nearly clear profit; the mine is looking well, showing free gold in a great deal of the ore. The hoys say they are working on the 500 foot level, as they have the face of the hill hefore them and quartz all the way to the top, about 500 or 600 feet above them.

Mr. A. W. Whitney has got a large new pump in the Redman mine and hopee to have no further difficulty in keeping the water out, so they can take out rock without further detention.

From the famous

Golden Chariot

Ledge the company are still taking out the richest ore ever eeen in tbe country, and packing it to Whitney's Mill, where they are sure of getting ahout $200 per ton. The last crushing returned ahout $190, and they are confident that the ore now heing taken out is better than any ever taken out hefore; tbe ledge is large, beiug from six to nine feet. All of our other mines are looking well as usual.

Climate, Etc.

In my last letter I promised to say eomething of the climate of San Diego county, but I am so crowded for time and space, I will only tell you what I have seen, and then your readers can draw their own conclusions. On the 12th day of December I was in San Diego City and saw a lemon, just cut from a hush only two years old, full grown and of the largest size. On tbe road down to the city I saw farmer gather his second crop of potatoes from tbe same ground, yielding 200 husbels per acre. Now the hills are covered with flowers, all over Julian and Banner Districts. We have had copious showers of rain, and farmers are in high hopes of a plentiful harvest, such as they have not had for tbree years past. In consequence of the three years drouth tbrough which we have just passed, the ahove facts will give your readers a hetter idea of our climate than all I could say in a long letter.

L. B. H.

Julian City, Jan. 20.

Mining in Placer and El Dorado.

EDITORS PRESS:—Having just returned from Placer and El Dorado counties, I am prepared to say tbat the miners were never in better spirits, and good cause have they for heiug juhilant. Water is abundant, and the piles of dirt which accumulated during the dry seasons prove rich, and the lahor of past years is meeting its just reward.

In and ahout Auhurn there rages what might be called a "quartz fever," and the hopes would seem to be not at all misplaced. A numher of Sacramentans are interested in the Ella quartz mine, in El Dorado county, ahout two miles distant from Auburn station. The *Union* of a late date referring to the discovery of this ledge, says:—"In November last, J. J. Orr, wbile out deer hunting, discovered the croppings and told his friend, George W. Paget, and they together with Samuel J. Hunt, determined to organize a company to develop the claim."

Some flood, prohahly in '52 or '62, washed off five or six acres of land and opened the ledge about 500 or 600 feet below the croppings. The Ella claim is situated on a point of land tendiug to the North Fork of the American River. Tbe ledge is 3,000 feet long and six feet wide, with a shaft sunk to the depth of 30 feet. There are fifteen stockholders, each holdiug 200 feet. The stockholders are Hart Fellows, G. W. Paget, J. J. Orr, M. T. Brewer, John H. Johnson, Samuel L. Hunt and others, all Sacramentans. The rock from this ledge yields $50 to the ton. The Ella claim is two miles iu a southwesterly direction from the celebrated Great Crevice mine at Murderer's Bar, which yielded more tbau half a million of dollars in the palmy days of '49 and '50, when Col. J. C. Potter and other well-known Californians had fingers in tbat auriferous pie. New steam machinery, now etored in this city and intended for the Great Crevice, will he forwarded to Murderer's Bar as soon as the roads are in good condition.

The farmers in this, Yolo, Sutter, and all adjoining counties, are in excellent spirits and hard at work. Everytbing looks promising for a bountiful harvest—and a good time for everybody. You bave no doubt noticed the interesting and cheering report made day before yesterday hy the Directore of the State Agricultural Society.

REFLEX.

COMSTOCK ORE.—Ore is now being extracted from the 1200-foot level of the Belcher and Crown Point mines, says the Territorial *Enterprise*, which is precisely the same as the rich black sulphuret ores that were found in former times in the Gould and Curry, Ophir and Mexican mines. We again eee the old familar black sulphuret epecimens passed from band to hand or exhibited in cabinets of yore. It would seem as though we are now passing into a new zone in our mines, a zone in which the black sulphuret ores are again to predominate as they at first did in that at present known. Whether or not this may be the case, it is quite certain that we are just beginniug to make the acquaintance of our mines. A hundred years hence the workers on the Comstock will doubtless laugh at our preseut perplexities, shortsightedness and childish misgivings.

THE Thames tunnel, thought to he such a novelty, was anticipated by one under the Euphrates at Babylon, and the ancient Egyptians had a Suez canal.

IVORY.—If ivory hecomee brittle hy age, it will recover its original quality by being hoiled in a solution of pure glue.

MECHANICAL PROGRESS.

Friction Gearing vs. Belts and Cog Wheels.

Experiments in the use of friction gearing—that is, of pulleys transmitting power, by direct frictional contact between the smooth faces of the driving and the driven pulley instead of by means of belts or by cogs meshing into each other—have been very frequently made, and in many cases with remarkable success. So emphatic, are the recommendations of this method of gearing, given by men who have tried or witnessed its operation, that it is somewhat a matter of surprise that it has not been more generally adopted. It is claimed by many such persons to be equally well adapted to the propelling of gang, mulay or circular saws, mill hurrs, or in fact almost any description of machinery, and to the transmission of any amount of power with the same or even greater useful effect than when belts or cog wheels are employed.

In the vicinity of Clinton, Iowa, some years ago, friction pulleys were introduced in a saw-mill with such complete success in point of economy and convenience, that they soon became an established institution throughout that entire region, superceding belts altogether, the latter being in some instances thrown out at a heavy expense to give place to the new order of things.

The pulleys used in this case were built of soft and tough wood, strongly put together by their segments in such a manner as to present the least possible end grain of wood to the surface. They were placed on the main shaft, to which the power was applied by the engine crank or taken from the water wheel, as the case might be, in the ordinary manner. The faces of the pulleys were either parallel to the shaft or beveled at any angle required, according to the direction of the counter shafts to which the power was communicated. The segments of the pulleys were glued or painted together and their faces turned off perfectly true. It was found that they required about one-third more width of face than would be necessary if belts were used. In one case, two gangs were run, each with a friction pulley three feet in diameter and having 24 inches face. For a mulay or rotary saw mill, a pulley of from 12 to 16 inches face was found sufficient. A friction pulley, ten inches in diameter with six-inch face, was described as giving more useful effect and heating the boxes less than when the same pulley was used with a four-inch belt. From the numerous experiments made, the conclusion was reached that a pulley of 20 inches face would successfully transmit 50 horse power without undue wearing or heating.

The special advantages claimed for this method were the saving of the expense of providing belts and loose pulleys and keeping them in repair. The mills were so arranged that each machine was run with its own counter shaft, geared either to the engine shaft or to one of the main counter shafts so that each workman could control the operation of his own machine independently of the others, and with no throwing off or putting on belts. The pulleys on the counter shafts were of iron and very strong, each having the same face, of course, as the driving pulley, but being of any desired diameter, according to the motion to be obtained. By means of a movable bearing operated by a lever, the iron pulley was readily brought in contact with its driver, the motion necessary for this purpose being less than one-eighth of an inch.

The statement that, for the proper working and durability of a friction pulley, it should be so made as to present as little end grain as possible to the surface, is emphatically disputed by experienced workmen, who claim that the precise opposite to this is the true method, and that the pulley should be so made as to offer the end grain to the contact of the other pulley to the utmost practicable extent.

To accomplish this purpose, the pulley is made of segments of wood, cut out of a plank in the shape of a fan, the grain running parallel with one side of the fan, and the end grain being represented in a slightly oblique manner at the outer or circular edge. These segments are put together strongly, and so arranged that the grain shall not run in the same direction in two pieces in contact with each other, but cross in much the same manner as the furrows in the upper and under millstone. The object of this is to prevent the face of the pulleys from too great tendency to wear in any given direction.

The rim of the wheel, as it may be called for convenience, is built up by laying the first tier of segments, making a complete wheel of the thickness of the plank, flat upon the bench, and placing the other layers successively upon this, breaking joints and crossing the grain as already indicated. The layers are very strongly secured to each other with wrought nails, beside which glue or white lead is laid on between them. The rim being complete, mortises or gains are made to receive the pads of the spider at the end of the radial arms, these gains being somewhat larger than the pads, and the space thus given being filled by the insertion of keys, one on each side of the pad, entering from opposite directions and overlapping each other, the whole length of the pad. Bolts are also inserted, passing through the pad in a radial direction, with countersinking on the face of the pulley and a nut on the inner end. The countersink is afterward filled by plugging, over the head of the bolt.

The conflict of testimony in regard to the comparative efficiency of the pulleys in which the end grain is presented to the surface and those in which it runs lengthwise with the circumference is somewhat surprising, as the point is easily subjected to a practical test. Most mechanics will take ground without hesitation in favor of end grain, as less liable to yield and curl or "broom" up, when subjected to powerful and constant pressure.—*Leffel's Mechanical News.*

ROLLING IRON.—Nothing is more noticeable than the various changes which have been made in the method of finishing iron in rolling mills during the last five years. A few years ago our mills furnished all their iron in bars, sheets, rails, or such shapes as were demanded by separate establishments. Of late the iron manufacturers have added to their mills other branches of iron working, which can be done by them at much less cost than by those who were simply purchasers from the mills, and who lost considerable in the shape of "scraps" in working up the iron in various articles. Said "scrap" was necessarily brought back to the mill again and sold at a greatly reduced rate. Thus it will be seen that the rolling mill that finishes the iron direct into nuts, bolts, horse shoes, washers, railroad chairs, etc., possesses a great advantage in making these articles, which are beginning to be viewed as a part of the rolling mill business. Galvanizing sheet iron, making gas pipe, strap hangings, and many other things are now made by rolling mills with more profit to themselves and the public, than by the old method. Properly managed, the finishing of iron into these and other articles cannot fail to prove profitable to the manufacturer.

TESTING COTTON GINS.—A series of interesting experiments have been proposed at Manchester, England, for the purpose of testing the merits of the various cotton gins, for working different kinds of cotton, or separating the fibre from the seed. The points to be determined for each gin, and in respect to each variety of cotton are:—First—the speed of working, as tested by the time in which a given quantity of seed cotton can be ginned; second—The facility of working as tested by the quantity of power consumed in the operation; third—The quality of working, as tested by the condition of the ginned fibre and the separated seed respectively. In order to make the experiment as conclusive as possible a series of very ingenious regulations have been framed to exclude the possibility of any kind of error or deception. Three principal classes of gins have been entered for competition namely, the roller gins, knife and roller gins, and saw gins. Such tests might be made with many other kinds of machinery, much to the advantage of the public and to all really meritorious inventors.

AERATING WATER.—A contrivance of recent date for aerating water produced from the condensation of steam, comprises a tank with a series of porous or open work partitions, some containg wool and felt, with the spaces between filled with coke and chalk. The last compartment has a perforated bottom, through which air is forced and rises in minute bubbles.

FROM an interesting article in a recent issue of London *Times*, we learn that steam cultivating machinery is coming into very general use in England. One large firm have been sending out from eight to ten plowing engines per week, most of which are for use in districts where they can be hired by several different farmers.

SCIENTIFIC PROGRESS.

The Permanent Gases.

It is a generally received opinion that all gases are mere vapors of liquids that boil at very low temperatures. Thus, while water boils at 212°, common ether boils at 96°, and sulphurous acid at 0°. Consequently, while water is always a solid or a liquid, in all parts of the earth, ether would be a permanent gas in any place where the highest tropical temperature prevailed, and sulphurous acid is always a gas except in the cold of the polar regions. Even mercury, when exposed to a temperature sufficiently high, becomes transparent gas, and carbonic acid gas, when exposed to a temperature sufficiently low, becomes first a yellowish liquid, and then a beautiful, snow-white solid. The only difference, then, between common snow and carbonic acid snow is that the one is much colder than the other, while, on the other hand, the only difference between carbonic acid gas and mercury gas is that the one requires a higher temperature for its existence than the other.

There are certain gases, however, which no degree of cold yet reached has reduced to the liquid, far less to the solid form. Prominent amongst these are oxygen and hydrogen—the gases that, combined, form water. But after it had been observed that intense cold tended to reduce all gases and vapors to the liquid form, these gases were cooled with freezing mixtures; still they remained in the gaseous state, although mercury became solid, and alcohol, unless very pure, became thick and pasty. After a time, a still more powerful freezing mixture (liquefied laughing-gas) was discovered, and by a powerful steel pump was forced into a large iron receiver until it became liquefied with the pressure. When a little of this liquid was poured into the air, it evaporated, and produced the greatest degree of cold ever observed—257° Fah. Even then, oxygen and hydrogen did not liquefy, but maintained their condition as clear and beautiful gases.

But cold alone was not the only agent brought to bear on these gases. They were subjected to immense pressure, far exceeding anything with which we are familiar in ordinary life. Natterer constructed a series of very finely made steel pumps. With one of these, he condensed one of the gases into a strong vessel until it occupied but the three-hundreth part of its original bulk. Then, with a still more powerful pump, he condensed this already dense gas, so as to reduce it still further. It will readily be seen that, by employing gas in a condensed state, it was much easier to force it through the valves of the second pump than if gas at the ordinary pressure had been used. In this way, by working with gas gradually increasing in density, he finally obtained a pressure of 3,000 atmospheres, or 22½ tons to the inch.

If we have no idea of a temperature of 257° below zero, neither can we fully grasp the enormous pressure expressed by the figures 22¼ tons per square inch. Most solid substances would be crushed to powder under such a pressure as this. And yet to this wonderful pressure did Natterer subject oxygen and hydrogen. But even that temperature and pressure made no impression on them, at least so far as change of form is concerned.

But that which Natterer, aided by all the resources of modern science, failed to do, chemical affinity does instantly and perfectly. Mix the gases in proper proportions and bring the smallest flame into contact with them, so as to produce ignition, and they will instantly rush together with a loud report, combine and form a perfect liquid, water. It is perfectly obvious that the elementary atoms of this new liquid water, must be held together by a force sufficient to overcome their expansive force. We have seen what this expansive force is capable of resisting, and consequently we can form a comparative estimate of the power of chemical affinity.—*Condensed from Phin's Chemical History.*

VOLCANIC ERUPTIONS.—Archdeacon Pratt, by discussing the amount of precession in a globe with a molten nucleus, finds conclusive evidence of Sir Wm. Thompson's opinion that the earth is solid, and that, therefore, volcanic eruptions are attributable to some other cause than the one popularly assigned. His view is confirmed by numerous recent observations, which indicate that the increase of temperature, below the earth's surface, soon reaches a limit.

THE SAND BLAST.—The uniform success which has attended the use of the sand blast has sufficiently proved its reliability, and the numerous purposes to which it can be applied, promise to render it one of the most useful inventions that have been of late brought into public notice. By simple modifications it can be made to supercede the present slow and costly process for shaping granite and other hard stones, for rock drilling and for polishing castings, or grinding and engraving glass. The cost of working it is extremely small and there need be no loss of the sand employed, as it can be constantly restored to the feeding hopper, together with the particles driven from the material.

The action of the sand upon a hard surface appears to be due to the work performed by each angular particle that strikes, and which in striking carries away with it a particle, of course far smaller than itself, and the reason why the softer materials resist the wearing action, is due to the elasticity which repels the particles. As a proof of this, it may be mentioned that while perforated shield plates of lace, gelatine, or rubber bear a prolonged exposure to the sand, unharmed, stencils of thin sheet steel or brass curl up, and are destroyed.—*Engineering.*

THE PNEUMATIC SEWAGE SYSTEM in which air is the power employed for cleaning the sewers of matter otherwise likely to accumulate, is discussed with much interest by some of our foreign exchanges. The plan is to divide a city into complexes and sub-complexes, a sub-complex consisting of about 200 houses, and a complex comprising all the sub-complexes within a radius of 2,500 feet. Each complex has a large air-tight cast iron reservoir, and each sub-complex a small one connecting with the main reservoir and with the houses, by means of pipes provided with valves and cocks, by which all circulation of air may be prevented. The air inside is exhausted by means of a large air pump driven in connection with the main reservoir by means of a powerful steam engine, and then the outer air, pressing upon the contents of the pipes, forces them into the reservoirs. By this means the pipes may all be cleared in less than five minutes, their contents first passing into the sub-reservoirs, and then into the main one. This simple and eminently sanitary system has for some time past been in successful operation in the city of Prague, Bohemia, and is being introduced into other European cities.—*Ex.*

ACCURACY OF TELEGRAPHIC ESTIMATES OF LONGITUDES.—The great accuracy with which differences of longitude can be ascertained by the magnetic telegraph is illustrated by some of the determinations for the United States Coast Survey. Where the longitudes were estimated by four different circuits, the greatest difference between any two determinations was twenty-eight thousandths of a second, equivalent to about *thirty feet*, the mean error being less than one millionth of the distance between the two objective points, which, in some cases, as in that between Cambridge and San Francisco, was 3,580 miles.

NEW USE FOR ELECTRICITY.—Electricity has achieved a new triumph. Already employed to restore vigor and nimbleness to the gouty limbs of decrepit *bons vivants*, the recent discoveries of Dr. Bernier, a French physician, show electricity to be an efficient remedy for the evil effects of excessive drinking on the human nose. The doctor maintains that, by the application of an electric current to noses even of the most Bacchanalian hue, the flesh may be made "to come again as the flesh of a little child;" and he supports his assertion by a case performed on a female patient of his own, a woman of high rank.—*Sci. Am.*

THE FOSSIL PLANTS OF CANADA.—Dr. J. W. Dawson, of the Geological Survey of Canada, has just published his report on the fossil land plants of the Devonian and Upper Silurian formations of Canada. In this report, he has catalogued or described more than 120 species of land plants found in formations older than the carboniferous in Canada, thus placing the knowledge of this old flora in advance of that of any other portion of the world.

A NEW MODE OF FORMING PERFECT CRYSTALS.—Prof. Schultzs states that by the use of gelatinizing liquid as a solvent, crystals of various substances may be obtained completely formed. In proof, a number of fine crystals of sugar, borax, etc., were shown, which had been formed in suspension in gelatine and other solutions.

MINING SUMMARY.

THE following information is condensed mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

AMADOR COUNTY.

KENNEDY MINE.—Amador *Ledger*, Feb. 3d: In company with Mr. Ginocchio, Pres. of the Co., we visited the mine, a few days ago, and while there examined the rock being taken from the lower, or 500-ft. level, and can safely state that better average rock cannot he found in any mine in the county; every piece we examined on the dump showed free gold, and was well charged with gold bearing sulphurets. The ledge in the lower level, is 13 ft. in thickness, and the entire body is of the same value as the rock on the dump. The rich stratum struck last week, continues equally as promising as when first discovered.

LINCOLN MINE.—The Lincoln Mine, at Sutter Creek, is yielding richer rock than at any previous period. The last clean up of 14 days run in a 20-stamp mill, yielded $5,400 in clean gold. The main shaft has reached 300 ft., and in sinking, the rock increased in value $3 per ton in the last 60 ft., with the most favorable indications of further increase of value as the shaft reaches greater depths.

PLYMOUTH. — Cor. same: The Phenix (formerly the Hooper mine) is once more in a prosperous condition. New and substantial hoisting works have been built, the old shaft cleaned out and re-timbered, and good paying rock found at the lower level, 500 ft. below the surface. They are sinking, with a good prospect of a continuous paying ledge.

Adjoining the Phenix on the north, is the Alpine mill and mine. A fine 10-stamp mill, with hoisting works attached, was constructed about one year ago, and is in running order. They are sinking on this mine with good prospects ahead. The shaft is down 250 ft.

Enterprise, is a small village, 3 miles north of this place. One mile northeast from Enterprise, is the Philadelphia and mine; a substantial 20-stamp mill was built on this mine, last fall, and is running on low grade ores. Half a mile west from the village, is the Condo and Wilson mine, which bids far to excel all others in this vicinity for richness; a shaft has been sunk 150 ft. and the rock taken out has paid from $12 to $25 per ton with plenty more of the same sort in sight. The Enterprise mill and mine are half a mile east of the village; a large amount of money has been expended in the attempt to develop a paying mine, but so far without success. This mill has been doing custom work for the different mines in this locality, but is not running at present.

Several other quartz mines of smaller note are located in this vicinity and awaiting capital to develop them.

CLINTON.—Amador *Dispatch*, Feb. 3d: The placer mines in the vicinity of Clinton appear to be yielding with renewed vigor since the late rains. A surface claim near that place yielded 14¼ ozs. as a result of one day's work for 3 men, a few days ago.

WHEEL BROKE.—A large cog-wheel on the end of the cam-shaft of the Kennedy mill was broken to pieces last Sunday, while the mill was under full headway. The mill will be started again as soon as a new wheel can be obtained, which will be in the course of a few days.

CALAVERAS COUNTY.

GOOD ROCK.—Calaveras *Chronicle*, Jan. 2d: We have seen some very fine specimens of rock taken from the Thorpe mine, at Fourth Crossing, 35 tons of which yielded $500. The lead continues to widen as they go down, and the character of the rock improves steadily.

COMMENCED WORK.—Richards, Griggs & Dower who recently instituted a hydraulic on French Hill, near town, have got fairly to work. They have been "piping" most of the week.

ZACATARA.—On Tuesday, Mr. Bateman showed us a quantity of specimens taken from the shaft, which for richness we have never seen surpassed. The ledge varies from 18 inches to 3 ft. in width, and the pay streak will average fully 2 ft. He estimates that the rock will yield $75 per ton if the entire lead be taken out from wall to wall. The shaft is now 137 ft., from the bottom of which a level has been run a short distance. There is an 8-stamp battery on the mine, run by water power. The mill has been recently repaired and will be ready to commence crushing in about 10 days.

GREAT YIELD.—Five tons of quartz from the mine of Teusch & Mitchell of Mosquito Gulch, yielded $700—an average of $140 per ton. The rock was worked in the Harris mill at Sandy Gulch. Teusch & Mitchell are down 75 ft. on their lead, the ledge showing 3 ft. in width. The pay chimney is known to be 40 ft. in length, having been prospected that distance.

HUDSON QUARTZ MINE.—Active operations are to be immediately commenced. The mine is situated at Central Hill in this county. It was located by P. Davis who sunk a shaft upon it 50 or 60 ft., developing a remarkably wide ledge of gold-bearing rock. Mr. Davis sold it to an English Co. of capitalists. Since the transfer hut little or no work has been done, an effort to let a contract for sinking the shaft having failed. During the past week, D. M. Hosmer, agent for the Co., has made arrangements for the immediate commencement of work.

GIGANTIC GRAVEL ENTERPRISE.—A Co. has been formed in S. F., for the purpose of engaging in gravel mining in this county. The first of the series of operations in view will be the opening of a hydraulic claim on Central Hill, about 5 miles from this place, and preparations are being made for that purpose on the most extensive scale. Water is to be conveyed to the ground through 1,500 ft. of 11-inch pipe, and all the appointments for working the mine will be first-class. The Co. have other enterprises of a similar nature in view.

BARTOLO MINE.—J. A. Lefoy, of this place has made arrangements for working the old Bartolo quartz mine, near West Point. Mr. Lefoy will clean out the old shaft and sink it deep enough to thoroughly prospect the ledge.

EL DORADO COUNTY.

NEW DIGGINGS.—Placerville *Democrat*, Feb. 3: New and rich diggings have been discovered on Tanner's Ranch, near Ringold, Diamond Springs Township. They are regular '49 diggings.

ROUGH AND READY.—Grass Valley *Union*, Feb. 1: Brown Bros. claims, on the head water of Squirrel creek, are being constantly worked.

The Baltic Co., on the north side of Randolph Hill are piping with good results. The ground looks well, and paying results are sure to follow a clean up.

At the Webster Co.'s mines old tailings are being washed. This employs 3 men and the pay is from 2½ to 3ounces of clean gold for each day.

The Red Jacket below Rough and Ready is prospecting for gravel, and has found rich blue gravel in the claims.

McSorely & Co., are not mining, a flume having washed away during the heavy rain storms and lumber for repairs not being obtainable.

The Portugese Co., below Rough and Ready are at work with paying results.

On Goshen Hill (Black & Landis claims) no work is being done at present.

REVIEW.—The Eureka mine is being prospected for pay rock which gave out between the 5th and sixth levels. The mill is running 15 stamps and the explorations are being made to the west on the ledge.

The Empire Co. is running a 20 stamp mill, and employing 36 men by day and 21 by night. They are taking out 20 tons of quartz per day.

Perrin's mine is being worked continually, rock from the east paying $50 per load and from the west $100 per load.

The Grant mine, near Perrin's, is running. The rock generally pays $80 per ton, and the yield of the last crushing averaged $40 per ton.

The Greenhorn mine is running day and night. The ore is good hut they have yet had no clean up.

The Branch Mint Co. are running a tunnel from Gold Flat which is in 70 ft., and will in time be 300 ft. below the surface.

The Heuston Hill mine is worked by 13 contractors. The last crushing of 10 loads paid $1,045.60. The rock pays $100 to the ton.

Daisy Hill mine has a new engine of 8 inch cylinder. The last crushing yielded $6,500 from 42 loads. The ledge is 2 ft. thick.

The Seven-Thirty is flooded. The last crushing yielded $500 from 13 loads.

The Idaho mine paid last year $232,500 in dividends and is averaging about the same in yield this year. The new shaft will be ready for use about Sept.

The North Star mill and machinery has been thoroughly repaired and the mine is paying regularly.

The Coe mine is to be sold. The ledge is one of the finest in the dist.

The Town Talk mine yielded $3,000 during Jan.

DARTMOUTH HILL.—Grass Valley *Republican*, Feb. 4: The Dartmouth will commence lifting its stamps on Wednesday next. It has some good looking gravel cement on its dump pile.

SAN DIEGO COUNTY.

JULIAN CITY.—By Telegraph—Feb. 3: last week, the clean up of the Gunn & Reynolds mill gave the following results: 27 tons from the Bush Boys' lead yielded $1,575, an average of $58.33 per ton; 12½ tons from the Lewis mine yielded $875, an average of $70 per ton; 13 tons from the Big Blue lead, yielded $1,501.50 an average of $115.50 per ton.

SAN BERNARDINO COUNTY.

RICH ORE.—San Bernardino *Guardian*, Jan. 20: Some time ago Brunn & Roe shipped to S. F. 30 sacks of ore, 3,240 lbs, from the "Lizzie Bullock" mine in the Clark dist., which netted $2,200. It assayed at $1,565 per ton, on which lot of crude bullion, at 80 per cent., they received $1,300 per ton.

SIERRA COUNTY.

POVERTY HILL.—Cor. Downieville *Messenger*, Jan. 27: The mines look very encouraging; Kingdom Bro.'s have already washed away a claim or more of ground, and are continuing to send the gravel away with great rapidity. Westall, Hughes & Co. have been during the past summer, repairing ditches, constructing new flumes, hydraulics, etc., besides keeping a full crew of men working in the tunnel, which is nearly ready to commence operating through. This tunnel is near 2,000 ft. long, running through the hardest of rock the entire distance. J. A. Huhbard has struck a natural opening through the rim-rock which he has followed some 70 ft., and found blue dirt and the bed-rock pitching. He has every indication to insure his future prosperity. Mr. Huhhard has recently run some drifts into the south side of his diggings, and found a bank of blue gravel from 4 to 12 ft. deep, and a very flattering prospect.

YUBA COUNTY.

SMARTSVILLE.—Cor. Grass Valley *Union*, Jan. 30: All of the paying mines are at Sucker Flat and Timhuctoo—particularly the former. At Sucker Flat, they have begun work hut recently, and so have not begun to develop their mines yet.

BLUE POINT MINE.—They have stripped off the white cement to such an extent that where it terminates in the hillside the face of the hank is 160 ft. high. They have done hut little work comparatively in the blue gravel. From a hole probably 200 ft. long by 250 wide and 100 ft. deep, they have taken $250,000, $80,000 of which is clear profit, besides what is now in the flume, which must be about $70,000 more, as they have been hydraulicing for about 6 weeks without cleaning up. The tunnel through which they wash the dirt cost the Blue Point Co. $150,000.

The Blue Gravel mine is not as well developed as the Blue Point is, hut it is on the same lead, and just as rich.

The Smartsville mine is pretty well developed. They have stripped off a large amount of the top lead, and are enabled to make runs that will average from $30,000 to $40,000.

The Enterprise is the only remaining mine that is working now.

At Timhuctoo the mines are nearly all worked out, when compared with those of Sucker Flat. The Water Co's. claim is the most extensive there. There is 165 ft. of the old top lead standing, and under this a very thick stratum of white cement and blue gravel. At some points the blue gravel has been found that is over 80 ft. thick, and when they run on this kind of dirt, they average from $1,500 to $2,000 a day with the flume. The mines are good for 40 or 50 years, to all appearance.

Nevada.

ELKO COUNTY.

BULLION. — Elko *Independent*, Feb. 3: For Jan. the hullion shipment from Cope dist. was $18,896.74.

COPE AND BRUNO DISTS.—Cor. same: McGlaughlin & Co. have thrown up their contract to siuk on the Mardis ledge on account of the depth of the snow. The above ledge was discovered last summer by Mr. Mardis. The rock on top was very rich, but on sinking the quality and amount of pay ore has greatly deteriorated. The Norton mill is running steadily and with good results. The El Dorado and Excelsior are being thoroughly worked. The Independent mine is being put in order for spring work. They will put on an additional force of 20 men. There are hut few idle men in camp.

EUREKA DISTRICT.

STILL WORKING. — Eureka *Sentinel*, Feb. 2: The furnaces of the Eureka Cons. are turning out bullion in large quantities. The amount produced during the past month will equal any previous month's run in the history of the Co. The mine produces an average of 125 tons of ore daily.

ELY DISTRICT.

BULLION.—Pioche *Record*, Jan. 25: W. F. & Co. shipped since Jan. 21st, bullion valued at $15,624,21.

PEAVINE.—There is plenty of $200 ore in sight and the title is good.

PANACA FLAT.—Every claim is being worked by the owners. Most of them have struck good pay.

RESERIVER.

STAR OF NEVADA S. M. Co.—Reese River *Reveille*, Jan. 27: This is an English Co. recently organized for the purpose of working a series of ledges lying in Union Hill.

The present workings are prosecuted through the old tunnel, started some years ago. It penetrates the hill 410 ft. It being driven ahead by contract, and will be continued till all the ledges of the Co. have been cut. It has already cut 3 ledges, each of which will be fully developed.

A level 300 ft. long has been run from the tunnel on the first ledge, exposing a body of good ore averaging 6 inches in width the entire distance. The last crushing of ore from this ledge—produced nearly $1,500 per ton, for the first class and over $300 per ton for the second class.

Three sections of this level, on the north side of the tunnel, have been leased to as many parties.

The first lease (the one nearest the tunnel) is held by McCool & Co., the second by F. Massey & Co., the third by S. Kelly. All are sinking on the ledge, which still holds good.

The Co. are opening and working this level on the south side of the tunnel.

Garrison & Co. have lately secured a lease on the second ledge cut by the main tunnel, and have just started work on a level.

The manager of the Co. has given a lease to G. Emerson & Co. who are hard at work preparing to sink a shaft from the surface of the hill some distance from the line of the tunnel.

About 300 ft. from the mouth of the tunnel the management are erecting hoisting works for the purpose of sinking a 300 ft. shaft, through which the greater part of the workings will thereafter be carried on.

In the hore house are about 15 tons of a good quality of ore.

MURPHY M Co., have concluded to take the property at Ophir Cañon which was bonded to them several months ago, consisting of the Murphy, McDonald mines. Since the bond was given the ledges have been thoroughly prospected, and from developments already made, bid fair to become one of the best paying properties in Eastern Nevada. P. S. Buckminster has a force of 50 men already at work getting out rock, and the mill will be started up as soon as the necessary repairs can be made.

WASHOE.

BULLION.—Virginia *Enterprise*, Feb. 1: We yesterday saw at the Bank of Cal. $48,000 in silver bricks from the Crown Point.

MAGNIFICENT BODY OF ORE.—The drift east from the south section of the Crown Point, 1,200-ft level, 105 ft. north of the Belcher line, is in 112 ft. All this distance it is in splendid ore, with no sign of the east wall as yet.

STRIKE.—There was much rejoicing yesterday at hearing of the develcpement of a fine body of ore in the Savage, south of the shaft, on the 1,400-ft level.

ANTELOPE DIST.—H. J. Mann, last evening visited our sanctum and exhibited to us some very rich specimens of gold-bearing quartz from the vein upon which his mill is running. Antelope dist. is about 80 miles southeast of Wadsworth, and 18 miles south of the old Overland Station of Westgate. The Antelope ledge is owned by the California G. M. C., and is from 18 inches to 3 ft. in width. A shaft is down upon the lead to the depth of 70 ft.. The mill is 6 miles southwesterly from the mine. It contains 5 stamps, with room for 5 more, and an engine large enough to run 15 stamps. The ore pays from $30 to $50 per ton, and the hullion produced is worth $16.50 per oz. The gold is 884¼ fine. They have a well 30 ft. in depth, containing 14 ft. of water, from which they run their mill. Wood is fifteen miles distant, hut is abundant. A few days since, at a point 600 ft. distant from their main shaft, they found a deposit in their lead which is much richer than that they have been working. A specimen shown us was full of coarse gold, and would assay away up in the thousands. The other ledges of note in the dist. are the Moun-

tain Sheep, Champion and Lexington. Fourteen men are employed at the Antelope mine and mill, and in all, there are about 30 miners in the dist.

Sierra Nevada.—A rich strike has been made of what appears to be a back vein, which is much richer and more promising than anything ever struck in the mine. The new deposit is in the works advanced farthest to the northwest and is separated from the white lead in front by a considerable thickness of a sort of conglomerate of porphyry and a well-defined clay wall. The rock is much darker than that in the front vein and presents much more the appearance of regular Comstock rock. While $5 per ton is as high as the front vein has ever assayed in silver, this new deposit goes as high as $29. It appears, in addition, to be very much richer in gold than the front vein, free gold being visible to the naked eye in many specimens. Upon the new deposit a winze has been sunk 30 ft., and from the bottom of this a cross-cut has been made which shows the body of ore to be 25 ft. in width. A sample of ore from the deposit, which we saw washed out, showed a very large prospect of beautiful bright free gold, much of which was in coarse round pieces. At a point about 60 ft. south and some 40 ft. higher up, a second drift was yesterday just cutting into what seems to be the same deposit. As yet only the ore that was dug from the winze and cross-cut has been extracted, as the new strike is at a considerable distance, by way of a narrow and crooked drift, from the nearest ore chute.

Belcher.—The Belcher Co. have found a large and rich deposit of ore at the south end of their explorations, in a cross-cut west from their south drift. In the extreme south end of this drift the ore appeared for a time to have almost given out. The drift seemed to be following the direction of the vein, and what to make of the jumble of porphyry and quartz into which it suddenly ran no one knew. Shortly before a point or promontory of hard west county rock was passed, and this seemed to have turned the vein to the eastward, therefore the drift was pushed in that direction until it ran into the poor rock mentioned above. Suspecting at length that after passing the promontory the vein might have swung round it back to the westward, and that their drift had been going diagonally across the vein, a cross-cut was started west. The conjecture proved correct, and last Saturday the cut began to enter ore, and has continued in good ore ever since, proving the presence of a large deposit at that distance south. Ore taken from the face of the cross-cut yesterday assayed $125 per ton.

WHITE PINE.

East Shenoygan—White Pine *News*, Jan. 27th: There is a force of 10 men prospecting and putting the mine in shape for spring operations. The southeast drift from the original tunnel is in 18 ft. since last report. There is a good body of ore with a fair showing of born silver. Exchange incline is down 10 ft. deeper than when last reported. Running on a spar seam, with a fair prospect for ore. The Regent drift running from the Regent shaft to connect with the Exchange incline, has made 13 ft. headway since last report. Three tons of ore are raised daily and piled on the dumps.

San Juan del Rio.—The foreman reports the mine looking as usual. The ore pitches at an angle of 45 degrees and assays from $245 to $60 to the ton.

Eberhardt.—In last week's report mention was made of a shaft going down on the end of the West drift for the purpose of testing the depth of ore. Since then work was suspended on account of snow blocking up the mouth of the tunnel leading to the dump. Work will be resumed as soon as it is possible to remove the ore piled up in the drift.

North Aurora.—The ore-body in the south drift from the Lady's chamber is of the same grade as last reported. A force of men is engaged breasting out ore. Hoisting through the Engine shaft from the south and east drifts. The Risdale chamber shows a larger body of ore than at our last visit.

South Aurora.—The Mitchell and Hanly shafts are connected with the main lower tunnel. A distance of 25 ft. will connect the Turner and Trewella shafts with the main tunnel. There is a force of men engaged in cross-cutting west from the Mitchell and Hanly shafts. The indications are favorable for mineral.

Copper Glance.—Two men are employed sinking a new shaft through the limestone cap. In the main 50-ft. shaft there is a fine quality of ore in sight. A force of men will soon be put on to start a drift from the bottom of the shaft.

Original Hidden Treasure.—The bad condition of the roads leading to the mine cut off the ore supply, and the Big Smoky mill has shut down until the road improves so as to permit shipment of ore from the mine.

Pocotillo.—Since last report a contract was let to run 50 ft. south from the main tunnel. The ore in the face of the drift is of average milling quality, and bids fair to hold out.

Gen Lee.—The Supt. let a contract to run a drift east from the ore chamber (since our last mention of the mine) for a distance of 25 ft. The contractors were to commence work to-day.

Noonday.—The usual force of men is employed breasting out. The ledge averages from 8 to 10 ft. in width. Piling ore on dumps.

Arizona.

Mines and Mining.—Prescott *Union*, Jan. 25: The Tiger is yielding ore more than half of which is silver. It is being sacked for shipment to S. F. This ore is from the 100 ft. level, where there is plenty of the same sort. The Benjamin, and adjecent mines, near Prescott, are yielding rich silver ore.

The Josephine mine is small, but very rich in free gold.

In Wickenburg dist. the Vulture Co. are mining and milling, and Bill Smith is preparing to start his 10-stamp mill.

Placer miners are doing very well with the limited supply of water in the several creeks.

A portion of the machinery of the new 10-stamp mill, which Mr. Berger is going to erect, near Ehernberg, has arrived, and work is being pushed upon both mill and mine.

Southern Arizona.—Among the latest and most valuable discoveries is a new dist., in a mountain range 35 miles south of Tucson. At the time of writing, specimens of the ore were being tested, and the results had given the utmost satisfaction. The location must be less than 25 miles distant from the timbered regions of the Santa Rita mountains.

Idaho.

Bullion.—Silver City *Avalanche*, Jan. 27: W., F. & Co., shipped from here this week 8 bars valued at $17,528 30.

Local Record.—The North Oro Fino Co. is pushing its work forward fast. The Supt. is working this mine through the North Discovery engine shaft, which he has leased from the Owybee Co. for that purpose. The ore in the drift running north is getting better the further it is run. The 3d level drift has been run about 25 ft. since work commenced, showing the ledge to be 4 ft. wide, with from 18 to 20 inches of fine looking quartz and the remainder talc.

The North Oro Fino Discovery ground is turning out about 25 tons of ore per day, which is being piled up at the Owybee Co.'s mill.

The South Discovery of the Oro Fino, which belongs to and is worked by the Ida Elmore Co., is yielding 20 tons of ore daily.

The Ida Elmore may be considered the leading mine in camp at present. Up to this time about 80 ft. of a very rich chute of ore has been discovered in the 7th level of that mine. This chute, or chimney of ore commences about 100 ft. north of the shaft and continues to the end of the drift, which is being run fast. The richest and best part of the ore hitherto found is in the last 15 ft. of the drift. The Supt. is energetically sinking and raising winzes in the 7th level on this rich body of ore. If it is found to go down any distance, he will immediately sink the main shaft for the 8th level.

The Owyhee Mill is running to its utmost capacity on Golden Chariot. Mr. Davis, Supt. of that mine, has about 700 tons of ore ahead of the mill.

The Minnesota is looking splendidly, both in the south drift and also in the winze which is being sunk under the old shaft. Some of the richest gold bearing ore ever taken from any mine in camp came from the south drift this week. The ore from the winze shows a larger proportion of silver. The foreman has out about 80 tons of the ore. The last crushing paid $60 a ton. The south drift is in 35 ft. and the north drift about 60 ft. from the 2d level.

The Mahogony is beginning to send down ore again, which is being worked on one side of the Elmore mill, with 10 stamps and 6 pans. It usually mills from $55 to $60 per ton, and the ore now piled up at the mill looks splendidly. The 4th level of the Mahogany is rich, with a vein from 18 inches to 2 ft. in width. The drift is in about 50 ft. on each side of the cross-cut or shaft in the 4th level. The winze is down 50 ft. from the 3d level, and the shaft is down below the 4th, for the 5th level, 85 ft. In 20 days 25 tons of ore per day may be expected from the Mahogany.

The 4th level drift of the South Chariot is in 186 ft., showing the ledge to be fully 2 ft. thick, of ore that will pay well.

The Empire mine is being worked by Mincar & Hanks, and they have 50 tons of ore on the dump that will mill at least $150 a ton. The smallest amount that the ore ever paid per ton, was $182 50, and from that to $300.

The War Eagle has very rich looking ore in the winze, which is about 100 ft. south of the shaft When that is done, stoping will commence at once.

Montana.

Clancy Creek.—Cor. Helena *Gazette*, Jan. 22: Bell & Co., of El Dorado, have doubled the number of their hands on their mine. The French boys, of the Minnesota, have a three foot vein of paying ore, and doing a good business taking it out. Parker and Woods have struck galena ore in a shaft on the Mineral Hill lode, and expect to strike galena in their tunnel on the Lone Hand, as soon as they break through a key they have in the back part of it. Brooks & Gregoire have struck some galena in the tunnel of the Winnona, but not in paying quantities. They are confident of striking a large vein of paying mineral before going 40 ft. further. There is considerable galena ore being taken out of the North Pacific. All the lodes mentioned above are galena bearing quartz; but some portion claim to have struck some very rich chloride quartz, about 2 miles from this place. Some of it is claimed to go $1,200 per ton. There is considerable work being done in that portion of the dist. where chlorides have been found, and it is expected that large quantities of paying rock will be taken out there, in the spring. There are quite a number of parties prospecting in this vicinity, and more parties are being organized to commence work as soon as the snow goes off.

The New Coal Mines.—Bozeman *Avant Courier*, Jan. 25: As soon as the weather permits, Col. Black will commence the development of the new coal mine. The indications are highly favorable as for as prospected. The mines are about 5 miles from Bozemen, accessible by a good wagon road, and consist of 2 well defined veins, about 200 yards apart.

The Reduction Works.—Helena *Herald*, Jan. 25: The Helena Reduction Works are running continuously, day and night. The delivery of ore is uninterrupted, and the roasting, crushing, and smelting goes forward with the precision of clock work. From one smelter alone flows 2,000 weight of bullion every 24 hours.

Vipond.—Dear Lodge *Independent*, Jan. 27: J. Brannigan and others are trying to make arrangements to have smelting works erected near the rich lodes of this district.

Cable.—Mr. Cameron has at last struck the ledge in the lower drift. The rock is rich and there is reason to believe that the body of ore now drained will be sufficient to keep at least one mill constantly running for the next 2 years.

Utah.

Little Cottonwood.—Salt Lake *Tribune*, Feb. 1: The Wellington Co. are now shipping very rich ore. Its assay value is $300 per ton.

The Emma, Flagstaff and Vallejo are each shipping.

Ohio Dist.—Cor. same: We have 50 or 60 men here and the greater share are at work on their leads in order to have them ready for sale in the spring, or to have their ore ready as soon as an opportunity presents itself or mills get in here. There are 5 to 6 that will pay from the start, but most of the mines have to be worked, as the croppings are of low grade, but of all that have been worked to any extent the ore grows gradually richer.

There have also been two new dists, formed, one south, and in still greater altitude, and one north adjoining to this one and on the banks of the river.

S. L. City.—By telegraph: About 3,000 tons of ore and bullion are waiting transportation to the East. Of this, about 1,500 tons are from the Emma mine.

S. F. Stock Exchange Board.

San Francisco, February 8, 1872.

The last seven or eight days has been the liveliest one the Stock Board has experienced for many years. The feature of the week has been Savage, and many other stocks have participated in the rise. The discovery of a rich body of ore in the Savage, announced on Friday night, sent the stock up so that from that time until Monday, the value of the mine was more than quadrupled. All kinds of stocks are yet much advanced, but show a little falling off from Monday's prices. The sales at the Board for the week, ending Wednesday, the 31st ult., aggregate $4,208,000, making a total of $8,748,000 in two weeks. The session of the Board on Saturday was a long and active one, lasting three hours. Savage was the feature, and its advance over the prices of the morning Board on Friday was 92. For the same time Gould & Curry advanced $50, Hale & Norcross $30, Crown Point $25, Belcher & Kentuck $15, Imperial $12, Chollar-Potosi and Ophir, each $11, Cons. Virginia $8, Raymond & Ely $6.50, Alpha and Overman, each $6, Sierra Nevada $5 and Yellow Jacket 4.50.

On Monday the market opened lively in the morning, and the Board had another long and busy session. From the Board on Saturday nearly all descriptions of stocks advanced materially. Savage went up to $235 and then dropped to $225, the others sympathizing with it. On Wednesday morning it sold for $5,500 per *foot*. Its highest price before was in June, 1867—$5,000, when it was paying large dividends.

This morning stocks were still active but with irregular prices. Savage receded from 310 yesterday to 625 on the last call of the Board, though $265 was bid after the adjournment. The amount of business transacted since the Savage strike became known on Saturday, aggregates over $10,000,000, nearly double the amount transacted during any four days heretofore.

Comparative Prices—Extremes, Advance and Decline.—S. F. Stock and Ex. Board.

	Feb. 1.	*Highest.*	*Lowest.*	Feb. 8.	*Adv.*	*Dec*
Alpha	$—	45	27	40	—	—
Amador	—				—	—
Belcher	725	755	539	670	—	45
Buckeye	4¾	4¾	4	4½	—	¼
Chollar-Potosi	57	86	49	86	29	—
Caledonia	17	20	14½	19	2	—
Cons. Virginia	32	55	27	52	20	—
Crown Point	—	800	745	761	—	—
Daney	2¾	2¾	2	—	—	—
Eureka Cons	27	27½	24	26	—	1
Eureka	18½	19¾	18	19½	1	—
Exchequer	12	21	11½	—	—	—
Gould & Curry	125	345	120	345	220	—
Golden Chariot	—	17½	14½	15	—	—
Hale & Norcross	180	315	165	384	124	—
Imperial	77	130	71	130	53	—
Ida Elmore	18	18	16	14½	—	3½
Kentuck	—	270	225	260	—	—
Mammoth	55c	55c	45c	50c	—	5c
Meadow Valley	17½	13½	16¼	19	1½	—
Mahogany	13¼	19¾	11	—	—	—
Ophir	67½	125	66	125	57½	—
Orig. Hid. Treas	—	8	7	—	—	—
Overman	69	86	55	65	—	4
Pioche	12	14	10¾	13	2	—
Raymond & Ely	121	141	116	141	20	—
Savage	64	310	62	310	246	—
Sierra Nevada	24	37	23	33	10	—
Succor	3¼	6¼	3¾	7¾	4	—
Wash. & Creole	5	5¼	4½	5	—	—
Yellow Jacket	70	90	66½	90	20	—
St. Patrick	—	45	20	20	—	—
Seg. Belcher	31	81	54	67	—	14

Latest Prices—Bid and Asked.

	BID.	ASKED.		BID.	ASKED
Alpha Cons	37	38	Ida Elmore	13	14
Amador	—	300	Imperial	120	125
Belcher	665	670	Kentuck	225	230
Chollar-Potosi	78½	80	Meadow Valley	17½	18
Crown Point	760	760	Ophir	120	102
Ono	—	—	Orig. Hid. Treas	—	—
Eureka Cons	25	25½	Overman	63	63
Eureka	19	19	Savage	280	290
Golden Chariot	14½	15	Raymond & Ely	130	127
Gould & Curry	345	345	Sierra Nevada	32	33
Hale & Norcross	295	300	Yellow Jacket	85	86½

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the Scientific Press and other San Francisco journals.]

ASSESSMENTS.

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	DAY DELINQUENT.	DAY OF SALE.
Alhambra Hill M. Co., Nev., Dec. 9, 50c.	Jan. 13	Feb. 27*
Buckeye G. & S. M. Co., Nev., Jan. 9, $1.	Feb. 13, Mar 14	
Caledonia S. M. Co., Nev., Feb. 1, $4	Mar. 8	Mar. 29
Cherokee Flat, Butte Co., Jan. 3, $2.50	Feb. 6	Feb. 23
Dancy G. & S. M. Co., Nev., Feb. 1, 65c.	Mar. 4	Mar. 25
El Dorado M. Co., Cal., Dec. 7, 25c	Jan. 24	Feb. 14
Emerald Hill M. Co., U.T., Jan 11, 25c.	Feb. 19, Mar. 14	
Empire M. & M. Co., Nev., Jan. 5, $10	Feb. 8	Feb. 26
Golden Chariot, I. T., Jan. 31—$2 50, Mar. 9, Mar. 30		
Ida Ellmore, Idaho. Dec. 30 $3.00	Jan. 31	March 4
Imperial S. M. Co., Nev , Jan. 5, $10	Feb. 8, Feb, 26	
Kentuck, Nev., Jan. 20, $10	Feb. 24	Mar. 13.
Kincaid Flat M. Co., Dec. 11 $2.50	Jan. 17	Feb. 14*
Lemon, Nev., Jan. 6, 50c	Feb, 10	March 2
Mahogany G. & S. M. Co, I.T. Jan, 26, $1.50.	Mar. 6	Mar. 23
Mina Rica M. Co., Cal., Jan. 16, 20c.	Feb. 19	March 11*
Monitor & Magnet, N. T. Dec. 4, 25c	Jan. 23	Feb. 17
Mt. Jefferson M. & M. Co., Cal., Jan 8, 25c.	Fe 5	Fe 22*
Nevada L. and M. Co., Nev., Jan. 9, 4c.	Feb. 13	Mar. 4*
Nonpareil G. M. Co., Cal., Dec. 27, $3.50.	Feb. 3	Feb. 24
Noonday S. M. Co. White Pine, Feb. 1, 20c.	Mar. 5	Mar. 25
Ophir S. M. Co., Nev., Dec. 20, $2	Jan. 24	Feb. 14
Overman, Nev., Feb. 22, $4	Feb. 22	Mar. 11.
Phœnix, Nev., Jan. 18, 75c	Feb. 22	Mar. 13.
Piermont M. & M. Co., N., Jan. 20, 80c.	Mar. 1, Mar. 23*	
Pioche S. M. Co., Nev., Dec. 18, $1.50	Jan. 25	Feb. 16
Quail Hill M. and W. Co., Dec. 19, $5.	Jan. 23	Feb. 13*
San Buenaventura Co. Cal., Jan. 19, $1.	Feb. 29	Mar. 29
Sierra S. M. Co., Nev., Jan. 4, $3	Feb. 6	Feb. 23
Silver Wave, White Pine, Dec. 19, $3.	Jan. 25	Feb. 23*
Silver Wave, Nev., Jan. 30, $1	Feb. 26	Mar. 19.*
S. Gulch Gr. M. Co., Cal., Feb. 7, $1.50.	Mar 13	April 3*
Succor, M. Co., G. H., Jan. 3, $1.50	Feb 6	Feb. 27
Tecumsch, Cal., Jan. 23, $4	Feb. 27	Mar. 16.*
Tallulah M. Co., Nev., Jan. 30, $1	Mar. 5	Mar. 26
Union G. M. Co., Cal., Jan. 4, $1,00	Feb. 5	Feb. 26*
Wm. Penn, Nev. Jan. 16, 50c	Feb. 10	Mar. 11.*

MEETINGS TO BE HELD.

Bowery Cons. M. & M. Co	Annual Meeting, Feb. 12
Central S. M. Co	Annual Meeting Feb. 28
Justice M. Co	Annual Meeting, Feb. 19
Lemon M. & M. Co	Annual Meeting, Feb. 10
Virtue G. M. Co	Meeting, Feb. 23

LATEST DIVIDENDS—(Within Three Months).

Belcher, $15	Payable Feb. 5
Chollar Potosi, $1	Payable Feb. 5
Crown Point, $15	Payable Feb. 5
Eureka Gold M. Co., $1	Payable Jan. 6
Meadow Valley, $1.50	Payable Dec. 15
North Star G. M. Co., $3	Jan. 10
Raymond & Ely, $5	Payable Dec. 18
San Francisco T. & M. Co	Annual Meeting Feb. 5
Yule Gravel M. Co., 50c	Payable Dec. 5

—*Advertised in this journal.

The Railroad Works at Sacramento.

The workshops, round house, foundries, etc., of the Railroad Company in Sacramento, are by far the most extensive to be found on this side of the Rocky Mountains, and very few people have any idea of the magnitude and industrial importance of the works there in progress. The Sacramento *Record* recently made a visit to the establishments and presented an account which will give a tolerable idea of the enterprise in operation.

The Railroad Works.

The establishment generally known as the railroad works, or the "round house," consists really of a series of manufactories or shops, viz: the round house, the machine shop proper, the blacksmith shop, the foundry, the brass foundry, the tin and cooper shop, the car-building shop, the painting works, the upholstery department, the general hardware store, the drying house and the fire-brick works. Armed with a permit from A. N. Towne, General Superintendent of all the railroads and railroad shops and offices this side of Ogden—and probably as fine an executive officer as there is in America—we waited upon A. J. Stevens, master mechanic of the machine shops. Our faint description will follow the route of his guidance. First:

The Round House.

This stands close to the bank of the American river, and, with its foundation, forms a portion of the impassable artificial barriers which have been erected to prevent the turbulent stream from flooding the city and destroying the property of its inhabitants. It is a substantial brick building, forming the segment of a circle, and contains stalls for 29 locomotives, most of which are generally occupied, either by disabled engines undergoing repairs, or engines in complete order and ready for service at a moment's notice. In fact, several of these last named have steam up all the time, and stand ready to go at the tap of the bell or the click of the wires to the remedy of any mishap that may occur upon the line of the roads in any direction from the city.

Owing to the lack of ground space, portions of the round house are necessarily made a part of the machine shop, and from 100 to 125 men are here constantly engaged in repairing or rebuilding damaged and disabled engines. One locomotive is now on the stocks, and being rebuilt—converted from a five and a half feet to a four and a half feet engine. Several others are undergoing extensive repairs. Within the last nine months seven engines have been entirely rebuilt here; 45 have undergone general repairs, and 30 necessary repairs. At present nearly all the engines of the company are in first-class order, but so many unavoidable accidents are constantly happening to the internal machinery of the "iron horse," that it is likely that from 100 to 125 men must be constantly employed in the round house portion of the machine shop to repair damages. From the round house we enter that portion of the establishment which may be properly designated

The Machine Shop Proper.

This is a building 100x400 feet, and under the direction of the superintendent of this establishment 400 men are now employed, whose wages average $2.75 per day each, in gold coin. The number will be increased, if possible, and would now be at least 200 greater, if the company had been allowed to fill in more of the nasty and—to the public—worse than useless slough, so as to give more shop room. This establishment is a sight to witness, with its apparently and interminable mass of machinery, constantly clattering, grinding and "scrunching," its host of busy and intelligent mechanics engaged upon the most curious and intricate parts of complicated machinery — all evidently happy and contented, and having an individual pride in the excellence of their work. The shop has a plethoric supply of the very best planing, turning, cutting and punching machines for working iron. The machine shop is fully capable of turning out all kinds of machinery known, though, of course, its engines are solely devoted to such machinery as is usual upon railroads and in steamboats. Here are made all repairs of damages of a serious character to engines and cars upon the Central Pacific, California Pacific, Western Pacific, Stockton and Copperopolis, and Stockton and Visalia Railroads. Much of the work required for the San Francisco and Northern Pacific road is also done here. The addition to this building, recently made, is fast being filled with new machines of the best kind, and soon a much larger number of men will be employed.

Boiler Shop.

This is a new building 60x200 feet. It is now engaged in manufacturing additional boilers for the great engine which drives the machinery of the vast establishment. It is also intended to do all steamer work for the company. Two large boilers are now in process of manufacture for the Chrysopolis. They have eleven-foot shells, will be twenty-two feet long, have steam chimneys twelve feet high, and weigh thirty tons each—the largest boilers ever made in this part of the State. Here are made all the nuts and washers used on all the railroads and steamers—articles which, until lately, were imported. In addition to its other work, the boiler shop has, within the last three months, turned out 40,000 feet of sheet iron water pipe. The workmen are now engaged in manufacturing artesian well pipe for use in the Merced region. The shop has a machine—made in the machine shop—for punching holes in the iron used for water pipe, which will punch forty holes at once. It also contains a corrugating machine for shaping sheet-iron to use on roofs and sides of iron-covered buildings.

Fire Brick.

En passant, it may be as well to state that the Company has on its premises machinery engaged in the manufacture of fire bricks, from clay brought from the Rocky Mountains. These bricks prove to be good, and it is intended to manufacture here all that are necessary for the Company's purposes.

The Foundry.

Though this building has been recently enlarged, it is still insufficient to meet the demands upon it, and, as a consequence, work which should and could be done here to the great benefit of the city, is sent elsewhere, and simply because the company has been prevented from filling up the slough to such an extent as to give it the ground necessary for the shop building it would like to erect here. At present the foundry is of sufficient capacity to work up twenty tons of iron daily. All the small and most of the largest castings used on the road are now cast here. Car wheels as good as those imported have been made here; and all the wheels required on the road will be made here if room can be found for the enlargement of the foundry buildings. The foundry contains two cupolas, both manufactured in the machine shops, capable of turning out 4,000 pounds of molten metal every forty minutes.

Brass Foundry.

This is still another establishment. In this are made all the brass castings necessary to be used in the construction of cars and machinery. All the old brass that it is possible to find in the country is worked up here, and what more is required is made. Most of this material is imported from the East, for the reason that the supply of California copper cannot be relied upon.

Copper and Tin Shops.

In this shop all the tin and sheet copper work required for all the roads is done—whether manufacturing or repairing. It can turn out anything required, from a copper cauldron to a tin dipper, or from a mamoth head-light to a hand lantern.

Blacksmith Shop.

In this department 100 men are incessantly employed, and forty fires are constantly burning during the day. During the last year all the iron-work for ten new bridges has been made here, and all the iron work for the repairs of all the bridges upon the roads. It works up about 200 tons of iron, and does all the blacksmith work required for the roads. In this shop is a steam hammer weighing 2,500 pounds, with a drop of thirty-six inches. A new furnace is being erected for the manufacture of all bar-iron required by the company. The iron is to be made out of scraps and old iron generally. Here old and worn axles are worked over and made good as new. A steam machine for shaping arched bars for holsters to freight cars is now nearly completed. This is a new concern manufactured in the machine shop of the company. Whenever the company is allowed the privilege of making more ground, it will erect sufficient rolling mills for its purpose, and thus do here much work now done elsewhere.

The Motive Powers.

And here a few words of description of the power which keeps all the machinery of this vast mechanical establishment in motion. It is a magnificent Nightingale engine, of 175 horse-power, and having a driving wheel eighteen feet in diameter. The steam is now supplied by two large boilers. Two more, now in construction, will soon be added, which will increase its strength to 190 horse-power. From the engine room we pass on to the

Car Department,

which is under the supervision of Ben. Walsh, who, like Mr. Stevens, is thoroughly devoted to this particular branch of mechanics. In this department, including all its branches, 400 men are now daily employed, at average daily wages of $2.75 each. And here, too, as in the other departments, very many more would be employed if there was only room enough to erect the necessary works. This establishment is capable of manufacturing everything in the car line, from the common truck to the most luxurious palace car. That it has not room in which to spread itself is the reason why vast quantities of this sort of work is done elsewhere, and large sums of money sent abroad that should, by rights, be expended in Sacramento. A splendid car, for the use of the President of the company is now in course of construction. It will contain kitchen, dining-room, parlor and sleeping quarters. The shop has now orders to manufacture 1,000 of the improved combination cars, to accommodate the agricultural business of the State, and at present is turning out twenty-four each week. It will increase the product to six a day as soon as material can be obtained. The car shop consists of a main building two stories high, 90x200, with a wing 90x300. Some 50,000 feet of lumber are worked up here each week. The rough timber passes into the building on one track, and keeps moving along constantly until it comes out on another in the shape of cars, all finished except the painting. Thus, from the raw material going in at one door a daily train from four to six cars passes out of the building through another. And this is only about half what is necessary. The car shop is amply supplied with the best of planing, gouging, morticing, dovetailing, boring, scraping, sawing, veneering and other machines. Here, too, the finest of cabinet work—such as is to be seen in the best fitted-up cars—can be and is turned out.

Draughtsmen's Room.

In this little apartment presides the creative genius of the entire establishment. Here designs are conceived and plans of all descriptions drawn up and prepared, from which the intelligent mechanics construct those surprising achievements of human skill which are the admiration of all.

Paint Shop.

This adjunct to the car shop is under the foremanship of Mr. Fitch. Here, on the average, eight cars are constantly receiving the finishing touches of the shop painter. With the present capacity of the shop, only about four passenger cars can be turned out each week, while to give the necessary annual coat of paint to all passenger cars of the company, over six a week should be disposed of.

If ground can be made, an additional paint shop, 70x220 feet, with five varnish rooms, 22x70, will be erected.

The Fire Brigade.

Not the least interesting feature of this vast establishment is its facilities for extinguishing fires. There is a fire brigade composed of three companies. The men are trained to their fire duties at least once a week. The apparatus consists of a stationary steam engine, several hydrants properly located throughout the premises, 2,000 feet of hose—1,000 leather and 1,000 carholized. Along the ridge-pole of one of the buildings is a perforated pipe, through which immense quantities of water can be rained down all over the premises in case of a conflagration. Three blasts of the whistle warn the men of danger and to be ready; three more blasts brings each one to his post. A more effective Fire Department does not exist anywhere.

The Company is now manufacturing the famous Westinghouse Atmospheric Brakes, and as fast as possible applying them to all passenger locomotives and cars. With these brakes—which are controlled by the engine driver—a train of ten cars, going thirty miles an hour, can be stopped in a distance of 400 feet or less. By the application of this improvement the danger of traveling will be much lessened.

Much remains to be described. We have, however, given enough to show that in Sacramento, is the greatest mechanical establishment to be found west of the Mississippi. Moreover, this establishment is employing constantly some 850 men, who are receiving in wages $2,384 daily, or say full $701,100 per annum. This sum goes to enhance the prosperity of the city, by increasing the trade of all classes of shopkeepers, while the men employed and their families add to the value of real estate by creating a demand for dwelling houses. Further, these benefits of industry might be doubled to the town if the company could do what it seems to desire, viz.: increase its works here to a capacity sufficient to supply all the demands of its roads and boats.

Another Washoe Mining Invention.

Among the recent inventions important to miners, is one by Mr. E. P. Pyne, of the Ophir, which is intended to guard against the danger that is sometimes encountered at stations in shafts. The Virginia *Enterprise* of the 18th inst. says:

We were yesterday shown a model of the new "Station Safety" and have no hesitation in saying that it is just the thing needed. It is very simple in construction and of trifling cost—merely the price of two or three small iron rods and a common wooden door. With Mr. Pyne's invention in use it will be impossible for any miner to walk from a station into the shaft or to run a car into the shaft—and be pulled in after it—as has often happened in our mines. When the cage is not standing at the station the door from the hoisting compartment opening into it (the station) remains closed, and it is impossible for any one to get into the shaft without first deliberately pulling open the door. The door is self acting—opening when the cage arrives and closing the moment it passes either up or down. The door is opened by the pushing outward of the upper hinge and closed by the hinge being drawn in again to the perpendicular. These two movements are effected by the pressure of a block attached to the cage upon a curved iron rod attached to the hinge as a lever and to a weight which serves as a counterpois to the door. The new "Station Safety" requires no attention, and being once put up is always on duty ready to take care of the miners when they forget to take care of themselves. Mr. Pyne has applied for a patent upon his invention and will doubtless obtain one without difficulty.

Names of Nom-de-Plume Writers of Note.

We find the following list of *nom-de-plume* writers passing current in the Eastern and Western Press:

Artemus Ward *	Charles F. Browne.
Barry Cornwall	William Proctor.
B. Dadd	J. H. Williams.
Cousin May Carleton	Miss M. E. Earle.
Country Parson	A. R. H. Boyd.
Carrie Carleton *	Mrs. Washington Wright.
Currer Bell *	Charlotte Bronte.
Daisy Howard	Miss Myra Daisy McCrum.
Disbanded Volunteer	Joseph Barber.
Edmund Kirke	J. R. Gilmore.
Fanny Fern	Mrs. James S. Parton.
Elm Orlon	Mrs. M. M. Pomeroy.
Florence Percy	Mrs. Elizabeth Akers.
Gail Hamilton	Miss Abigail E Dodge.
George Eliot	Miss Evans.
Grace Greenwood	Mrs. Lippincott.
Howard Glyndon	Miss Laura C. Redden.
Ike Marvel	Donald G. Mitchell.
Josh Billings	Henry W. Shaw.
Jennie June	Mrs. Jennie Croly.
Jeemes Pipes	Stephen Massett.
K. N. Pepper	James M. Morris.
Lisle Lester	Mrs. L. P. Higbee.
L. E. L.—	Mrs. Landon.
Lonnger	Geo. W. Curtis.
Mary Clavers	Mrs. C. N. Kirkland.
Max Sloper, Esq	C. G. Leland.
Mark Twain	Samuel Clemens.
Miles O'Reilly	Chas. W. Halpine.
Mrs. Partington	P. B. Shillaber.
Marion Harland	Mrs. Virginia Terhune.
Ned Buntline	E. Z. C. Judson.
Owen Meredith	Bulwer, Jr.
Orphens C. Kerr	Robert H. Newell.
P. B. Doesticks	Mortimer Thompson.
Petroleum V. Nasby	D. R. Locke.
Paul Crayton	I. T. Trowbridge.
Peter Parley	I. C. Goodrich.
George Sand	Madam Dudevant.
Timothy Titcomb	Dr. J. G. Holland.
Village Schoolmaster	Chas. M. Dickinson.
W. Savage North	William S. Newell.
Widow Bedott *	Miriam Berry.
Waif Woodland	Mrs. C. P. Blair.

* Deceased.

The newspapers of the world are estimated to number 12,500, and the average number of sheets issued daily at 12,000,000. Europe has about 7,000 journals, America 5,000, and the remainder are divided between Asia, Australia, Africa and other outlying regions on the outskirts of civilization.

Useful Information.

More about Artificial Leather.

In our issne of December 9th, 1871, we gave qnite a full account of the production, properties and uses of the new article of commerce, known as "artificial leather." Since that paragraph was published, we have received inqniries as to a very material part of the process of the manufactnre, which was therein omitted, for the reason that we were unable to give it, to to wit,—the mode of reducing the leather scraps to "pulp." Possibly the following item which we clip from the *London Trade Circular*, may answer the query:

Compressed Leather

Is at present manufactured from the refuse of saddleries and shoemaking establishments. The refuse is first cleaned from dirt and foreign substances, cut into thin strips, mixed with the refuse of raw hides, and soaked in water containing one per cent. of sulphuric acid, until the whole forms a plastic mass, which is filled into moulds and subjected to pressure. After drying the material, then, by means of steam, it has to pass through a system of rollers to render it soft, even, and similar to real leather; one per cent. of glycerine is used to prevent its cracking. It may be used, on account of its cheapness, where it is not exposed to moisture.

The article above described is evidently qnite different from the "artificial leather" described in our issne of Dec. 9th, of which it will be observed caoutchouc formed a very considerable portion, while it is entirely absent from the "compressed leather" above described. But if leather scraps can be dissolved as above, the machinery of the "pulp" in the former instance is easily arrived at.

A Big Clinker.—Probably the biggest clinker ever known in the history of man is that now in the cellar of a former extensive stove store on River street. About 9,000 stovea were melted down by the Great Fire into one mass, which gathering into it an immense quantity of bricks and atone, presented, when cooled off, one of the most formidable masses of *debris* occasioned by the fire. Every endeavor to break it up hy any ordinary means having failed, one of Fox & Howard's immense pile drivers was employed for that purpose, but even its huge hammer has so far, after four weeks bard work, proved ineffectual. The hammer of the first "driver" has been completely smashed up in its vain endeavor to conquer the stubborn clinker, and now a new machine of this character has been set to work. It must he several weeks yet before this obstruction to rebuilding can be removed. Chicago is ahead yet on clinkers.—*Western Rural.*

The Castor-Oil Plant.—This plant is a native of India, and has been known from the earliest antiquity, seeds of it having been found in Egyptian sarcophagi. It was used by the Greeks. In its native country it is a perennial, fifteen or twenty feet high, with a thick stem. In cold climates it becomes an annual. There are many instances of perennial plants becoming annuals hy change of climate.

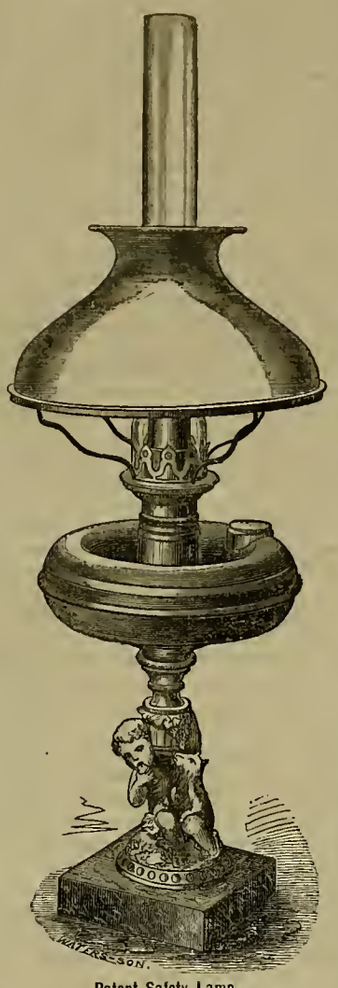
The rapid growth of the plant is illustrated hy an instance reported in Tennessee. A castor bean was planted in May, 1871, in a garden in Memphis, and in November it had grown to the hight of twenty-three feet, with a spread of foliage fifteen feet in diameter. The trunk, ten inches above the ground, was eighteen inches in circumference.

Thistle Whisky.—The New York *Independent* discourses thus eloquently in regard to thistle whisky in Canada: "Do men gather figs from thistles? No; but the Canadians are making theirs into whisky. The beverage is distilled from the stalks and leaves of the Canada thistle, and is represented to be about thirty-five per cent. alcohol, and to have a pleasant aromatic flavor. The effect upon the system is very penetrating and exhilerating, "the sensation" being the same as if a Jewsharp in full tune was attached to every nerve. Persons who have been played on with Jews-harps after this manner will be able to tell whether they would like thistle whisky or not."

525,600 railroad trains leave London in the course of one year.

Patent Safety Lamp.

The accompanying illustrations represent the Bright-Union Safety Lamp, one which possesses considerable merit, since it is the only one that has the burner connected with the tube separate and distinct from the reservoir containing the oil, and

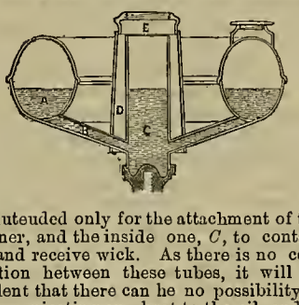


Patent Safety Lamp.

in case it should be upset, the oil will flow *from* the burner and not come in contact with the flame. Most of the lamps in use have the burner screwed direct on to

the fonnt, or oil tube containing the oil, there being nothing in that case to prevent the accumulation of gas, and from that cause we hear of numberless accidents from explosions.

This lamp is constructed with two tubes, as will be seen in the cut, the outside one,



D, inteuded only for the attachment of the burner, and the inside one, *C*, to contain oil and receive wick. As there is no connection between these tubes, it will be evident that there can he no possibility of communicating any heat to the oil, and as long as the oil in a lamp can be kept perfectly cool. there is no chance for an explosion. The tube to which the burner is attached, *D*, is free from the oil tube, *C*, and a space for air, passing from the lower end, between the tube of the burner and the tube of the oil, keeps it always cool. The oil receptacle represented by *A* admits the oil through an opening in the top whenevor it passes down through the tubo *B* into the tube *C*. *E* represents the burner.

When the burner is attached to the lamp it will be seen that there is no opportunity for the oil to escape, should it be overturned, and in case any accident should result, the worst consequences that would occur would be the breaking of a chimney or shade. The patent for this invention was obtained through the Scientific Press Patent Agency, by M. Samuels, and the lamps may be seen at Centor & Bryant's, No. 10 Third street, in this city.

Good Health.

The Sensation of Absent Limbs.

It has long been known to surgeons that when a limb has been cut off the sufferer does not lose the consciousness of its existence. This has been found to be true in nearly every case. Only about five per cent. of the men who have suffered amputation never have any feeling of the part as being still present. Of the rest there are a few who in time come to forget the missing member, while the remainder seem to retain a sense of its existence so vivid as to be more definite and intrusive than is that of the truly living fellow member.

A person in this condition is haunted, as it were, by a constant or inconstant fractional phantom of so much of himself as has been lopped away—an unseen ghost of the lost part, and sometimes a preaence made sorely inconvenient by the fact that while hut faintly felt at times, it is at others acutely called to his attention by the pains or irritations which it appears to suffer from a blow on the stump or a change in the weather.

There is something almost tragical, something ghastly, in the notion of these thousands of spirit limbs haunting as many good soldiers, and every now and then tormenting them with the disappointments which arise, when the memory being off guard for a moment, the keen sense of the limb's presence betrays the man into some effort, the failure of which of a sudden reminds him of his loss.

Many persona feel the lost limb as existing the moment they awaken from the merciful stupor of the ether given to destroy the torments of the knife; others come slowly to this consciousness in days and weeks, and when the wound has healed, but, as a rule, the more sound and serviceable the stump, especially if an artificial limb he worn, the more likely is the man to feel faintly the presence of his short member. Sometimes a blow on the stump will re-awaken such consciousness, or, as happened in one case, a re-amputation higher up the limb will summon it anew into seeming existence.

With others it is a presence never absent, save in sleep. "If," says one man, "I should say I am more sure of the leg which ain't than of the one that is, I guess I should be about correct."—*Lippincott's Magazine.*

Painless Extraction of Teeth.

Dr. A. C. Castle—*Dental Cosmos*—observes that he has for thirty years adopted the plan of obtunding or benumbing the extremities of the temporal nerves, for painless extraction of teeth from their sockets, with complete success, never having used or countenanced the exhibition of chloroform, ether, or nitrous oxide gas for this minor surgical operation. The benumbing, or *mechanical anæsthesia*, of the temporal branches of nerves, obtunds the whole nerve to a sufficient extent to allow the teeth to be removed, with sensation so slight that, if not attending a special surgical operation, it would scarcely be noticed by the patient. One of two modes may be adopted. By application of ice to the temples, which is somewhat distressing, the sensation of cold striking deeply. The other, to which he gives the preference, is done by an assistant, with each of his middle fingers pressing with persistent firmness into the *fossa* or hollow behind the ridge or the temporal bone, which forms the external bone circle orhit of the eye. Pressure for one minute is all that is necessary. The practice is as simple as it is harmless, and leaves no after unpleasant sensation to annoy the patient. It is an instinctive method often adopted by people themselves, who press their temples with their fingers to relieve themselves temporarily of the acute paroxysma of nervous headache. This temporary pressure, with sufficient force, is all that is required to remove teetb painlessly.

New Style of Vaccination.

The November number of *Harper's Magazine* gives the details of an improved method of vaccination, which, in view of the ravages of small-pox in our cities, may perhaps deserve the attention of our medical practitioners. The new plan was first practiced by a Mr. Ellis, an English physician. Ordinary vaccination is performed by scraping off the epidermis and thrusting the vaccine virus into a puncture made by the lancet. A greatly improved method, however, consists in raising a small blister by a drop of cantharides applied to the skin. This is to be pricked and the drop of fluid let out, and a fine vaccine point put in this place, and withdrawn after a moment of delay; the epidermis falls back and quite excludes the air, shutting out any germs that might be floating in the atmosphere. This method has been practiced by Mr. Ellis for twenty years, and out of hundreds of cases of vaccination which he has performed he has never had an instance of blood-poisoning or abcess, while by the ordinary method an occurrence of secondary abcess is by no means uncommon, and that of pyæmia is often observed. The comparative safety of this method is believed to be due, first, to the exclusion of the air; and, second, to the lesser size of the aperture for the introduction of mischief, than when the punctures are made by the lancet.

Cure for Burns.

Scalds and burns which are not much more than skin deep are instantly relieved of pain, by excluding the air; that which does it the most perfectly, gives the most decided relief, and is most likely to be at hand in an emergency, is the best. Plunge the part in water, cool or warm; but as this is not applicable to some portions of the body except for a short time, too short for the healing process to take place, it must he regarded as a temporary expedient while some more permanent application can be prepared. Sprinkle common flour over the burned part until it is entirely covered over; the moisture of the wound causes the flour to form a plaster impervious to air. If this plaster cracks or scales off, the part can be moistened with warm water and flour applied as before. In a very few days a beautiful new skin will form, without a scar, and the cakes will fall off—or apply warm water until they become so soft as to fall off of themselves; do not pick them off with the finger nails. The inconvenience of the hard coating can be avoided hy using another application made of oil and lime water. Pour water on a lump of unslacked lime; as soon as it is clear stir in sweet oil until it is as thick as thick cream, by slacking, and apply it freely at the time, and subsequently as often as any discomfort arises. If boiling water is poured on the lime rock, it will clear in a few minutes. Good druggists always keep lime water on hand. Families would do well to keep a bottle of the mixture always on hand; it will keep a year, and can he taken and used at a moment's notice, the natural skin growing again without a scar, and without the inconvenient hard caking of flour.

Charcoal.—If charcoal is taken into the stomach in a fresh condition, it tends to correct acidity, and to vitalize and invigorate, although scientists may be puzzled to explain exactly why. The most plausible theory is that it promotes slow combustion, making the partially decayed matter burn up and leave nothing but fresh. If a piece of meat is packed in fresh charcoal, and occasionally repacked, it will be all gone at last, but it will remain fresh. Charcoal will even restore meat partially decayed. Meat that has been overlooked until it is quite offensive, by washing and packing in charcoal is restored. Used in the mouth, some authors say it tends to prevent decay of the teeth. A considerably large piece, held in the mouth once in a few days or even weeks, will keep the breath sweet, and tend to preserve the teeth.

Darkness in the Treatment of Small-Pox.—If a patient, in the beginning of the attack, be put in a room from which absolutely all light is excluded save that of a candle, the effect is to arrest the disease in the papular or vesicular stage; the skin between the vesicles is never inflamed nor swollen; the large scabs of matter never form over the face; there is no intense pain, and only trifling itching, and the smell is either very slight or altogether wanting.—*London Lancet.*

Milk slightly turned sour is a common cause of diarrhea in children and infants.

Scientific Press.

W. B. EWER.....SENIOR EDITOR.

DEWEY & CO., Publishers.

A. T. DEWEY, W. B. EWER, GEO. H. STRONG, JNO. L. BOONE.

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San Francisco:

Saturday Morning, Feb. 10, 1872.

Gold and Legal Tender Rates.

SAN FRANCISCO, Wednesday, February 7, 1872.—Legal Tenders buying 91⅛; selling, 92. Gold in New York to-day, 109¾.

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SCIENTIFIC PROGRESS.—The Permanent Gases; The Sand Blast; The Pneumatic Sewage System, etc., 83.

USEFUL INFORMATION.—More About Artificial Leather; The Amethyst of Commerce; Improved Soap Bubbles, 87.

TO CORRESPONDENTS.—Our numerous correspondents will save us much trouble and perhaps make their articles more satisfactory to themselves, by dividing the subject matter and puttiug in appropriate "sub heads" while they are writing. By noticing the letters iu the PRESS from time to time, they will see that the majority of the letters are divided in the manner referred to, bnt wo generally have to do it ourselves. Frequently something is spoken of in the first part and again referred to below, making it difficult to divide it propérly. By doing as we suggest our correepondents will find it easier to write clearly and at the same time oblige us. If you are going to treat of several subjects in one letter, write them on a slip of paper by your side, and treat of each one eeperately under its appropriate head. Our endeavor is to make our paper as fresh and attractive as possible, and if our readers deeire to read one thing and not another, by seeing the articles "subheaded" they can take their choice.

MINERS' MEETING.—The telegraph informs ns that the miners' meeting held at Grass Valley on the 3d inst. took action against the nse of giant powder in the mines. They did uot resolve to strike, but voted to meet again on the 10th, and meanwhile the different mining superintendents are to be interviewed. It is currently reported that another strike will be ordered if the use of giant powder is continued in the mines.

BEET SUGAR.—The Sacramento *Record* of the 3d says that the Sacramento Beet Sugar Company have just finished working last year's crop of beets. The product is nine hundred barrels of excellent refined sugar. The season was a very bad one. The Company will culitvate twelve hundred acres of beets this year, adjoining its Manufactory, and expect to produce at least ten thousand barrels of sugar the coming eeason—perhaps eleven thousand—besides several hundred barrels of excellent molasses.

ON FILE.—"Battle Mountain;" Letters from "S & P.," "N. M.," and "P. A. R."

California Petroleum.

Discoveries in San Fernando, Los Augeles County.

A telegram on the 3d inst. informs us that an experimental shipment of 100 barrels of crude petroleum was being shipped from San Fernando District, Los Angeles, for the petroleum refinery of this city. We had already been informed that recent developments at that locality had been such that much attention was being attracted to those deposits, and on further inquiry we have learned that a company is being formed in this city to thoroughly develop the deposit, and secure a home production for this important and indispensable commodity. From the facts which have been elicited, we feel warranted in saying that one of the most important enterprises is about to be set on foot which has yet been attempted iu the State. The gentlemen engaged in this enterprise are so sanguine of success that they are preparing the material and machinery to commence operatione in a short time, and orders have already been received from a single house, for 1,000 barrels of oil per day, under a contract for an unlimited time—an order which the company is fully assured they will be able to answer as soon as the proper arrangements can be made to commence operations in earnest.

The Locality of These Deposits

Is at a point about 35 miles distant from the Los Angeles Railway Depot, over an excellent road, and from thence by rail to the shipping point at San Diego, the distance is 21 miles by rail—total distauce to seaboard 56 milee. The wagon road to the railroad is better in wiuter than in summer—thue insuring good transportation at all seasons of the year. According to lateet accounts from the locality, the deposite are very extensive, and from the work done upon them up to this time abundant proof has been adduced that natural petroleum of the highest grade is about to be added as an important and valuable addition to the commercial wealth of California. In addition to nnmerous natural spriugs, from whence the petroleum can be readily gathered in quantity, several wells have been sunk with the most satisfactory result. The shipment above alluded to has been dipped with buckets from natural springs, and yields from 60 to 65 per cent. illuminating oil, while the reeiduum is valuable for gas purposes, fuel, etc.

The formation where these deposits are found, lies in a range of mountains trending nearly east and west, and varies in width from a few hundred feet to a mile or more. The oil is found oozing out from a strata of shale and eandstone, wherever the gulches and cañons have cut it to any considerable depth. In addition to the wells, several tunnels have aleo been rnn, to tap the depesits, from the walls of which the oil oozes, wherever they enter the shale or sandstone strata. The cost of transportation from the springs to the railroad is about two cente per gallon.

Dr. Vincent Gelcich, of Los Angeles, from whom we have gathered the above facts, is now at the Russ House, in this city. He has several gallons of oil with him, samples of which he will be pleased to furnish to such as feel an interest in the matter, and give any information to such as are desirous of becoming acquainted with this new development of the natural wealth of California.

Commercial Value of Petroleum.

It may be interesting in this connection, to look for a moment at what this product of nature is still doing for Pennsylvania, after many years of uninterrupted yield. By examining the commercial statistics of Penneylvania it will be seen that the export of petroleum from that State for the year 1870, amounted to the sum of $34,000,000, more than the gold yield of California. This product hae added greatly to the prosperity of Pennsylvania, and is a source of immense wealth. The demand for petroleum all over the world is very great. The traveler finde it in England, Germany, Russia, Franoe, Italy, and Turkey—all imported from Penueylvania.

In the report of the exports of Philadelphia for eleven months of last year, petroleum is the leading item of that city, amonnting to 52,135,600 gallons at a valuation of $12,457,400, about 23¾ cents per gallon, at the rate of $1,132,490 and 10-11 per month. It hae been remarked with great justice, that petroleum is to Philadelphia what wheat is to San Francisco, only that there is more certainty in the supply and the demaud.

It ie etated in the *Journal Eclairage au Gas of Paris* that Petroleum can be converted into a permanent solid, which will burn without liqnefyiug aud may be preserved in a firm mass for any period. The process is not given, and is a secret. Should this prove to be true, the value of the discovery is incalculable; for with petroleum in a solid state it will take the place of coal upon the ocean steamere, and in all manufactories where coal is now used at very great expenee. According to the recent reports the experiments made with liquid fuel in Russia have been satisfactory in their resulte, and prove a saving of 35 per cent. by ueing naptha inetead of coal. This being true, if the petroleum or its products can be made eolid eo as to be easily handled, the epace occupied by coal on our ocean eteamers can be made available for cargo.

Consumption of Kerosene in California.

On the Pacifio Coast large quantities of this oil is imported from the East, at very great risk and cost, and almost immediately coneumed. The demand is increasing as its uses are becoming very much extended. The Metropolitan Gas Company of this city, intend to use petroleum altogether for making its gas, and the light from it has been shown to be far more brilliant and cheaper than that from coal. Lubricating oils, benzine, naptha, parrafine and corazine, all valuable articles, aro extracts from petroleum; and upon reference to the commercial reports it will be seen that the trade iu them is qnite extensive. The importation of keroeene is one of the immenso draius of gold and eilver from this State to the East, caueing a continual scarcity of money and rates of interest higher than in any other part of the world. Millions go to the Eaet to pay for petroleum, whilst we have a superior article in abundance at our very doors.

As we are satisfied that these deposits of petroleum exiet in San Fernando as represented, and we have the most approved material and machinery for obtaining and refining it, we trust the company now being formed will meet with proper encouragement from the capitalists of this city and State, whose aid will be needed in procuring the means for the full development of the property which bids so fair to secure from our own resources this important commodity, and thns aseist in keeping an equivalent money value at home.

Medicinal Properties of Petroleum.

In nearly every drug store ie fouud a celebrated remedy recommended by English physicians, originating in Asia and pretended to be manufactured in England, known as British or Rock Oil, which is prescribed as a liniment for rhenmatism, neuralgia, etc., which is nothing more or less than pure petroleum and, it ie no doubt often used with very beneficial effect.

As a further example of the the uees of petroleum for sanitary purposes, we may cite the following very interesting and valuable facts. Dr. Gelcich, during the recent epidemic rage of small-pox in Los Angeles, had many patieuts afflicted with that disease, and moreover had to officiate as County Coroner, in performing the duties of which he was often called upon to enter houses and have bodies removed for burial. In fumigating such places he found the most effective way was to place two or three ounces of the oil in a frying-pan, eet it on fire and put it in the middle of the roome. As a precautionary measure for himself he washed his hands in petroleum when it became necessary to handle the bodies; he aleo recommended to every family to place a emall quantity in a saucer in the corner of every room, which neutralized the miasma, purified the atmosphere and effectually prevented the spread of the infection. He believes that to this method is to be attributed the euccess that attended his practice during the eleven months continuance of that terrible epidemic.

The Doctor has used carbolic acid, creosote, chlorine and bromide of potassium, etc., in different forms, as recommended by many physicians, but the best results obtained in cases of small-pox were from petroleum, which is more conveuient, more agreeable to the senses aud a much cheaper article. He recommende its uses in all sysmatic cases whero patients are afflicted with typhoid fever, scarletina or variola.

Antiseptic Properties of Petroleum.

The antiseptic properties of petroleum are well described by Dr. J. W. Twoler, Professor of chemistry, etc., in Hobart College and Geneva Medical College, in his aualysis of it made some time eince. He first describes what putrefaction ie and states, "that it is the decomposition, decay or natural destruction of dead or organic matter. That which promotes pntrefaction is air, moistnre, warmth, cryptogamic plants and infusory inseots. Dead organic substance, deprived of air and moisture and kept in a vacuum, resists putrefaction for an iudefinite time. Chemicals may act in various waye in checking and preventing putrefaction; thoy may in the first place exclude air and moisture mechanically, as it were, like oils, resins, paints, tars, gums etc.

Now certain chemicals act in a two-fold manner—they may either abstract water from the organic matter and form new compounds, or thoy may extract the moisture by the oxygen of the air. Such antiseptics are alcohol, common salt, ealtpetre, etc. Others again, act in a threefold manner; they abstract the water, exclude the air and destroy animal and vegetable life.

The substance that will best perform all this work is petroleum. If for instance, a log of greeu wood be immersed in petroleum, tho water and air in tho pores of the wood are displaced by the petroleum. Petroleum thus excludes air and moisture from organic substances. It also destroys living vegetablos and animals. Petroleum contains no oxygen—which is a necessary element of decomposition. Out of all substances this hydrocarbon appeare to be the most powerful antiseptic known; and I have no hesitation in recommending it for the purpose set forth."

The Ancient Romans were acquainted with the preservative qualities of carbon; this fact is deduced from numerous charred stakes found in their military embankments and dams; but their system of employing it was merely superficial; whereas petroleum and liquid carbon, which covers and protects the minutest pores of the wood, expels the water and air, and thus substitutes the indestructible carbon for materials that promote decomposition."

As an Antidote for the Bites of Poisonous Insects, Reptiles, Etc.

Petroleum is, also, a specific for the oure of the bite of venemous insects, such as bees, spiders, etc., and the bite of reptiles. A farmer in Illinois had a large bee-gum near his house; one day some children playing near it annoyed the bees, which suddenly attacked the intruders and stung some of them in a terrible manner; the mother of the children immediately washed with petroleum the parts stung and inetant relief was obtained. The samo writer asserts that petroleum is an antidote for the bite of rattlesnake and reptiles of kindred nature.

WHEELBARROWS.—The metallic tubular wheelbarrows which are now being so extensively used, seem destined to supercede entirely the old-fashioned ones made of wood. The first cost is a little larger, but they will be found more economical in the end on account of their durability. They are made entirely of iron, are stronger and lighter than wood, and consequently do not require frequent repairs to keep them in order. Nutting & Co., of this city, manufacture four sizes euitable for different kinds of work on the farm and in the mine.

Earnest Talk to Miners.

[For the Press—By Our Miner—No. 2.]

THE MINING INTEREST.

Legislating on Dangerous Ground, Miners' Rights and Miners' Wrongs.

The success which has attended the schemes of the wealthy and influential land-grabbers by which they have acquired possession of the best located agricultural, timber and swamp lands in the State, appears to have emboldened them to make desperate efforts to obtain the incalculably valuable mineral lands also, before the people shall be awakened to the importance of the question.

There are a number of bills before Congress and the State Legislature now in session, designed for this object. The most dangerous of which, and that to which we desire to call the attention of the miners of the State, on this occasion, is the Bill or Resolution, asking Congress to grant all the unsold mineral lands to the State, or in other words, to place them within reach of the land-grabbers. As the quantity of these lands sold is not the one-thousandth part of the whole, the magnitude of the grant asked for becomes apparent.

The pretence for this insiduous scheme to deprive the miners and other classes, of the only free field at present existing, for exercise of their enterprise and the employment of their labor, is, that existing legislation is too cumbersome to acquire title to the mineral lands.

To those unacquainted with the

"Ways that are dark,
And the tricks that are vain,"

of the California land speculator, the advocacy of their scheme for obtaining the mineral lands, by some of the papers published in the mining districts, would appear to express the views of the miners on the question. But appearances are not always to be relied on in such cases.

The proverbial carelessness of the miners on all matters except such as directly pertain to the working of their claims; the arduous character and protracted hours of their labor; the distance from newspaper and post offices of the majority of mining claims, cause the miners very rarely, if ever, to express their opinions on any subject through the columns of the local press. It was a knowledge of this trait in their character, derived from many years experience among them that induced us to commence this series of "Earnest Talk to Miners" to obtain their opinions on questions of the greatest importance to their interest.

The land-grabbers are also aware of this trait in the miner's character, and thus knowing that no miners will take the trouble to contradict any statements which may appear in the local papers, they manage to induce the over-worked mountain editor to publish, as editorial matter, articles written by the land speculator's agents. There is scarcely one editor in twenty, in the mining districts, who can spare the time to go among the miners to obtain their opinions, consequently they are but too glad to accept the opinions of those who assume to speak for them. Such articles, published in good faith by the country editor, become formidable weapons when used in Congress, or in the State Legislature; because they are received as the opinion of the miners in the locality, while in truth they only express the views of the land grabbers.

What advantage would the miners gain, should Congress grant the unsold mineral lands to the State? Absolutely none, while they would lose much more than many of them suppose, and every interest in the State, except that of the land speculators, would suffer an irreparable injury. Under the existing state of affairs, the miner's claim, being part of the public domain, is not taxable. Should the State obtain the mineral lands, every claim would be subject to taxation. The poorest, as usual, paying the largest portion. Estimating all the mines in the State to be worth only $50,000,000, at three per cent., the current rate of taxation, these mines would be taxed $1,500,000 annually, which would be a direct loss to the miner, and but little benefit to any other class of people, except office holders.

The miners in every district now enjoy the privilege of making laws to regulate their own affairs. Were the State to become owner of the mineral lands, special legislation would give the capitalist such advantages over the working miner that the latter would be compelled to work for such wages as the employer of his labor would dictate, or seek for other employment.

The miners, during twenty years of free mineral lands have obtained enormous quantities of the precious metals, which has circulated among every class in the community. What probability is there that the product would be increased, should the mineral lands be owned by a few companies of capitalists?

The strongest arguments advanced by the advocates of the proposed disposal of the mineral lands, in large tracts, is that such a disposition of them would increase the product of the precious metals, by inducing capitalists to erect costly machinery and to employ a large force of organized laborers, exposes the aim of those who seek to obtain these lands, and explains the loss the miners and the State at large would sustain, should they succeed in gaining their object. The whole tenor of the legislation sought, is for the benefit of capital at the expense of labor.

The assertion made by the advocates of the land speculators, that the granting of the mineral lands to the State would induce foreign capitalists to invest their funds in the mines, is one of the strongest reasons why Congress should not thus dispose of them. Should these lands be granted to the State, the State would sell them in the same manner as it has sold its school, university and swamp lands, in large bodies to speculators, who in turn would sell them, at enormous profits, to foreign capitalists. Is it quite certain that the sale of the mineral, or the swamp lands, to non-resident foreigners is either a present or will be a future benefit to the State?

Suppose, for argument's sake, that one or fifty foreign companies should manage to obtain possession of a large portion of these lands. They would take all the profits of such investments out of the State. The comparatively trifling sum they would pay for taxes, would be no equivalent for the loss of the State's resources. It is infinitely more to the interest of the State to defer the exhaustion of its mines, till such a result can be effected by its citizens, than it is to make enormous sacrifices to reach that result through the aid of non-resident foreign capitalists.

To develop the resources of the State, free, intelligent laborers are more essential than non-resident foreign capitalists. The influence of foreign capital already too potent on the Pacific Coast, to place the control of the mineral lands within its reach, would make California assume more the character of a foreign colony, than that of an independent member of the States composing the Great American Republic.

We trust our friends among the miners will think over this question, and inform us of their opinions thereon, that we may place them before the people and the Legislature, in time to prevent the infliction of a ruinous blow to the mining interest

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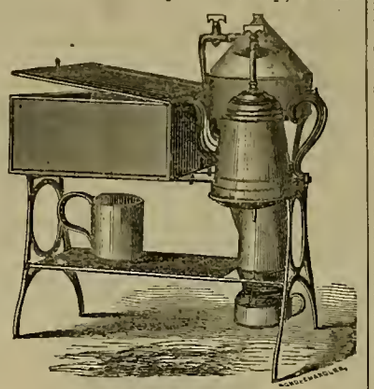
The West Side is a handsome journal published at McMinnville, Oregon, by Handley Snyder & Wm. Boone; the latter was once typo and clerk in this office.

A New Cooking Apparatus.

We give herewith an illustration of a new cooking apparatus, a recent invention, known as "Paine's Culinary Apparatus." For summer use, it would be difficult to find, among all the numerous inventions of this kind, anything which is neater, more convenient, compact or cheaper than this device.

Among the advantages claimed for it, is the fact that it can be placed on the kitchen table and a meal of victuals cooked without any perceptible increase of heat in the room, or creating a smoke, or making a litter of any kind. It is also a great economizer of the housewife's time and labor, as it can be instantly made ready, and the



PAINE'S CULINARY APPARATUS.

meal cooked with much less labor, and convenience, than when a fire has to be made in an ordinary stove. The cost of fuel is merely nominal, while it is entirely free from dust ashes or dirt of any kind. The ordinary variety of food can be cooked, coffee made and water heated at the same time. It appears to be well worth the attention of housekeepers.

Wiester & Co., No. 17. New Montgomery street, are the agents for its sale.

An Improved Shoe Fastening.

Among the recent patents obtained through the Scientific Press Agency is one which relates to a device for fastening shoes, by which the shoe can be speedily

and effectually secured upon or removed from the foot as desired.

The present style of shoes worn by ladies are fastened on the side with buttons. These fastenings may be used upon them with great convenience, doing away with the necessity of a button hook, and at the same time presenting a neat appearance. The under flap of the shoe is fitted with peculiar metal standards having holes in them. At the base of the standard is a flange and upon the opposite side of the flange is a screw. The screw is passed through a hole in the under flap, and also through a stiffening, if desired, where a nut is screwed upon it, securing the standard firmly to the flap. Eyelets are inserted in the overlapping flap which are of the proper form to allow the standards to pass through them.

To fasten the shoe, a string with a knotted end is passed through the holes in each of the standards successively from bottom to top. The knot prevents the string from passing through. By using a string of moderate length there is no necessity of unlacing, merely loosen the string, draw it downward, and the shoe can be removed. The device is neat and simple, as may be seen from our cut. Aaron Lawson, of Petaluma, Sonoma Co., is the patentee.

Wiester & Co., No. 17 New Montgomery street, are the agents.

Trade Marks.

The right of a tradesman to the exclusive use of his trade marks, whether it consists of words, letters, figures or other symbols, has always been recognized by our laws, and to imitate a trade mark, either precisely or so near as to lead the public to mistake the imitation for the real, is an actionable offence, as it not only damages the rightful owner, but perpetrates a fraud upon the community. The general government has recently specially provided for granting letters patent for trademarks, so as to more surely protect the rightful proprietors, although the right to use a special mark to represent a particular class of merchandise is as truly and lawfully the exclusive property of the original user without a patent as with it. By patenting his trade mark the proprietor makes a record of its existence, which the public are bound to recognize, and the patent, is an evidence of its originality and proprietorship, which would otherwise be a matter of doubt and would have to be proven.

The slight expense of obtaining a trade mark patent, should not detain a tradesman from securing a government license and a lawful register of his marks or designs. Every individual should depend upon his own exertions to introduce his own manufacture, and when his goods have become known to the public, his trade mark will be a guide to the buyer and a protection to the manufacturer. We are led to make these remarks from the fact that the imitation of trade marks in our community are becoming very frequent of late; for instance, if we inquire for Hucks and Lambert's axle grease, a very useful and serviceable compound, in many places an axle grease put up in cases and bearing marks similar to the H. & L. grease, is thrust upon us as the original article. In the matter of soaps, and in almost every other department of trade we find these imitations, as a general rule. The greater the reputation of any article the more numerous the imitations, and the nearer the resemblance of the trade marks used to that on the original article.

Mining Accidents.

A cave occured in the English Co.'s claims at You Bet last Saturday by which three men were injured, some of them seriously.

A man by the name of Tucker was seriously injured a few days since at the Stetefeldt Mill at Belmont, by inhaling the flames and fumes from the furnace, the damper of which was out of order and which he was arranging. He is in a critical condition.

John Hastis, of Blue Tent, had his leg broken last week, by a mass of pipe clay which rolled down from the bank and caught him.

The *National Gazette* says that R. Trotter of the Soggs mine met with a painful accident on the 29th ult. A number of giant powder caps were condemned as non-explosive and were lying in a tin box on a piece of iron; Mr. Trotter struck one of the caps, which was lying on the iron, outside of the box, with a piece of iron which he had in his hand, when the whole exploded, blowing the tin box to pieces and burying a dozen or more pieces in his face, arms and body.

The Resources of California.—The first number of the second volume of this valuable publication has been laid upon our table, and is replete with carefully compiled facts relating to the various industries and resources of the State. It furnishes a large amount of matter of especial value for parties in other countries desiring to change their residence to this State. As an emigrant aid document, it possesses especial value, and all who receive it will do well, after carefully reading it themselves, to send it to some friend in the Eastern or Western States, or to England. The paper is published by Jno. H. P. Wentworth & Co., at 302 Montgomery street, in this city.

Hygienic and Phrenological Journal.—We have received a number of this new monthly which is edited and published by Dr. Barlow J. Smith. It treats of very important subjects, and presents a neat typographical appearance.

Domestic Economy.

Various Ways of Cooking Potatoes.

Boiling Potatoes.—To boil a potato well requires more attention than is usually given. They should he well washed and left etanding in cold water an hour or two, to remove the black liquor with which they are impregnated, and a hrackish taste they would otherwise have. They ehould not be pared before boiling, they lose much of the starch by eo doing and are made ineipid. Put them into a kettle of clear cold water, with a little salt, cover closely and boil rapidly, using no more water than will just cover them, as they produce a considerahle quantity of fluid themselves while hoiling and too much water will make them heavy. As soon as *just* done instantly pour off the water, set them hack of the range, and leave the cover off the eaucepan till the steam has evaporated. They will then, if a good kind, be dry and mealy. This is an Irish receipt and a good one.

To Boil New Potatoes.—When fresh dug, take small potatoes not quite ripe, wash clean, rub the skiu off with the hand —never use a knife —aud put them iu boiling water with a little salt, hoil quickly; when done, drain dry and lay into a dish, epreading a little hutter over them, or hoil some new milk, put in a great spoonful of butter, and thicken with a little flour wet emooth with milk. When the potatoes are cooked and laid in the dish pour this dip over them. This is very nice.

Mashed Potatoes.—Boil with skins on; when done, peel quickly, and put, as you peel, into a saucepan over the stove, hut not hot enough to hurn; mash free from lumps to a smooth paste; have ready, hefore peeling the potatoes, a piece of butter half the size of an egg, melted, and half a cup of sweet milk with pepper and salt to taste; when the potatoes are mashed smooth, pour in the milk and hutter; and work it in quick and smooth, then dish; dress the top with a knife so as to he round and smooth, ruh on a little heaten egg and hrown in the oven very delicately. Serve with fowls or roast meat.

Potato Croquets.—Boil potatoes with just enough water to cover; when three parte done pour off the water and let them steam to finish cooking; then press them through a wire sieve; this done, put them into a stewpan, addiug one ounce of hutter to one quart of potatoes, and the well heaten yolks of two eggs; mix together thoroughly; then flour the pastehoard, divide the potatoe paste into square parts aud roll them on the hoard to any shape—balls, pears, corks, or what you choose—dip them in egg and hread crumhs, and fry in hot fat to a light hrown.

Potato Salad.—Cut ten or twelve cold boiled potatoes iuto slices from a quarter to half au iuch thick; put into a salad howl with four tahlespoonfuls of tarragon or plain vinegar, six tahlespoonfuls of hest ealad oil, one teaspoonful of minced parsley, and pepper and salt to taste; stir well that all he thoroughly mixed. It ehould he made two or three houre hefore needed on the tahle. Anchovies, olives, or any pickles may he added to this salad, as also slices of cold heef, chickou or turkey if desired.

Potato Soup.—Boil and mash potatoes, about three pints when mashed, to three quarts of rich heef stock, ready boiling, add pepper and salt to the taste, stir gradually into the hoiling stock, then pass all through a sieve and return to the eoup kettle; simmer five minutes, and serve with fried bread, or one head of celery, two spoonfuls of rice may he put to the stock, well hoiled and the potatoes added, when all are done, then pass through the sieve, return to the soup kettle, simmer five minutes and serve.

Cleanliness.—A neat, cleau, fresh-aired, sweet, cheerful, well arranged house exerts a moral influence over ite inmates, aud makes the memhers of a family peaceable and cousiderate of each other's feelings and happiness. The connection is ohvious hetween the state of mind thus produced and respect for others, and for those higher duties and ohligations which no laws can enforce.

On the contrary, a filthy, squalid, noxious dwolling, in which none of the decencies of life are observed, contrihutes to make ite inhahitaute selfish, sensual, and regardless of the feelings of others; and the constaut indulgence of such passions rendors them reckless and brutal.

The Economy of a Damper.

A damper in a stove is of great importance in a house—hoth as a matter of economy, and comfort also. It makes the hot air remain in the stove, and does not take in the outside heated air, which is done through the crevices and proper draft. If the damper is shut, you instantly feel the heat, on your face, showing that it is thus kept in the room. The circulation is thus kept etopped iu the room, aud a soft, pleasant atmosphere is the result.

The maiu item is, however, the economy in fuel. Not more than half the quantity of wood ie used, and yet an equal amount of heat is generated. This is of some consequence to the purchaser, or to the boy or man who has it to chop; and of course, has an extra amount to furnish, when it goes roaring up the chimney. Then to the housekeeper, the fact that she gaius more ashes hy the use of a damper, is an inducement to use one, as they are uot lost in the air.

Dry hard wood is positively necessary, where a damper is used. Maple will make a nice bed of coals. Birch comes next, though tho flame is not so hot and bright as the former. The beech blazes well, hut is too much like soft wood. When the hlaze is gone there is not much left of it. With a damper you can use soft maple. It is often the case that when there is not a damper, the fire is continually "going down," the heat is unequal, and the temperature of the room is being continually rendered cool—first dry, then damp, making it dieagreeable and dangerous. This matter is of the utmost importauce to the housekeeper, and should be attended to.—*Western Rural.*

Mechanical Hints.

A Toothless Saw.—A smooth, toothless, circular saw, making 3,000 revolutions per minute, for sawing large heams, guidee and ehafts of iron in a cold state, is in operation hy the Phœnix Iron Company of Peunsylvauia.

Propulsion. A wheel has been iutroduced for the propulsion of boats in shoal water, which is provided with arms having spurs which revolve upon the hottom of the canal or river. The plan was thoroughly tried on the head-watars of the Alleghany river, some years ago, but proved an entire failure.

The turn-table of the new Rock Island bridge weighs oue hundred and fifty tons. It is supposed to be the most massive piece of machinery of its kind in the world. It is certain that nothing in the line in this country approaches it. The principal circles, composed of eix segments, weighing six tous each, aud the hase circle, are in their places.

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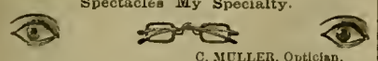

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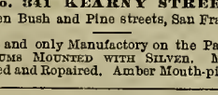

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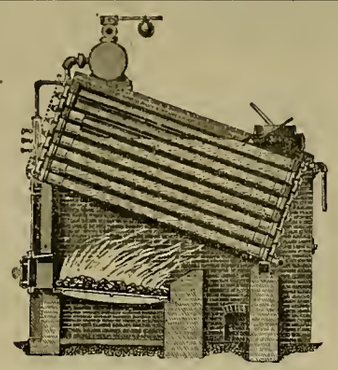

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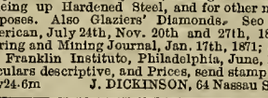

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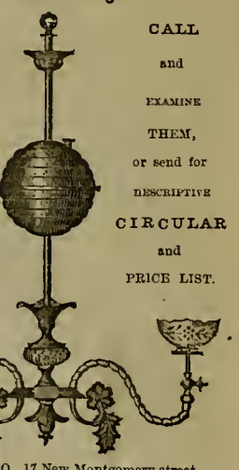

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The Geological Survey.

The following just remarks occur in a pamphlet treating of the reclamation of Marsh and Swamp lands, and proposed canals for navigation and irrigation in California by J. Ross Browne:

Nothing could show more conclusively the practical value of the State Geological Survey than the maps prepared from original surveys made during the past nine years, under the direction of Prof. Whitney, the State Geologist. The work has been done with great skill and care, and will compare favorably with the best work of a similar kind done in Europe. Already the sectional maps published have become essential to a knowledge of our mountain and river systems. Without the labors of the survey we would have no data upon which to base any reliable calculation as to the extent of our mineral belts or the area of our water-catchment. A detailed and accurate map of California, such as that in course of preparation and nearly completed by the Geological Survey, is not less important to the understanding and development of our material resources than the elaborate coast survey are to the purposes of commerce and navigation. No intelligent person gifted with common sense, will deny that the survey of our coasts, bays and harbors, under responsible supervision, is indispensable to enlarged commercial intercourse. No civilized nation at the present day is without it. Millions of money have been devoted to this great work by the government of the United States, and no expenditure of public money has proved more beneficial to the commerce of the country.

The charts of the coast survey bear to commerce and navigation the same relation that the surveys and maps of the geological surveys bear to mining and works of internal improvement. It would be as hazardous to undertake the construction of any extensive system of ditches or canals without an accurate map showing the area of water-catchment, the elevation and inclination of the mountain ranges, with their ridges and spurs, as to attempt the navigation of our inlets, bays or harbors, without the measurements and soundings of the coast survey. If Professor Whitney had accomplished nothing more than the accurate delineation of the Sierra Nevada and Coast Range systems, surveyed and defined our mineral belts, furnished to the world the maps already published, and nearly completed the great central map, extending from Owen's Lake to Lassen's Peak, he would merit the gratitude of every citizen, and the unanimous approval of the Legislature. The work is thoroughly and conscientiously done. It would be alike discreditable to the State and injurious to every public enterprise now projected to leave it unfinished. A liberal appropriation should be made to enable the State geologist to complete his work in a thorough and satisfactory manner. It will prove the best investment of public money ever made by the State of California.

The following important resolution was recently been adopted by the San Francisco Chamber of Commerce:

Resolved, That the State Geological Survey, under the direction of Professor Whitney is accomplishing a great and beneficial work in the survey and delineation of our mountain and river systems, in the investigations of our mineral resources and the elucidation of the Natural History of the Pacific Coast, and that we earnestly recommend the continuance of this survey, and its liberal support by the Legislature.

The opinions that we have advanced concerning the practical utility of the Geological Survey, are, we are pleased to see, also adopted by men of business who are accustomed to look at things from a business point of view. The members of the Chamber of Commeroe have been called upon to test the value of the topographical work of the survey, in some of their reclamation and irrigation enterprises and are able to appreciate the necessity of completing the work in order that a perfect map of the whole State may be prepared.

This voluntary testimony of practical utility by so influential a body as the Chamber of Commerce should have great weight with the members of the Legislature and call their attention forcibly to the objects and accomplished work of the survey. It would certainly be a great shame if so neccessary a task as that entrusted to Professor Whitney, and one so important to the State, should fail for want of an adequate appropriation, especially since so much has already been accomplished.

The Belcher Mine.

The annual meeting of the Belcher Mining Company was held on January 30th. The Secretary's report shows the following schedule of operations for the year:

RECEIPTS.

From bullion	$1,199,135
Assessments Nos. 7 and 8	51,925
Virginia and Truckee Railroad	1,036
Total receipts	$1,252,096
Cash January 31, 1871	624
Total	$1,252,720

DISBURSEMENTS.

Labor	$137,103
Crushing 18,468 tons ore	221,621
Hoisting 18,458 tons ore	19,203
Machinery account	11,000
Miscellaneous	150,847
Total disbursements	$539,775
Cash, January 1, 1872	712,945
Total	$1,252,720

The ore yield of this mine for the past year was all due to the last five months of the year. The quantities hoisted in each month, together with average and aggregate values, were as follows:

	Tons.	Average.	Value.
August	680	$74.90	$50,936
September	2,009	80.19	161,103
October	4,200	74.52	313,041
November	5,717	60.40	345,419
December	5,853	55.83	326,036
Totals	18,468	$64.26	$1,199,135

The Assay Value of the Bullion.

The assay value of the bullion was 54 per cent. gold and 46 per cent. silver. From the balance of $712,945 held on the 1st January, the company paid a dividend of $10 per share, aggregating $104,000.

The Dividends Paid

Under the old organization were as follows: June 1, 1865, $21 per foot; July 1, $24; August 2, $24; December 31, $24; January 28, 1865, $51; February 25, $60; March 28, $75; April 28, $75; May 30, $51—making a total of $405 per foot, aggregating $421,200 paid by the mine prior to the dividend paid January 10, 1872.

The Assessments Levied

In the meantime have been as follows: December, 1865, $100 per foot; April 10, 1866, $60; July 21, $45; October 17, $33; January 1, 1867, $15; March 25, $12; May 30, $15; September 21, $15; December 27, $15; March 13, 1868, $25; July 13, $25; October 6, $25; December 31, $25; March 15, 1869, $30; May 4, $50; October 21, $25; —making a total of $515 per foot, or $535,600, including $109,200 levied since the reorganization of the Company.

Officers Elected.

The following Trustees were chosen for the ensuing year: J. D. Fry (President), A. K. P. Harmon (Vice President), B. F. Sherwood, R. F. Morrow and James H. Dobinson. H. C. Kibbe was re elected Secretary and William H. Smith was reappointed Superintendent.

An illustration of a lamp appears a second time in a portion of our edition this week, placed there by mistake, something that does not often occur with us.

Mocking Birds have been turned loose at Los Angeles with the hope that they will multiply and live permanently in the open air.

FOR 25 CENTS we will send, postpaid, four sample copies (recent numbers) of the Press. This, we believe, will induce many to subscribe who have not yet read our paper. It is a cheap and valuable favor to send a friend anywhere.

The Explorers', Miners' and Metallurgists' Companion. By J. S. Phillips, M. E. San Francisco Dewey & Co. This work, as the author tells us, embraces "the whole field of mining, which," he goes on to say, "is sufficiently hazardous at the best, having too many blanks for a prize to sustain unnecessary errors arising from insufficient preliminary examination." Besides that there is much actual knowledge to be gained from a perusal of this volume, and in this respect alone it will be a valuable assistant to those engaged actively in mining. There is also a considerable amount of good common sense, which, by appealing to those even remotely connected with this fascinating subject, may cause them to seek for such reforms in the management as may lead to the classing of mining among what may be termed legitimate business, and so do away with all worthless schemes, which have made it in America hitherto little better than another species of gambling.—*S. F. Chronicle, Dec. 24th.*

The Evangel, Office, 414 Clay street, San Francisco. Terms, $4 per year, in advance. The Evangel is the organ of the Baptist Denomination for the Pacific States and Territories. All efforts on the part of brethren and friends to extend its circulation will be gratefully appreciated. $3, for one year's subscription, will be received from new subscribers, strictly in advance. Address "Evangel, San Francisco, Cal." Sample copies furnished free. 4v3-1amhptf

Daily Weather Record,

By the U. S. Army Signal Service, for the week ending Wednesday, January 24, 1872.

Date and Place of Observation.	Hight of Barometer.	Thermometer.	Rel. Humidity.	Direction of Wind.	Vel. of Wind Miles per Hour.	Force of Wind red. to Beaufort's Scale. Approx'tely.	Amount of Lower Cloud.	Rain Fall since last report.	State of Weather
San Fran'co. Thurs	30.02	45	46	N.	18	Brisk	3-4		Clear
Friday	29.93	45	76	S. E.	5	Gentle			Cloudy
Saturday	30.05	45	84	S. W.	2	Light			Hazy
Sunday	30.14	45	84	Calm					Clear
Monday	30.19	48	92	Calm					Cloudy
Tuesday	30.18	50	79	W.	7	Fresh			Lt. Rain
Wed'day	30.11	51	86	S. E.	11	Fresh		.07	Lt. Rain
San Diego. Thurs									
Friday									
Saturday									
Sunday									
Monday									
Tuesday									
Wed'day									
Portland, O. Thurs									
Friday									
Saturday									
Sunday									
Monday									
Tuesday									
Wed'day									
Virg'a, M.T. Thurs									
Friday									
Saturday									
Sunday									
Monday	29.81	4	55	N.W.	2	Light			Fair
Tuesday									
Wed'day									
Corinne. Thurs									
Friday									
Saturday	29.97	6	76	N.	6	Fresh	3-4		Cloudy
Sunday									
Monday									
Tuesday	30.27	8	78	N.	6	Freeh	3-4		Cloudy
Wed'day									
Cheyenne. Thurs									
Friday									
Saturday	29.58	4	48	W.	20	Brisk			Clear
Sunday									
Monday									
Tuesday	30.01	6	76	Calm					Clear
Wed'day									
Denver. Thurs									
Friday									
Saturday	29.69	5	82	S.	7	Fresh	1-4		Cloudy
Sunday									
Monday									
Tuesday	30.09	10	77	S. W.	4	Gentle			Fair
Wed'day									
Omaha. Thurs									
Friday									
Saturday	29.65	14	82	S. W.	4	Gentle	3-4		Cloudy
Sunday									
Monday									
Tuesday	30.48	4	64	Calm					Clear
Wed'day									
Davenport, I. Thurs									
Friday									
Saturday	29.69	5	82	S.	7	Fresh	1-4		Cloudy
Sunday									
Monday									
Tuesday	30.56	3	75	W.	1	Light	1-4		Fair
Wed'day									

San Francisco Metal Market.

[Corrected weekly by Hooker & Co., 117 and 119 Cal. street.]

PRICES FOR INVOICES

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

THURSDAY, February 8, 1872

IRON.—			
Scotch and English Pig Iron, ₱ ton	$52 50	@	55 00
White Pig, ₱ ton	45 00	@	— —
Refined Bar, bad assortment, ₱ lb	— 04	@	— 04½
Refined Bar, good assortment, ₱ lb	— 05	@	— 05½
Boiler, No. 1 to 4	— 05	@	— —
Plate, No. 5 to 9	— —	@	— 05
Sheet, No. 10 to 13	— 05½	@	— —
Sheet, No. 14 to 20	— 05	@	— —
Sheet, No. 24 to 27	— 06	@	— —
Horse Shoes	7 50		
Nail Rod	10		
Nerway Iron	8		
Rolled Iron	5		
Other Irons for Blacksmiths, Miners, etc.	5	@	6
COPPER.—			
Sheathing, ₱ lb	— 24	@	— 26
Sheathing, Yellow	— 24	@	— 25
Sheathing, Old Yellow	— 11	@	— 11½
Composition Nails	— 24		—
Composition Bolts	— 24		—
TIN PLATES.—			
Plates, Charcoal, IX ₱ box	12 00		— —
Plates, I C Charcoal	10 00		10 50
Roofing Plates	11 00		— —
Banca Tin, Slabs, ₱ lb	— —		— 45
STEEL.—English Cast, ₱ lb	— 16		— 17
Drill	16		17
Flat Bar	17		20
Plough Points	3 75		
Russia (for mould boards)	12½		
QUICKSILVER.—₱ lb			— 55
LEAD.—Pig, ₱ lb	— 05½		— 06¾
Sheet	— 08		— 8½
Pipe	— 9		— 10
Bar	— 08		— 09
ZINC.—Sheets, ₱ lb	— 10		— 10½
BORAX.—Refined	— 25		— 30
Borax, crude	— 5		— —

Leather Market Report.

[Corrected weekly by Dolliver & Bro., No. 109 Post st.]

SAN FRANCISCO, Thureday, Febrnary 8, 1872.

SOLE LEATHER.—The demand is still equal to the supply, and prices still continue firm.

City Tanned Leather, ₱ lb	26@29
Santa Cruz Leather, ₱ lb	28@29
Country Leather, ₱ lb	25@28

The market is well supplied with French stocks, and prices have a downward tendency. Heavy California skins are firm, with an upward tendency.

Jodot, 8 Kil., per doz	$80 00@	
Jodot, 11 to 13 Kil., per doz	75 00@	95 00
Jodot, second choice, 11 to 15 Kil. ₱ doz	60 00@	80 00
Lemoine, 15 to 19 Kil., ₱ doz	95 00@	
Levin, 12 and 13 Kil., per doz	68 00@	70 00
Cornellian, 16 Kil., per doz	70 00@	
Cornellian, 12 to 14 Kil., per doz	60 00@	68 00
Ogeran Calf, ₱ doz	54 00@	
Simon, 13 Kil., ₱ doz	65 00	
Simon, 20 Kil. ₱ doz.	68 00	
Simon, 24 Kil. ₱ doz	72 00	
Robert Calf, 7 and 8 Kil	35 00@	40 00
French Kips, ₱ lb	1 00@	1 30
California Kip, ₱ doz	55 00 to	60 00
French Sheep, all colors, ₱ doz	15 00	
Eastern Calf for Backs, ₱ lb	1 15@	1 25
Sheep Roans for Topping, all colors, ₱ doz	8 00@	13 00
Sheep Roans for Linings, ₱ doz	5 50@	10 50
California Russet Sheep Linings	1 75@	3 50
Best Jodot Calf Boot Legs, ₱ pair	5 25	
Good French Calf Boot Legs, ₱ pair	4 50@	5 00
French Calf Boot Legs, ₱ pair	4 00	
Harness Leather, ₱ lb	30@	37½
Fair Bridle Leather, ₱ doz	48 00@	72 00
Skirting Leather, ₱ lb	34@	37½
Welt Leather, ₱ doz	30 00@	50 00
Buff Leather, ₱ foot	17@	21
Wax Side Leather, ₱ foot	18@	20

MARAVILLA COCOA.—No breakfast table is complete without this delicious beverage. The *Globe* says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoas, but we doubt whether any thorough success had been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to the finest of all species of the Theobroma, they have produced an article which eupercedes every other Cocoa in the market. Entire solubility, a delicate aroma and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homœopaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers' Original Homœopathic Cocoa and Soluble Chocolate Steam Mills—Brick Lane, London. Export Chicory Mills, Bruges, Belgium. fe25-1y

Ripe and Luscious Melons the Year Round!

Seeds for Sale.—The Seeds of the fameue TURKISH MUSKMELON (which keepe in palatable condition in winter and summer) are now offered for sale (for the first time in America) at thie office. They are said to be excellent for preeerves and sweet pickle, and euperior to citrons or other melons. We have the sole wholesale and retail agency of the introducer, on this Continent, R. Marchella, of thie State. Small packages, by mail, 50 cts., prepaid to any part of the United States. It is a choice novelty. Send in season. The supply is net large.

Mining Companies

Should advertise their Meetings, Assessments, and Sales, in the Scientific Press. Rates more than one-half less than daily publications. Stockholders should take the hint and request their managers to truly economize by advertising in a Mining Journal, where all notices may be seen by cheaply purchasing and examining a weekly. You will thus save money and uphold a journal which upholds your interests.

University of California.—The Preparatory Department is under the charge of five Professors of the University, and six tutors.

Besides the studies of the public schools, Algebra, Geometry, Latin, Greek, German, French, Spanish and Book-Keeping are taught.

Terms: Board and tuition, 4 weeks, $30. Students received at any time. George Tait, Oakland, Master Fifth Class. se9bptf

$5 to $20 per Day and no Risk.—Do you want a situation as salesman at or near home to introduce our new 7-strand White Wire Clothes Lines, to last forever. Don't miss this chance. Sample Free. Address Hudson River Wire Works, 75 William street, N. Y., or 1 Dearborn street, Chicago, Ill. 23v1-12mhp

Ladies Desiring to Procure a First-Class Sewing Machine against easy monthly installments may apply to No. 294 Bowery, 157 E. 26th, 477 9th Ave., New York Good work at high prices if desired. 21v1-12mhp

Continental Life Insurance Co., 302 Montgomery street, corner of Pine.

Mining and Water Companies or Water Works

TO CONTRACT WITH US FOR

SHEET IRON PIPE.

All Work Guaranteed.

OFFICE at 112 Battery Street, San Francisco. 4v24-eow3m16p

FRANCIS SMITH & CO.,

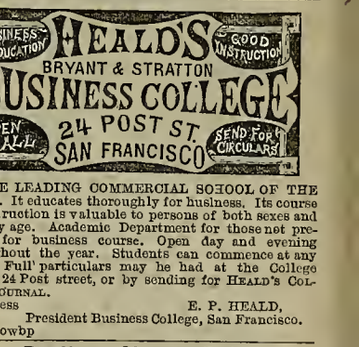
Manufacturers of

HYDRAULIC PIPE,

—AND—

Artesian Well Pipe—All Sizes.

Having the Latest Improved Machinery, we can make it an object to



IS THE LEADING COMMERCIAL SCHOOL OF THE Pacific. It educates thoroughly for business. Its course of instruction is valuable to persons of both sexes and of any age. Academic Department for those not prepared for business course. Open day and evening throughout the year. Students can commence at any time. Full particulars may be had at the College Office, 24 Post street, or by sending for Heald's College Journal.

Address E. P. HEALD,
President Business College, San Francisco.
3v3-cowbp

To Parties About Building.

A person who is competent to prepare plans and take charge of the construction of Dwellings, Mills, Bridges, or other architectural improvements, will make favorable engagements with persons or corporations in the city or the interior. Has had full experience on this coast, and can insure good satisfaction. Address EDW. W. TIFT,
5 -v24-sa No. 807 Howard street, San Francisco.

The Merchants' Exchange Bank

OF SAN FRANCISCO.

Capital, One Million Dollars.

LEVI STEVENS.....President.
R. N. VAN BRUNT.....Cashier.

BANKING HOUSE,

o. 415 CALIFORNIA STREET.

25v20-qy

Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the Scientific Press we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

Alhambra Hill Mining Company—Location

of works, Alhambra Hill, Pinto District, White Pine county, Nevada.

Notice—There are delinquent upon the following described stock, on account of Assessment (No. 11) levied on the Ninth day of December, 1871, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No of certificate.	No. shares.	Amount.
Andreas Fisher.....	not issued,	253	$126.50
R. Beverly Cole.....	" "	253	126.50
R. Mayrisch.....	" "	253	126.50
C. F. Schmidt	" "	253	126.50
R. Steinheimer.....	" "	253	126.50
J. Hausmeister.....	" "	253	126.50
D. H. Jackson.....	" "	506	253.00
L. Schumacher.....	" "	161	80.50
J. Napthaly.....	" "	161	80.50
D. B. Arrowsmith...	" "	161	80.50
John Shoenbar.....	" "	161	80.50
Thos. J. Reed.....	" "	80½	40.25

And in accordance with law, and an order of the Board of Trustees, made on the Ninth day of December, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction by Maurice Dore & Co., at No. 327 Montgomery street, on the Fifth day of February, 1872, at the hour of 12 o'clock M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

HENRY G. LANGLEY, Secretary.

Office—612 Clay street, San Francisco, Cal. jr20-4w

POSTPONEMENT.—The above sale is postponed to Tuesday, February 27th, 1872, at 12 o'clock M., to be held at the same place. By order of the Board of Trustees. HENRY G. LANGLEY, Secretary.

San Francisco, February 3, 1872. fe10-2w

Kincaid Flat Mining Company—Location

of works, Tuolumne County, State of California.

NOTICE.—There are delinquent upon the following described Stock, on account of Assessment levied on the 11th day of December, 1871, the several amounts set opposite the names of the respective Shareholders as follows:

Names.	No. Certificate.	No. Shares.	Am't.
F. Vassault.....	33.....	50.....	$125 00

And in accordance with law, and an order of the Board of Trustees, made on the 11th day of December, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the Secretary's Office, No. 220 Clay street, San Francisco, California, on Wednesday, the 7thday of February, 1872, at the hour of 10 o'clock A. M. of said day, to pay said delinquent assessment thereon, together with costs of Advertising and expenses of sale.

R. H. CORNELL, Secretary.

Office, No. 220 Clay street, San Francisco, Cal. jr20 3t

POSTPONEMENT.—The above sale is hereby postponed until Wednesday, February 14th, 1872, at the same hour and place. By order of the Board of Trustees.

fl-2w R. H. CORNELL, Secretary.

Mina Rica Mining Company—Location of

works, Auburn District, Placer county, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 16th day of January 1872, an assessment of Twenty (20) cents per share was levied upon the capital stock of said company, payable immediately in United States gold and silver coin, to the Secretary at the office of the company, room No. 2, 418 California street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Monday, the 19th day of February, 1872, shall be deemed delinquent, and will be duly advertised for sale by public auction, and unless payment be made before, will be sold on Monday, the 11th day of March, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

GEO. R. SPINNEY, Secretary.

Office—Room No. 2, third floor, 418 California street, San Francisco, California. ja20-5w

Mount Jefferson Milling and Mining Company—Location of works, 1st Garote, Tuolumne county, Cal.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the 8th day of January, 1872, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. shares.	Amount.
Creamer, J M.....	14	100	$25.00
Lewis, L J, Trustee	48	100	25.00
Lewis, L J, Trustee	51	100	25.00
Lewis, L J, Trustee ..	56	125	31 25
Nelson, J H.....	15	100	25.00

And in accordance with law, and an order of the Board of Trustees, made on the 8th day of January, 1872, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the once of said company, on the 22d day of February, 1872, at the hour of 2 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

J. W. CLARK, Secretary.

Office, 418 California street, San Francisco, Cal. f.0-4

Nevada Land and Mining Company—Location, Spruce Mountain, Antelope and Clifton Districts, Elko County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 9th day of January, 1872, an assessment of four cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the company's office, Room 5, No. 302 Montgomery street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Tuesday, the 13th day of February, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 4th day of March, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

By order of the Board of Trustees.

WM. H. WATSON, Secretary.

Office, Room 5, No. 302 Montgomery street, San Francisco, Cal. ja13-3w

Quail Hill Mining and Water Company—Location of works, Salt Springs Valley, Calaveras County, State of California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the 19th day of December, 1871, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. certificate.	No. shares	Amount
F. S. Spring, Trustee.....	41	120	$600.00
E. F. Dennison	42	1	5.00

And in accordance with law, and an order of the Board of Trustees, made on the 19th day of December, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the company, No. 409 California street, (up stairs,) San Francisco, Cal., on the 13th day of February, 1872, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of salo.

T. F. CRONISE, Secretary.

Office, No. 409 California street, (up stairs) San Francisco, Cal. jr27-3t

BLAKE'S PATENT STEAM PUMPS.

WHAT IS SAID BY THOSE WHO USE THEM.

SALEM, Oregon, January 16th, 1872.

MESSRS. BERRY & PLACE, San Francisco—Gentlemen: In answer to your query regarding the working of the large Blake Steam Pump, our company purchased of you, we would say in all sincerity that the pump *has exceeded our expectations.* It has been in use since the 25th of September, 1871, and has thus far given the most perfect satisfaction. It does its work with ease, does not get out of order, and requires but little or no attention to run it. It is SIMPLE, DURABLE, and PERFECT in its construction. We have found it entirely satisfactory and just the pump *in every respect* needed for our work.

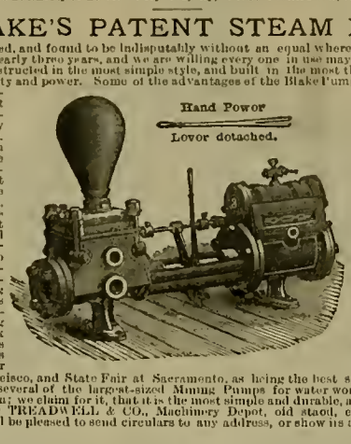
Yours, respectfully, W. F. BOOTHY, Sup't. Salem Water Works.

PHŒNIX MINE, Napa County, January 10th, 1872.

MESSRS. BERRY & PLACE, San Francisco—Gentlemen: The No. 8, Blake Steam Pump we bought of you last fall is doing good service. We are having a large amount of water to contend with during this stormy weather; but the pump throws it all out of the main shaft (180 feet deep) with perfect ease, and is only working from 40 to 80 strokes a minute. It is a complete pump and no mistake. We are well satisfied with its working, and if you wish to use the name of our company, as a reference, you are at liberty to do so. Very resp'tly, GEO. FELLOWS, Supt. Phœnix Quicksilver M. Co.

BLAKE'S PATENT STEAM PUMP.

These Pumps have been tested, and found to be indisputably without an equal wherever tried. They have been sold in the Pacific States now for nearly three years, and we are willing every one in use may be referred to; every Pump will speak for itself. They are constructed in the most simple style, and built in the most thorough manner—especially calculated for simplicity, durability and power. Some of the advantages of the Blake Pump may be summed up as follows:



It is positive under any pressure. May be run slow or fast as may be desired. Will discharge more water than any others of the same dimensions. Has no leaky joints, the steam part being cast in one entire piece. The steam valve is perfectly balanced, is cushioned at each end, and slides with the *greatest facility having no cams, nor complex rotary arrangements to get out of order.* Will start at any point of the stroke, and will discharge all the water of condensation. The Pump has no crank or fly-wheel, thereby saving a considerable item of expense to the purchaser. Having *no lived joints,* it therefore needs no watching, and is consequently ready to start without using a starting bar or any hand work whatever. The Blake Pump is extensively used on Railroads and Steamboats, in Hotels, for Mining and Fire purposes; in Breweries, Tanneries, Sugar Houses, Factories, Mills, Laundries, and as Boiler Feeders, wherever steam is employed. In fact, wherever water or other liquids are desired to be raised in large or small quantities, or against heavy or light pressure, it is the cheapest and best Pump that can be used. It is offered to the public as the most perfect independent steam Pump ever invented. Forty different sizes are made, capable of throwing from 1,000 to 200,000 gallons an hour, and adapted to any class of work that may be required. Every pump will be warranted to perform the work required of it by the purchaser, or it may be returned and the money will be cheerfully refunded. The Blake Pump was awarded a silver Medal at the last exhibition of Mechanics' Institute, San Francisco, and State Fair at Sacramento, as being the best steam Pump on exhibition. The agents have recently imported several of the largest-sized Mining Pumps for water works, and deep mines, and will be pleased to refer parties to them; we claim for it, that it is the most simple and durable, and consequently the best Steam Pump ever built. For sale by TREADWELL & CO., Machinery Depot, old stand, corner of Market and Fremont streets, San Francisco, who will be pleased to send circulars to any address, or show its advantages to parties calling on them.

OFFICE STARR MILLS, VALLEJO, Cal., January 13th, 1872.

MESSRS. BERRY & PLACE, San Francisco—Gentlemen: We are pleased to state that the No. 3 Blake Pump purchased of you, has constantly supplied our three boilers for the past year, with water heat to above boiling point with one of Armstrong's Patent Heaters. It has given us no trouble nor expense, and has in fact fully come up to your recommendations.

Yours, Etc., STARR BROS. & CAMPBELL.

OFFICE S. J. WOOLEN CO., SAN JOSE, January 29th, 1872.

MESSRS. BERRY & PLACE, San Francisco—Gentlemen: We have used a No. 6 Blake Steam Pump now for about two years, both as a Tank Pump and as a Fire Pump in case of need: and it has given excellent satisfaction. *Trusts us in every respect.*

Very respectfully, R. F. PECKHAM, Pres't San Jose Woolen Co.

BELMONT, Cal., February 6th, 1872.

MESSRS. TREADWELL & CO.—Gentlemen: In reply to your inquiry concerning the large Blake Steam Pump, purchased of Berry & Place, by Mr. Ralston, I will say, that it gives ENTIRE *satisfaction,* even working as it now is, where no other Pump could; for it is *at present six feet under water,* yet it does its work PERFECTLY.

Yours, Etc., J. E. BUTLER, Supt. Water Works and Engineer at W. C. Ralston's.

It has no Cams or Rotary Complex Valves. It has stood the test wherever tested.

IT IS SIMPLE, COMPACT, DURABLE, AND POWERFUL.

☞Manufactured by Geo. F. Blake & Co., Boston, who build and have on hand a larger variety of Steam Pumps than any other concern in the country, embracing *forty* different sizes, and capable of throwing from 1,000 to 200,000 gallons an hour, and adapted to every description of work required. ☞Send for circular and prices.

The largest stock in the country at the Machinery Warehouse of

TREADWELL & CO.,

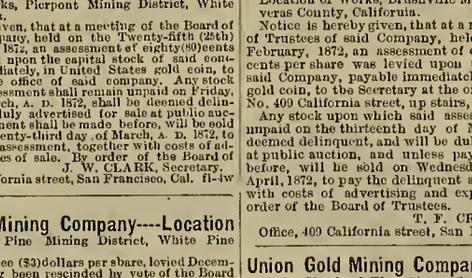
Manufacturers' Agents, corner Market and Front Streets, San Francisco.

☞Machinery Depot for Miners, Millmen, and Engineers' Supplies. Iron and Wood Machinery; Portable Engines; Mills, Machinists' and Mechanics', Miners' and Farmers' Tools; Sturtevant's Blowers, Turbine Waterwheels, Etc., Etc.

6v246.6.W

HYDRAULIC CHIEF.

FISHER'S KNUCKLE JOINT AND NOZZLE IS THE Cheapest and Best Hydraulic Machine in use.



MACHINES Manufactured TO ORDER, to throw from One to an eight-inch STREAM.

The only reliable party in the Hydraulic business who protects his patrons.

9v23-tf Address F. H. FISHER, Nevada, Cal.

Piermont Milling and Mining Company—Location of works, Piermont Mining District, White Pine County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the Twenty-fifth (25th) day of January A. D. 1872, an assessment of eighty (80) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of said company. Any stock upon which said assessment shall remain unpaid on Friday, the first day of March, A. D. 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the Twenty-third day of March, A. D. 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. J. W. CLARK, Secretary.

Office, No. 418 California street, San Francisco, Cal. fl-4w

Silver Wave Mining Company----Location of works, White Pine Mining District, White Pine county, Nevada.

Assessment of Three ($3) dollars per share, levied December 19th, 1871, having been rescinded by vote of the Board of Trustees,

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 2 th day of January, A. D. 1872, an assessment of One Dollar per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company. Any stock upon which said assessment shall remain unpaid on Monday, the 26th day of February, A. D. 1872, shall be deemed delinquent, and will be duly advertised for sale, at public auction, and unless payment shall be made before, will be sold on Tuesday, the 19th day of March A. D., 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

By order of the Board of Trustees. J.W. CLARK, Sec'y.

Office, 418 California St. San Francisco. jr27-4w.

Tecumseh Gold, Silver and Copper Mining Company.—Location of works, Gopher District, Calaveras County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 23d day of January, 1872, an assessment of Four ($4.00) dollars per share was levied upon the capital stock of said Company, payable immediately, in United State gold and silver coin, to the Secretary, F. J Herrmann, at the office of the company, No. 516 Kearny street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the 27th day of February, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the 16th day of March, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

F. J. HERRMANN, Secretary.

Office 516 Kearny street, San Francisco, Cal, jr27td.

South Gulch Gravel Mining Company.

Location of Works, Brushville Mining District, Calaveras County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 7th day of February, 1872, an assessment of one dollar and fifty cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary at the office of the Company, No. 409 California street, up stairs, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the thirteenth day of March, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the third day of April, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. F. CRONISE, Secretary.

Office, 409 California street, San Francisco, Cal.

Union Gold Mining Company—Location of works, Howland Flat, Sierra County, State of California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the 4th day of January, 1872, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. of Certificate.	No. of Shares.	Am't.
Crosett, James F. Trustee..166	62	$ 62 00
Crosett, James F, Trustee..107	100	100 00
Frontin, Joseph, Trustee..234	100	100 00
Frontin, Joseph, Trustee..235	95	95 00
Gilbert, Mrs. E. W.....205	15	15 00
Gilbert, Mrs. E. W.....212	10	10 60
Hale, William F.....129	60	60 00
Mahoney, Denis..... 46	100	100 00
Maboney, Denis..... 47	50	50 00
Mahoney, Denis..... 62	75	75 00
Mahoney, Denis..... 63	100	100 00
Stuart, W. A..... 90	7	7 00

And in accordance with law and an order of the Board of Trustees, made on the 4th day of January, 1872, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Company, Room No. 22, Merchants' Exchange, California street, San Francisco, California, on Monday, the 26th day of February, 1872, at the hour of 1 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of salo.

ALFRED K. DURBROW, Secretary.

Office: Room No. 22, Merchants' Exchange, California street, San Francisco, California. fe10-

Wm. Penn Consolidated Mining Company

—Location of works, Storey and Lyon Counties, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 26th day of January, 1872, the assessment of 50 cents per share levied on the 16th day of January, was rescinded, and an assessment of $1.00 per share was levied, payable immediately, in U. S. gold coin, to the Secretary, at the office of the company, No. 338 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Thursday, the 29th day of February, 1872, shall be deemed delinquent, and be duly advertised for sale at public auction, and unless payment be made before, will be sold on Thursday, the 21st day of March, 1872, to pay the delinquent assessment thereon together with cost of advertising and expenses of sale. By order of the Board of Trustees.

feb3-4t HENRY TOOMY, Secretary.

Office, No. 338 Montgomery street, Rooms 3 and 4.

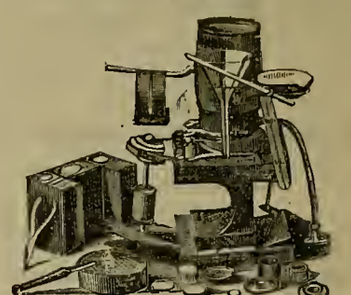
J. S. PHILLIPS, M. E.,

Examiner of Mines, Consulting Engineer, Mineral Assayer, Analyst, Etc., Etc.

Author of "The Explorers', Miners', and Metallurgists' Companion."

Inventor of the Explorers', Miners', Millers', and Smelters' Friend, the Prospectors' "WEE PET" Assaying Machine, etc., which obtained a Gold Medal at the San Francisco Mechanics' Institute Fair of 1869.

Patented September 7, 1869.



Arranged for the general purposes of the Analyst and Assayer.

Price, with instructions, tools and fluxes, $100.

Practical Instructions in all kinds of Assaying, Discrimination and Analysis.

23-v23-tf

TO QUARTZ MINERS AND MILLMEN.

Three years since we established in connection with our Crockery and Silver Plated Ware Business, a Factory for Silver Plating by electro process all wares which we had previously imported ready plated from Eastern factories.

Our enterprise, assisted by the liberal patronage of the Builders and Plumbers, has proven a success; and having subsequently added to our business that of SILVER PLATING COPPER PLATES for AMALGAMATING PURPOSES, we desire to inform the Miners and Millmen of California and Nevada, that we have recently perfected such improvements as to enable us to furnish at very short notice Silver-plated Amalgamating Plates, having a smoothness and finish of surface never before attained in California.

Orders for special sizes sent by mail will receive prompt attention. References from those who have used our Plates will be furnished to those desiring them

HAYNES & LAWTON,

Market St., under the Grand Hotel,

January 20, 1872. SAN FRANCISCO.

4v24-1am3m

CAUTION.

BETTS'S CAPSULE PATENTS

are being infringed by importation of Capsules made in contravention of his rights, which necessarily are numerous, BETTS being the original Inventor and Sole Maker in the United Kingdom.

1, WHARF ROAD, CITY ROAD, LONDON, AND BORDEAUX, FRANCE.

Machinists and Foundries.

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO

IRA P. RANKIN, A. P. BRAYTON,
GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS

Mining Machinery of Every Description,

And all other claeeee of work generally done at first-class establishmente, manufactured hy ue at the lowest prices, and of the heet quality.
☞ Particular attention paid to Johhing Work and Rpairs.
N. B.—Sole Agents for eale of HUNTOON'S CELEBRATED PATENT GOVERNOR.
18v20-3m GODDARD & CO.

FULTON Foundry and Iron Works.

HINCKLEY & CO.,
MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

.E. corner of Tehama and Fremont streets, above Howe street, San Francisco. 3-qy

GEORGE T. PRACY, MACHINE WORKS,

109 and 111 Mission Street,

SAN FRANCISCO.

These Works have lately heen inoreased, hy additional Toole, and we are now ahle to turn out any kind of work, equal to and cheaper than any establiehment in the State; that is to say:—

STEAM ENGINES,
Flour and Saw Mills,
QUARTZ MACHINERY
Printing Presses,

AND MAOHINERY MADE OF EVERY DESCRIPTION.

Improved Safety Store Hoists,

Fitted with Cutting's Patent Cams, unequaled for safety, convenience and cheapness. This Hoist can he built for ahout half the price of any other in use. To he seen at HAWLEY & CO.'S.

ALSO, MANUFACTURER AND SOLE AGENT FOR

Pracy's Celebrated Governor.

TURNING LATHES, Etc., conetantly on hand.
4v23tf

UNION IRON WORKS, Sacramento.

WILLIAMS, ROOT & NEILSON,
MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR
WILCOX'S PATENT WATER LIFTERS,

Dunbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,

SACRAMENTO CITY

PACIFIC Rolling Mill Company,

SAN FRANCISCO, CAL.

Established for the Manufacture of
RAILROAD AND OTHER IRON
—AND—
Every Variety of Shafting,
Embracing ALL SIZES of
Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames
—ALSO—
HAMMERED IRON
Of every description and size.

☞ Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention
☞ The highest price paid for Scrap Iron 9v143m

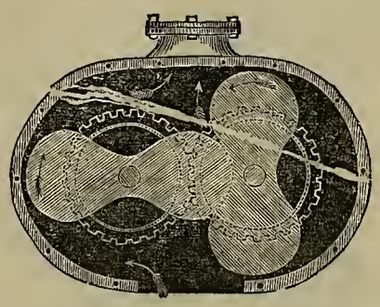
ROOT'S PATENT FORCE BLAST ROTARY BLOWER.

MANUFACTURED AT

The Globe Iron Works, Stockton, Cal.

AWARDED THE FIRST PREMIUM AT THE PARIS EXPOSITION—PATENTED NOV. 1, 1864; JULY 24, 1866; AND OCT. 9, 1866.

Adapted FOR Smelting, Foundry, Mining and Steamships.



Requires **50 Per Cent.** LESS POWER Than any Blower Now in Use.

One of theee Blowere may he seen at W. T. Garratt & Co.'s Brass Foundry, San Francisco; Gould & Curry and Savage S. M. Co.'e, Nevada; and at C. P. R. R. Co.'e Works, Sacramento; and other placee on thie coast.

CAUTION.—Purchasere will find it to their advantage to apply direct to the Stockton Agency, as certain partiee, not authorized to manufacture the Blower, have put in the market machines of inferlor construction, which do not answer all the reqnirements of the genuine article.

QUARTZ, SAW AND GRIST MILL, IRON, STATIONARY AND STEAMBOAT ENGINES, HORSE-POWER AND PUMPS, OF ALL SIZES.

For Circulars and further information, Address

4v24tf GLOBE IRON WORKS, STOCKTON, CAL.

San Francisco Boiler Works, 123 and 125 Beale Street, San Francisco.

F. I. CURRY (late Foreman of the Vulcan Iron Works), Proprietor.

High and Low Pressure **BOILERS** of all descriptions.

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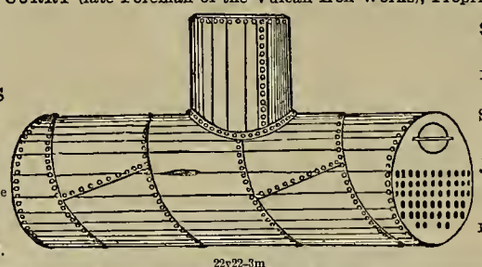
SOLE Manufacturers of the CELEBRATED **SPIRAL BOILER.**



Sheet Iron Work of every DESCRIPTION done at the Shortest Notice.

All kinds of **JOBBING** and Repairing Promptly Attended to.

22v22-3m

To Coal Operators, Miners and Railroad Corporations.

YOUR ATTENTION IS INVITED TO

THE GRICE & LONG LOCOMOTIVE WORKS,

1340 Beach Street, Philadelphia, Penn.

Patentees and Builders of Mining and other Locomotives;

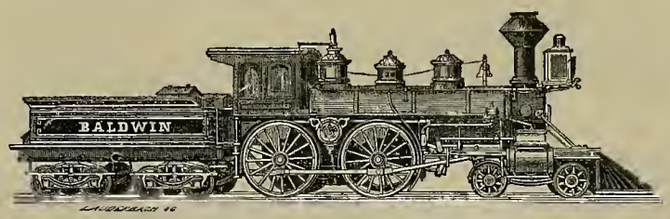
☞ Also, Patent Traction Engines for Suburban and NARROW GAUGE Roads, Furnaces, Quarries, Contractors, Etc. Now extensively introduced and indorsed hy many of the Largest Coal Operations and Furnaces in Pennsylvania and elsewhere—and adapted for gangee of two feet and over, and weighing from four to nine tons.

Messrs. G. & L. were the PATENTEES AND BUILDERS of the FIRST COLLIERY LOCOMOTIVE introduced into the Mining District of Pennsylvania.

SEND FOR CIRCULAR AND PHOTOGRAPHS.

23v22-3m

BALDWIN LOCOMOTIVE WORKS.



M. BAIRD & CO., Philadelphia,

MANUFACTURERS OF LOCOMOTIVE ENGINES,

Eepecially adapted to Every Variety of Railroad Use, including

Mining Engines and Locomotives for Narrow Gauge Railways.

ALL WORK ACCURATELY FITTED TO GAUGES, AND THOROUGHLY INTERCHANGEABLE.

Plan, Materials, Workmanship, Finish and Efficiency Fully Guaranteed

M. BAIRD, CHAS. T. PARRY, WM. P. HENSZEY,
GEO. BURNHAM EDWARD H. WILLIAMS, EDWARD LONGSTRETH.

☞ WILLIAMS, BLANCHARD & Co., Agents, 218 California street, San Francieco, Cal. apl-eow26t

THOMPSON BROTHERS, EUREKA FOUNDRY,

129 and 131 Beale street, between Mission and Howard San Francisco.

LIGHT AND HEAVY CASTINGS,
of every descrlption, mannfactnred 24v16qr

J. W. THURMAN,

(Successor to S. W. Howland & Co.,)

ORE CRUSHERS AND SAMPLERS,

Nos. 413 and 415 Mission Street,
SAN FRANCISCO.

Particular attention paid to Ores received on consignment.

ALL ORDERS EXECUTED AT THE SHORTEST NOTICE. 5v24-6m

THE RISDON Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1868.
CAPITAL.....$1,000,000.

LOCATION OF WORKS:
Corner of Beale and Howard Streets,
SAN FRANCISCO.

Manufacturere of Steam Engines, Qnartz and Flour Mill Machinery, Steam Boilere (Marine, Locomotive and Stationary), Marine Engines (High and Low Pressure). All kinds of light and heavy Castings at lowest prices. Cams and Tappets, with chilled faces, guaranteed 40 per cent. more durable than ordinary iron.

Directors:
Wm. Alvord, C. J. Brenham, C. E. McLane,
Wm. Norris, Wm. H. Taylor, Lloyd Tevis,
James D. Walker.

WM. H. TAYLOR.....President.
C. E. McLANE.....Vice President.
JOSEPH MOORE.....Superintendent.
LEWIS R. MEAD.....Secretary.
24v17-qy

OCCIDENTAL FOUNDRY,

137 and 139 First st., near the Gas Works, San Francisco.

STEIGER & BOLAND,

IRON FOUNDERS.

IRON CASTINGS of all descriptions at short notice.

NOTICE.—Particular attentfon paid to the making of Superior Shoes and Dies. 3v24-3m

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,

SAN FRANCISCO.

ALL KINDS of Brass, Composition, Zinc, and Babbitt Meta Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch
☞ PRICES MODERATE. ☜
J. H. WEED. V. KINGWELL.

Miners' Foundry and Machine Works,

CO-OPERATIVE,

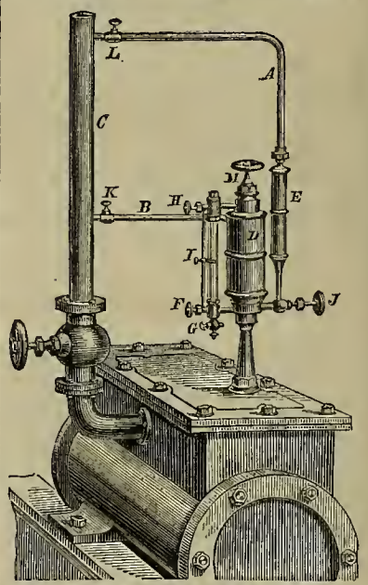
First Street, bet. Howard and Folsom, SAN FRANCISCO.

Machinery and Castings of all kinds.

7v23tf I. L. MORTLHRAP, President.

Machinery.

N. Seibert's Eureka Lubricators.



THE HIGHEST PREMIUM

Awarded by the Mechanics' Institute Fair, San Francisco, and State Fair, Sacramento, 1871.

Thcee Lubricatore are acknowledged hy all engineere to be superior to any they have ever used; feed constantly hy preesure of condensed water, supplied by pipe A, regulated under the oil by valve J, and forced out through check valve and pipe B into the steam pipe C; it then hecomes greasy steam, passes to all the valves and cylinder at every stroke of the engine; glass tnhe I indicates amount used per hour. Packing on rods and stems laste longer, and the rines on the piston will not corrode. One pint of oil will last from three to six daye, according to speed and size of engine; I, sliding gauge; K, valve to shut off when engine stoppe; H, F, valves to shut off in case of frost; steam does not enter the cup; it is always cool; warranted to give satisfaction. Patented February 14, 1871. Manufactured by California Brass Works, 125 First street, S. F. 24v23tf

THEODORE KALLENBERG, MACHINIST,

nd Maker of Models for Inventors. All kinds of Dies, Stamps and Punches made. Also, all kinds of Small Geare Cut.

Repairing done on very Reasonahle Terms and in the hest manner. No. 32 Fremont street, S. F. 19v23-3m

Notice is hereby given, that the copartnership heretofore existing hetween A. J. Severance, Charles W. Randall and J. Gus. Burt, under the firm name of "Severance, Holt & Co.," is this day diseolved hy mutual consent. A. J. Severance, having purchased all the interest of his late partnere, will continue the husiness of manufacturing and selling Diamond Drills, as hefore, under the style of A. J. Severance & Co.

Dated San Francisco, Nov. 24, 1871.
Office, 315 California street. A. J. SEVERANCE,
CHAS. H. RANDALL.
22-v23-tf J. GUS. BURT.

WHY THE WILSON

Patent Steam Stamp Mill

IS THE BEST AND

Most Desirable Mill for Crushing Ores.

Because the company give a responsible guarantee that the purchasers shall be under no expense for repairs for TWELVE MONTHS, and guarantee the mill to crush (regular work) One Ton Per Hour of the Hardest Quartz through the ordinary screens.

THERE IS A SAVING

of from Twenty to Forty per cent. running expenses.

To put one of the Wilson Mills over the mountains, from $10,000 to $18,000 is saved in First Cost.

The Wilson Mill will save in working expenses and repairs enough every six months to PAY FOR ITSELF.

IN EVERY PARTICULAR

This Mill is Greatly Superior to the

Ordinary Cam Stamp Mill.

RECOLLECT

This Mill is Fully Guaranteed

to do and be all we claim for it.

DO NOT BE DECEIVED

by the cry of "Humbug," but call and investigate its merits. One can always be seen at the Pacific Iron Works.

Ten of these Mills are now in operation.

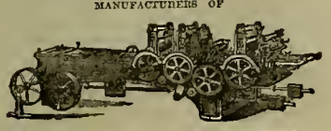
For further particulars address

FURMAN R. WILSON,
San Francisco.

WOOD WORKING MACHINERY

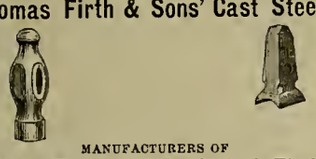
MOLDING, MORTISING, TENONING AND SHAPING MACHINES,
BAND SAWS, SCROLL SAWS,
Planing & Matching
MACHINES, ETC.,
For Railroad, Car, and Agricultural Shops, Etc., Etc.
☞ Superior to any in use.
J. A. FAY & CO.,
11v23-6m Cincinnati, Ohio.

POWER, TAINTER & CO.,
MANUFACTURERS OF



WOOD-WORKING MACHINERY,
3003 Chestnut street (West end Chestnut street Bridge) Philadelphia.
☞ Woodworth Planers a Specialty. 2v23-1y

NELSON & DOBLE,
AGENTS FOR
Thomas Firth & Sons' Cast Steel.



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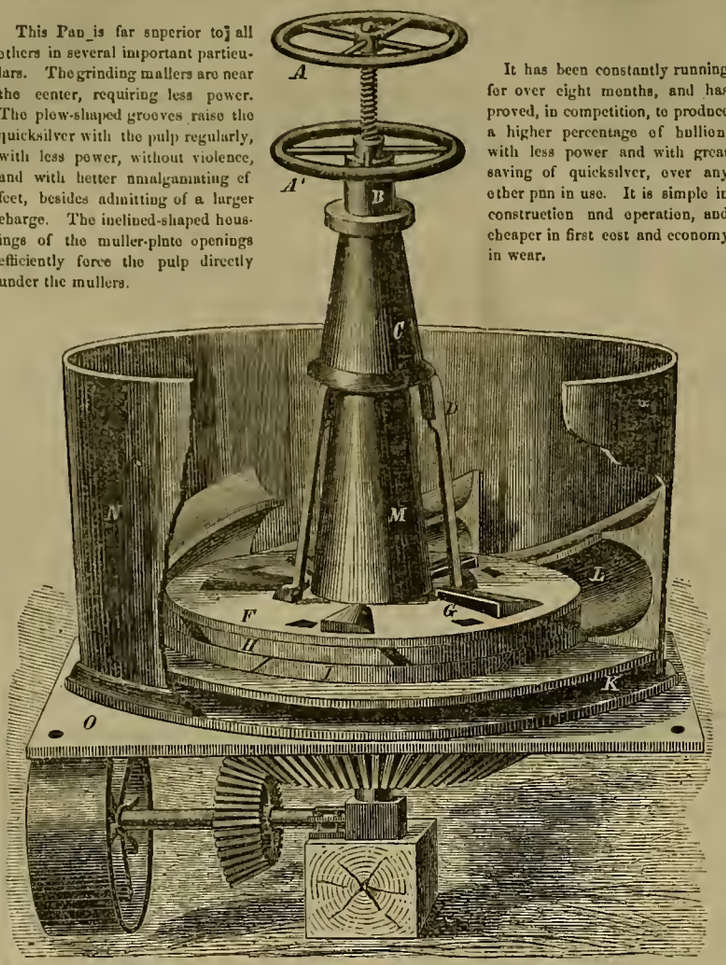

It has been constantly running for over eight months, and has proved, in competition, to produce a higher percentage of bullion, with less power and with great saving of quicksilver, over any other pan in use. It is simple in construction and operation, and cheaper in first cost and economy in wear.

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Where it can be examined and further particulars be learned; or persons may apply to the inventor and patentee, Mr. C. O. STEVENSON, at the Douglas Mine, Gold Hill, State of Nevada, where the Pans have long been in constant operation. 15v20-1mr,1amtf

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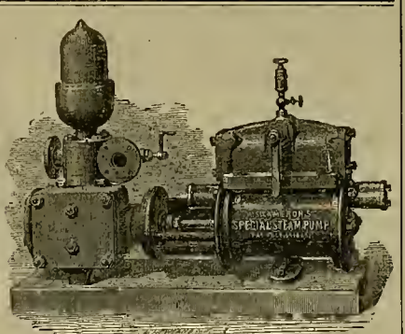

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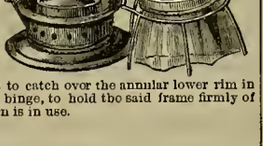

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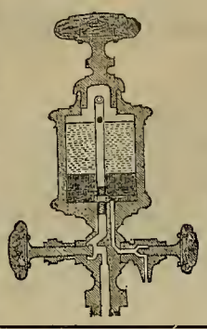

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San Francisco & Sacramento.

LEAVE	LEAVE.		ARRIVE.	ARRIVE.
*4.00 P M	7.00 A M	San Francisco	8.30 P M	*2.20 P M
4.35 P M	7.35 A M	Oakland	8.00 P M	1.50 P M
4.10 P M	7.50 A M	San Jose	8.30 P M	2.10 P M
5.35 P M	8.35 A M	Niles	7.05 P M	12.45 P M
8.48 P M	11.50 A M	Stockton	4.07 P M	9.07 P M
10.45 P M	1.45 P M	Sacramento	2.20 P M	7.15 A M
ARRIVE.	ARRIVE.		LEAVE.	LEAVE.

San Francisco & San Jose.

LEAVE.	LEAVE.		ARRIVE.	ARRIVE.
.....	3.00 P M	San Francisco	10.40 A M	.....
7.10 P M	4.40 P M	Niles	8.35 A M	5.30 P M
8.30 P M	5.30 P M	San Jose	7.00 A M	4.10 P M
ARRIVE.	ARRIVE.		LEAVE.	LEAVE.

Stockton, Lathrop & Merced.

LEAVE.	LEAVE.		ARRIVE.	ARRIVE.
.....	7.35 P M	Stockton	10.20 A M	.....
*9.45 A M	8.25 P M	Lathrop	9.30 A M	*8.20 P M
11.35 P M	9.45 P M	Modesto	8.13 A M	6.40 P M
2.40 P M	12.15 A M	Merced	5.45 A M	3.30 P M
ARRIVE.	ARRIVE.		LEAVE.	LEAVE.

Sacramento, Colfax, Reno & Ogden.

LEAVE.		ARRIVE.
2.00 P M	Sacramento	*2.00 P M
5.15 P M	Colfax	10.30 A M
12.45 A M	Reno	2.10 A M
9.10 A M	Winnemucca	4.15 P M
12.00 M	Battle Mountain	1.25 P M
4.40 P M	Elko	8.45 A M
6.20 A M	Ogden	5.*20 P M
ARRIVE.		LEAVE.

Sacramento, Marysville & Red Bluff.

LEAVE.	LEAVE.		ARRIVE.	ARRIVE.
*8.45 A M	2.35 P M	Sacramento	1.05 P M	*4.45 P M
10.25 A M	3.25 P M	Junction	12.15 P M	3.25 P M
1.50 P M	5.15 P M	Marysville	10.20 A M	12.00 M
8.00 P M	8.35 P M	Tehama	6.50 A M	5.30 A M
.....	9.30 P M	Red Bluff	6.00 A M	.....
ARRIVE	ARRIVE		LEAVE.	LEAVE.

San Francisco, Vallejo & Calistoga.

Leave	Leave		Arrive.	Arrive.
*4.30 P M	7.30 A M	San Francisco	8.00 P M	*12.15 P M
6.30 P M	8.30 A M	Vallejo	6.05 P M	10.30 P M
7.28 P M	10.40 A M	Napa	4.50 P M	9.30 P M
9.10 P M	1.00 P M	Calistoga	3.00 P M	8.00 A M
Arrive	Arrive		Leave.	Leave.

San Francisco, Vallejo & Knight's Landing.

Leave	Leave		Arrive	Arrive
†7.30 A M	*4.00 P M	San Francisco	*12.15 P M	†8.00 P M
9.35 A M	6.35 P M	Vallejo	10.30 P M	6.35 P M
12.05 P M	10.10 P M	Davis	7.10 P M	3.30 P M
1.00 P M	11.45 P M	Knight's Land'g	5.30 A M	2.30 P M
Arrive	Arrive		Leave	Leave

San Francisco & Healdsburg.

Leave	*2.00 P M	San Francisco	*11.00 A M	Arrive
.....	4.30 P M	Donahue	8.45 A M	.....
.....	5.00 P M	Petaluma	8.20 A M	.....
.....	6.00 P M	Santa Rosa	7.30 A M	.....
Arrive.	6.45 P M	Healdsburg	6.45 A M	Leave.

Stockton, Milton & Oak Dale.

.....	Leave		Arrive	.....
.....	*11.25 A M	Stockton	*4.25 P M	.....
.....	12.42 P M	Peters	3.02 P M	.....
.....	1.32 P M	Milton	2.12 P M	.....
.....	1.44 P M	Oak Dale	2.00 PM	.....
.....	Arrive		Leave.	.....

CAL. P. R. R. CO.'S STEAMERS.

Leave.	Leave.		Arrive.	Arrive.
*4.00 P M	*4.00 P M	San Francisco	*10.00 P M	*8.00 P M
6.00 P M	.....	Vallejo	.....	6.00 P M
7.00 P M	6.00 P M	Benicia	8.00 P M	5.00 P M
.....	2.00 A M	Stockton	2.00 P M	.....
2.00 A M	.....	Sacramento	.....	2.00 P M
Arrive.	Arrive.		Leave.	Leave.

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For trains running "from" San Francisco, take the left hand columns and read downwards, or "Eastward."

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LEAVE BROOKLYN, *5 30, 6 40, 7 50, 9 00 and 11 00 a. m., 1 30, 2 40, 4 55, 6 10, 7 40 and 10 10 p. m.

LEAVE OAKLAND, *5 40, 6 50, 8 00, 9 10, 10 00, and 11 10 a. m., 12 00, 1 40, 2 50, 3 50, 5 05, 6 20, 7.50 and 10 20 p. m.

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LEAVE HAYWARDS, *4 30, 7 00 and 10 45 a. m., and 3 30 p. m.

LEAVE FRUIT VALE, *5 25, 7 35, 9 00 and 11 20 a. m., 1 30, 4 05 and 5 30 p. m.

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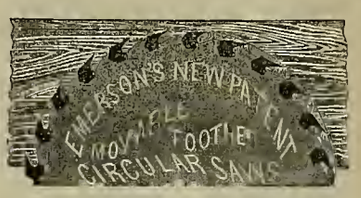

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VOLUME XXIV. Number 7.

The Chlorination Process.

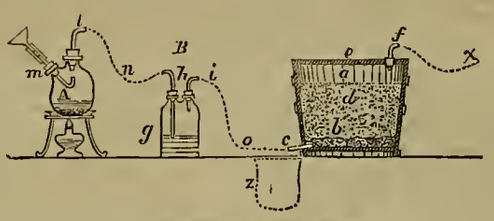
We have at different times given accounts of this process, which is based on the property of metallic gold being changed into a soluble chloride of gold when in contact with chlorine gas, and many of our readers are familiar with its detail. A description, however, of how to be sure of a result on a large scale will be interesting, since it is easy to make an experiment with 20 or 30 pounds of sulphurets or ore. The chloride of gold can be dissolved in water, separated from the ore by lixiviation, and and then precipitated in a metallic condition by a solution of sulphate of iron. Mr. Kustel, in his "Roasting of Gold and Silver Ores,"* gives the following interesting method of making the test alluded to above:

The named quantity must be roasted first, and it is the most difficult task, requiring either a small furnace or a great deal of patience, especially when small charges are treated on a large piece of sheet iron, having a charcoal fire beneath. In either case the sulphur must be driven out perfectly, so that when in a glowing condition, no smell of sulphurous acid can be observed. When finished, a sample is taken for an assay, and the roasted stuff moistened with water, after the weight of the whole has been noted.

A common water bucket is then prepared to receive the moistened ore, which must not be too wet, but only moist enough to allow its being sifted. On the bottom of the bucket, *a*, (See Fig.) some clean rock or broken glass is placed about two inches deep, and covered with a piece of moistened canvas. A short glass pipe, *c*, two-eighths of an inch in diameter, is inserted close above the bottom.

The ore, *d*, is then introduced, filling up two-thirds or less of the space as loosely as possible, and covered with a wooden or iron cover and pasted all around with dough. The cover is provided with a short glass tube, like *c*, to which an india rubber tube, *f*, for carrying the gas out of the room is attached. Both glass tubes, *c* and *f*, must be likewise secured with dough.

The chlorine gas is generated in a glass vessel, *A*. There are two corks in it, each having a glass tube, as represented in the drawing. The cork, *l*, is removed and the vessel charged with 3 ounces of peroxide of manganese, 4 ounces of common salt, and 4½ ounces of water—all of which are well mixed. The cork is inserted again and well secured with dough. Another vessel, *B*, provided with two necks, contains water as indicated by *g i*; the glass tube, *h*, dips about one-half inch into the water. The corks are made air tight like the others in *A*. The whole apparatus is now joined together by rubber pipe, *n* and o, fitting tightly to the glass tubes. Having all thus prepared, 7½ ounces of sulphuric acid are poured through the safety-tube, *m*, but only in small portions and at intervals. When the bubbling of the water at *g*, in the vessel *B*, is not lively enough, some more acid is introduced, and finally the temperature raised by an alcohol lamp. If all the joints have been luted carefully with dough, not the slightest inconvenience will be met with. The chlorine gas from the generator, *A*, is forced through the water in *B*, and by this means washed from muriatic acid. Through the pipe, o, it enters the bucket and ascends slowly till it reaches the cover, escaping then through the rubber pipe, *F*, where it must be examined from time to time by dipping a glass rod into ammonia and holding it to the end of the pipe, *x*, which leads out of the room. In contact with the chlorine the ammonia evolves white fumes, and chlorine can be detected by these means wherever it may escape. The gas is allowed to pass through the bucket as long as chlorine is created. In this condition, by stopping up the pipe, *x*, if no more chlorine is evolved the apparatus may stand until the next day. The cover is then removed, the pipe, *o*, taken off, a clean glass or porcelain vessel, as indicated by *z*, placed below *c*, and warm water carefully poured over the ore till the bucket appears to be full. The solution which comes out at *c*, must be examined at times in a small tumbler with a few drops of a solution of sulphate of iron. If the clear solution remains unchanged, without becoming darker, the lixiviation is finished.



A CHLORINATING APPARATUS.

To the solution in the vessel, *z*, a few drops of muriatic acid and then sulphate of iron, or green vitrol, (dissolved) is added and stirred with a glass rod. The whole is allowed to stand till all the gold is precipitated and the liquid is perfectly clear. This is drawn off by means of a syphon, for which the rubber pipe, *x*, can be used. The remaining fluid and the precipitated gold is gathered on a filter, washed with warm water and dried with the filter in a porcelain cup, above an alcohol lamp. The filter is burned either free or under a muffle, care being taken not to lose a particle of the filter ashes; mixed with some lead it is then cupelled and the gold button weighed. A comparison with the assay shows to what percentage the chloriuation has proceeded.

*Published in 1870 by the publishers of the SCIENTIFIC PRESS. Price by mail $2.50 coin, or $3 currency.

COAL DISCOVERY.—The Petaluma *Crescent* says that a ledge of coal has been found near the Guallala river. The soil on the mountain side had been so moistened by the heavy rains that a land slide occurred, and laid bare a bed of coal, supposed to be of considerable extent. A schooner load has been shipped to this city to be subjected to test, and if it proves of good quality, the proprietor, John Rutherford, will form a company to begin mining. Coal is known to exist in the Coast range, but that heretofore discovered has been of inferior quality.

THE NEW EUREKA MILL was to have started up this week. It is the largest mill of the kind on the Coast, and when in good order is expected to crush from 150 to 200 tons of ore per day.

The Patent Crab Wrench.

The accompanying cut represents the Patent Crab Wrench, a comparatively recent invention, but one which is coming into extensive use. Its peculiarity consists in the fact that it will grip nuts of all sizes without loss of time in adjusting. It will not slip, for the more pressure that is brought to bear, the tighter it holds. The head is made in two parts and by moving the handle one way it opens, and by turning it the other, it closes mechanically and gives the user the advantage of a leverage to prevent its slipping. It can be used with one hand, as it will grip the nut as soon as the jaw comes in contact with the nut and pressure is brought to bear on it by turning on the handle and closing the jaws.

An important feature is, that the wrench being composed of three pieces, each being stamped and numbered according to the size of the wrench, when any part wears out it may be replaced for a trifling expense, without the necessity of buying a new one. Its self-adjusting properties, rendering it effective for quick work, are great recommendations in its favor. A look at the tool will satisfy any one of its utility. There are four sizes made, which will grip from a 3-inch nut down. They may be seen at Linforth, Kellogg & Co.'s, Nos. 3 and 5 Front street, in this city.

THE PATENT CRAB WRENCH.

A GOLD MINE IN SAN FRANCISCO.—The workmen while quarrying rock on Broadway street, between Kearny and Montgomery, last week, found a small quartz vein containing some traces of gold. A blast was exploded in order to get at its dimensions, but the loose rock and dirt have covered the whole thing up so that it will have to be carted away before any "ore" can be extracted. There have been a number of discoveries of both gold and silver in small quantities on the peninsula of San Francisco, but none of them ever amounted to anything and very few suppose that this will.

THE snow blockade still continues and reports conflict as to when the long delayed mails will arrive.

CLEVELAND AND SIERRA HYDRAULIC MINING CO.—This Company at Scales Diggings, Sierra County, are using 2,000 inches of water, and running night and day, employing 12 men. They use one of Craig's old and one of the new Universal joint pipes, with nozzle 5¼ inches, with streams under 200 feet pressure. They have been running about 30 days and will soon clean up for the first time this season. This company have about 130 acres of gravel in the old channel and where they are working now it is from 40 to 200 fest deep, and but a small portion worked. The Sierra Co. are working another set of hydraulic claims at Council Hill, about two miles from Scales, and four miles from Brandy City, where they use 1,000 inches of water, two streams, one with a 3½, and the other a 4½ in. nozzle, old style pips, under 275 feet pressure; employ five men. The stock is owned partly by residents of Cleveland, Ohio. The company own several ditches, which supply an abundance of water. The water season is unusually early this year, and the prospects are very good for late runs, there being a heavy body of very compact snow on the mountains. Col. A. F. Williams of the above named company informs us that the prospects are fine for an unusually good season with the miners in Sierra County.

WASTAGE OF THE PRECIOUS METALS.—Some months ago we published several letters on the above subject, from the pen of Mr. Almarin B. Paul, which were extensively copied and commented upon by the press of not only the Pacific coast but the Atlantic.

These letters have been revised by Mr. Paul, and much statistical matter added thereto—a large portion of which is compiled from the many letters received by him, from practical miners and mill-men. The facts as set forth clearly establish the enormous waste daily going on, especially in our gold mines and which should arouse the mining community to a sense of their loss and an effort to stay it.

SILVER IN SAN BERNARDINO CO.—The Los Angeles *News* chronicles the discovery of rich and extensive silver-bearing ledges in the Blue Mountains, San Bernardino Co. The range is about 25 miles east of Lane's Crossing, Mojave Valley. One of the ledges has been traced for five miles in length, and varies from ten to sixty feet, cropping out in many places fifteen feet above the ground. The casings are slate, lime and trap rock. The same formation extends for a mile west of the main ledge, and contains a number of smaller ledges. Some old and experienced miners who have seen them, according to the *News*, declare them to be the most massive ledges they have ever known. A piece of the rock is said to have assayed $87 per ton.

SALES. — The Independent, Mountain Rose, Miners' Dream and Eagle mines, Stockton District, Utah, have been sold to New York parties at good figures.

CORRESPONDENCE.

Universal Crop Reports.

EDS. PRESS:—An article from your journal has been extensively copied by the leading papers on this Coast. You attribute therein the suggestion of having our Government obtain the condition of crops throughout the world by telegraphic agency to Lieut. Maury. In several numbers of the *Examiner* I advanced the idea that such information should be given by all nations as a duty to humanity and that our government should ask it under the provisions of an international treaty. I send you a copy of the *Examiner* of July 7, 1870, in which you will find my views at length and which may deserve republication in your journal. In addition I have to state that at my request our Senator, Hon. Eugene Casserly, laid the matter before the authorities at Washington giving my views long ago a favorable endorsement.

PHILIP A. ROACH.

The following is the article from the *Examiner* above alluded to:

The wheat crop is the engrossing subject of attention in the Old and New world. We have had reports by telegraph of short crops in several countries on the European continent, which caused in the present month much active speculation in the grain markets of our country. To what extent a deficiency of supply to meet the demand may exist has not been reliably established. Conflicting interests are at work, and the uncertainty of the reports is doing great damage to the classes who should meet each other on the basis of obtaining a just equivalent under a truthful statement of facts.

Our people as producers, having an immense surplus, are placed, by the condition of affairs, in the position of supplying the wants of millions with abundance at prices that will well remunerate them without exacting famine rates from those whose crops have partially failed. Our immense area of territory sowed in grain is accurately stated annually, according to the most reliable data, by our Agricultural Department at Washington. The yield of the various cereals may be estimated with considerable exactness and were we confined to a home demand the well-known law of consumption would permit the money value of the crop to be at once estimated, and rates per cental of various grains easily established. The home market, however, is always kept in a fluctuating condition by the probable foreign demand; in consequence, prices rule higher to our own consumers, and speculation often runs wild in the expectation of a great demand from abroad which comes not.

California has suffered largely from the uncertainty of foreign production in the countries with which we compete. Such erroneous reports have frequently disturbed our market, and vessels have been detained here because cargoes could not be procured early in the season. Our farmers expected higher prices than the grain purchasers here were allowed to give by their orders. Later, after a heavy bill of storage was incurred, our farmers have sold at lower prices than could have been obtained at an earlier period. This loss in money value falling on our farmers was a general one to the State.

There is an easy remedy for the evil which our Government can apply in a few weeks. We have in all the great grain-growing regions of Europe, Consular agents, who, even now, in the course of thirty days, could ascertain the condition of crops in their respective districts, and inform the Agricultural Department at Washington of what surplus over consumption could be spared. This news, imparted by telegraph to our people, would be reliable enough to enable them to obtain fair prices, by meeting the demand, and not withholding from sale in expectation of getting rates not warranted by the actual condition of crops in other countries.

It may be said that private enterprise now performs this duty, but no matter how well performed, people will not act upon it, and even among the most interested and intelligent classes there are believers and doubters of every report. It wants the impartial action of Government. We publish to the world our supply, and give data to what an extent we will have a surplus; other nations ought to do the same, by our friendly invitation. From many reasons we will find a hearty co-operation that will result in mutual benefit.

Every government has an interest in having the truth in regard to its food supply known. If over abundant it wants the surplus purchased by its neighbors. If short, its duty to its mission requires that commerce should be invited to supply the deficiency in order that hunger may not produce discontent and revolution. There should be an international obligation to perform this duty. The ships that brave the seas ought to know by governmental assistance whither to go for food and where to return with it. Now they seek markets that prove not to be the cheapest—now they bring grain where there is little demand for it, and pecuniary loss follows their enterprise instead of profit.

Our Agricultural Department is well organized for one branch of its service, and renders immense benefit to our people. It tells us what we have produced, but it should go further; by means of our Consular corps it should in time tell whither we should send our surplus, and thus perform a duty which would confer on agriculture what the Treasury Departments, by means of its Consular agents, is enabled to do for commerce. The cost of organizing thoroughly the system would be a mere nothing. The cost of telegraphing the results would be very trifling, and the benefit would be that millions of farmers, who are the backbone of the nation, would have accurate information on which to act early in the season before the canals are closed by weather in some regions; and in all, before storage and interest ate up their profits.

Humboldt County Mining Matters.

EDITORS PRESS:—Not having seen any notice of this district for some time in your valuable paper, I thought it might be well to send you a few items in regard to it.

At Galena

The White mine, owned by John O. Earl, of San Francisco and H. Knowles, is taking out from three to five tons of ore a day which assays from $350 to $450 per ton. The mine employs a force of eight men. In the Original Battle Mountain claim, owned by Hon. R. McBeth & Co., they are in with their tunnel about 350 feet and have every prospect of success. They are running night and day and expect to tap their ledge in about 200 feet more.

The Butte property having fallen into the hands of Thompson, one of the original locators, will be started up in March or April and will no doubt prove one of the best mines in this portion of the State.

The English Copper Company are taking out from five to seven tons of high grade copper ore a day. Their mine improves every day, both in quality and in quantity. At the

East End of the District

The Little Giant is situated, owned by Gashwiler and others. Cross & Co. are the agents. The mine is being vigorously worked by them under the management of S. T. Heintzelman, and will at no distant day prove a most valuable property. There are also a number of other ledges: the Yuha, Mary, Alaska, and Montrose lying idle for the winter, but will no doubt resume work in the spring.

There are some very fine deposits of copper in this portion of the district which would yield a good return for a small investment, but men with capital always like to go as far from home as they can; still it will not be long before they seek for mines like ours, and I predict that in less than one year we will have one of the most flourishing camps in this portion of the State.

T. F. H.

Battle Mt., Feb. 6, 1872.

The Ramie Interests.

Perhaps not one-third of all the persons who attended the late State Fair had their attention directed to the few small specimens of ramie cloth that were unpretentiously on exhibition, and of all the number who examined it but a small proportion understood its real value and its significance among the future products of the State. As specimens of strong and elegant fabrics they are not excelled by any cloth except that made of silk, and but little inferior to silk in beauty. There is an interest excited in the production of a plant that produces such material, and this interest must increase, since the few experiments that have been tried demonstrate that the climate and soil of California will produce the ramie in perfection. The cloth on exhibition at the State Fair consisted of many patterns for dress goods, some made of ramie entire and others mixed, some with silk and some with cotton. There is no article superior to ramie for productions of cheap and at the same time elegant and durable dress goods, and if the cultivation of it on a large scale shall realize the expectation that the experiments so far create, the time is not far distant when ramie cloth should be as common as cotton. At the Fair there was a small quantity of the fibre in a coarse state on exhibition. Its great strength is remarkable, which it does not lose when prepared for the finest fabrics. Dress goods as fine and glossy as silk can scarcely be torn at all by the ordinary effort. There is much inquiry relative to the plant among farmers, and we understand there is a ramie company in San Francisco that disseminates information in regard to the culture of the plant and how the cuttings can be obtained. Farmers must not become excited on the subject of ramie cultivation. It is possible that it may prove not so profitable as anticipated. Labor may be too dear, and unexpected difficulties present themselves in separating and preparing the fibre. But it has qualities that commend themselves, and all difficulties must in time be overcome and the article utilized. That it promises to become an important production of the State is hardly to be doubted.—*Sac. Union.*

Practical Science in New York.

BY OUR NEW YORK EDITOR.

Four years ago last summer, the New York Society of Practical Engineering was organized, and at every annual session has taken hold of and thoroughly discussed some of the most important developments of the period. At the first meeting the present writer, Prof. Henry Wirtz, well known as the inventor of "sodium amalgam" and the discoverer, by synthesis, of several organic compounds, read an elaborate paper on

Natural Gas Fountains.

It appears that in the State of New York alone there are three great belts of gas-bearing formations, each two hundred miles long, an average of ten broad and having a thickness estimated at one hundred feet. This would support three thousand wells, yielding gas equal in heating power to fourteen tons of anthracite daily, for one hundred years. Similar formations are found in Canada, Ohio and Pennsylvania, but perhaps the most important is the immense area of the Devonian and Silurian basins of the Great Lakes and the Mississippi Valley, where there are five, perhaps six, great beds of such rock.

Some of the gas wells give a most enormous quantity of gas. One on the Little Kanawha, nine hundred feet deep and four-inch bore, has a two-inch pipe leading from it a distance of a mile, where it feeds the furnaces of twenty-eight steam boilers of twelve-horse power each, besides fifty stores and a large number of jets for illumination. There is one in Ontario county, N. Y., 500 feet deep and five-inch bore, which gave a flame thirty feet high, the flow of gas being about five cubic feet per second, or upwards of 430,000 per day. The gas is nearly equal to six-candle power. At Venango, Pa., gas rises from wells under a pressure of two hundred pounds to the square inch, and instead of being burned under a boiler is run direct into engine cylinders in lieu of steam. At Erie, Pa., wells can be sunk for $1,500 which will give gas enough, burned in the furnace of a steam generator, to produce 200 horse power.

Rock-Drilling Machinery.

At the same meeting Mr. Robert Meir, C. E., gave an elaborate account of the most approved drilling-machinery. Among those, Leschnt's famous diamond drill seems to hold pre-eminence. Leschnt was, it seems, not only the first to apply diamond-cutting to rock, but also the first to make a drill, cutting around a core to be afterwards broken out. One of the very first applications of the drill direct to the piston rod was in 1849, and now it is considered the simplest and best for drilling mechaniem. For American use small machines, capable of being easily handled and not likely to get out of repair, are most needed.

Imperfections in these respects unfit Sommeiller's apparatus, used in the Mt. Cenis Tunnel, for adoption here. These last were, as is well known, small percussive drills, operated by compressed air in their engine cylinders in lieu of steam. A good light apparatus has been in use for some years in the Resseberg mines in Sweden. The drill is fed by hand by a screw, and makes from 200 to 350 blows per minute, according to the hardness of the rock. The drill, and of course the piston to which it is attached, revolve once to every twenty-two strokes. American pneumatic drilling machines, of which there are several varieties, are in no wise inferior to those in use abroad, but there is yet ample room for inventors to devise better ones.

The writer also spoke at some length of the deep borings made for water in various parts of the world. We quote a few items that seem of interest. "Our government," says Mr. Meir, "has made several attempts to get water in the vast plain of Llano Estacado, near the border of Texas and New Mexico, and not far from the Messilla Valley. In 1855, a party was sent out under Captain Pope for the purpose of boring for water in this region. They commenced operation about 20 miles from the Pecos River, sinking a well 360 feet deep, when water was struck, rising in the tube 70 feet. On continuing their operations to a depth of 641 feet, water was again met with, rising 400 feet.

Not many miles from this spot they bored another well, when the same veins were struck as in the first well—finding water at 860 feet, which rose 750 in the tubing."

And again:—"The natives in some parts of the Great Desert of Sahara bored wells with success to a depth of over 1,000 feet. An increase of the temperature of the water in these deep wells has become an established fact; in some cases the increase has been 1° in every 58¾ feet of depth.

Pneumatic Power for Street Cars.

At the latest meeting of the Society, President James A Whitney read a paper on the application of pneumatic power in the propulsion of street cars. Prof. Whitney spoke with especial reference to the transit necessities of New York, but his remarks apply to other cities as well. For surface roads the only practically feasible plan of pneumatic propulsion is that in which the cars carry tanks of compressed air to actuate the engines. The great obstacle to success in this system has been the freezing of moisture contained in the air, as the latter expanded in the cylinders. To compensate for the heat rendered latent by the expansion of the air, it has been suggested to pass the compressed air pipe through the furnace or car stove, between the tank and the cylinders. A better mode would be to provide the cylinders with jackets communicating direct with the interior of the furnace. This arrangement would be needed only in winter. In summer the cooled air from the cylinders should be thrown into the car to cool the atmosphere therein. A regulator should always be used to enlarge the area of the cylinder inlet ports inversely to the pressure of air in the tanks in order to secure uniformity in the power of the pistons. Mr. Whitney also made reference to the several modes of employing pneumatic power to the propulsion of elevated and underground railways. After the reading of the paper a lively but pleasant discussion sprang up, concerning various plans advocated by members. One of the most noticeable of the items elicited, was from the venerable Peter Cooper, who took a warm interest in the proceedings. In the use of spiral fans for producing an air blast, he stated that in the locomotive made by him in 1829, the first ever constructed in an American workshop, the draft in the smoke stack was produced by a screw or wheel with spiral vanes rotated by a strap from a pulley on the driving axle. It drew the shavings right through from the fire-box to the top of the chimney. Another curious thing in this engine was that the tubes in the boiler were made of gun barrels. At a late hour the meeting adjourned for one month.

OUR CHIEF CITIES.—The cities which have ascended the scale in population, proportionately over their neighbors, within ten years, are St. Louis, Chicago, San Francisco, Washington, Cleveland and Jersey City. Those which have fallen below their classification of ten years ago, are, Baltimore, Boston, Cincinnati, New Orleans, Buffalo, Newark, Louisville, Detroit and Milwaukee. New York, Philadelphia, Brooklyn and Pittsburgh maintain the same relative rank they did in 1860.

Mechanical Progress.

Asbestos for Piston Packing.

We condense the following from the *Engineer*:—Few engineers who have to do with the steam engine are ignorant of the tronhle which is met with in ohtaining a really good piston-rod packing. Sound hemp, properly "laid up," and copiously lubricated, makes a tight joint for a time; hnt the period of tightness is usnally short, and mnch friction results, which is very prejudicial in small engines. If hemp is bad in the caso of low-pressure engines, it is infinitely worso with high steam. A slow process of carbonization appears to go on, tho hemp packing loses its elasticity, and hecomos nearly useless for its intended purposo. All mannor of schomes have beeu tried to get over the diffienlty, comhinations of cotton, indiarnhber, and wire gauze. In tho latter easo the tightnoss of the joint is no doubt secured hy the prosenco of water and oil lodged in the meshes of the ganzo. [No mention is made by the *Engineer* of auy motallic packiug othor than this "wire gauze."] It is still certain that somothing hetter than anything hitherto in uso is reqnired, and wo have a stroug helief that this somethiug may bo supplied hy asbestos.

Asbestos is a mineral fibre, greasy to the touch, and very strong, which can bo easily spnn or woven if proper precantions are nsed. Furthermore, it is an admirahle non-conductor of caloric, and is practically indestrnctible hy heat. All these couditions are just those which are required in a material for piston packing; and it is therefore somewhat strango that nntil a very recent period no one thought of utilizing ashostos for this purpose. This packing was first used in America with much success, and it has sinco heen tosted in England with excellent results.

The inventor, Mr. J. V. Day, on the 5th of September last read a paper hefore the Engineers' Institute of Scotland, from which it appears that no matter how high the temperatnre of the steam, how rapid the stroke of tho piston, or how grest the pressure of the steam, the packing seems to he unaffected by these conditions. Where the new packing was first used, some of it was taken from the piston-rod stuffing box of a locomotive engine, after having heen in, and the engines at constant work, for three months, with steam at 130 lb. pressure, and making an average daily run of 100 miles, including Sundays; and the fihre, (a sample of which wss shown), with the exception of being discolored by oil and iron, was just ss flexible and tenacions as origiually. After having been once disintegrated, it appears impossiblo to so pack or mst the fibres together that they are not easily sepsrated by the fingers.

Asbestos packing was first used in Great Britain by Mr. Benjamin Conner, locomotive superintendent of the Caledonian Railway, and Mr. Day exhibited to the members of the Institute the packing of a locomotive stuffing hox which had been nsed on that line from the 27th of July, 1871, to the 18th of November, where the ordinary packing lasts, on their locomotives, two months, at most, rarely so long, and the gland requires constant screwing np. The asbestos packing was apparently as good as when put in, and the engine had run a distance of 14,070 miles; during three weeks of which timo, although the engine hsd run 2,000 miles, the gland screws had never been touched.

In the course of the discnssion Mr. Connor stated that he hsd applied it coiled round the piston rod continuonsly; but he thought it shonld he applied in rings. The inside of tho packing seemed to him as fresh as when first put in. He believed it took less oil to lubricate the piston-rod, for the oil remained on the rod, not heing absorbed by the packing. It kept the rod beautifully polished, more so than by any other packing.

Cheap City Transit.

There is at this time no more important qnestion demanding a solution from our inventors and mechanics, than that of cheap transit for the clerk, artisan and merchant from the shop or place of business to the dwelling, which points, in a large city, must of necessity he quite widely sepsrated.

To this must also be added the better housing of the working classes, now imperatively urged as a necessary means of national progress. It has been proved that the largest source of profit to transit companies is "third class"—in other words, tho great masses of working humauity. The humanizing influonce of gardons may bo accessible to some of the families of working men, as distance vanishes by mechanical fscilities. If commercial stimnlns induces progress in this direction, it will be a great advance on the morsls, prosperity, and happiness of our grest commercial and mannfacturing oities; hnt till wo can get mechanical powor subshtnted for horso flesh as the means of transit, we shall ho as far behind in tho rosults as are omnibnses and stage coaches compared with railways, at a given cost, doing only one-eighth of the work.

Next to choapness is tho necessity for increased speod. The averago speed of the horso car is ahont four miles per hour, snd that is accomplished only with serious distress and wear to horso flesh. What wo need in this direction is the power to increase or diminish our speed at pleasure, according to safety. Wo cannot do this till we are ablo to resort to the power of steam or elastic gases. One great reason why we havo not done this is hecause we have not yet produced an engine comhining simplicity and efficiency with tortuitous transit. Our ordinary railway engiuos can only run on largo curves, snd then at a great cost and waste of powor. They cannot run at all, practically, on such short curves as are required for the ordinary purposos of street railroads. The control of tho steam blast and smoke is another matter which has not yet reached a satisfactory couclusion. The discharge of steam must he so controlled as to he comparatively noisless, while the consumption of fuel must be so perfect that nothing hut the absolutely invisihle products of combustion are thrown off.

Revolution in the Method of Grinding Substances.

The principal applied in grinding substances has thus far heen always a crushing betweeu two hard surfaces oombined with a motion of one or hoth, as in treating cereals, paints, drugs, and in general most things which we wish to suhdivide finely.

It has been reserved for our time, says the *Manufacturer and Builder*, to make a new application of a well known mechanical principle in order to accomplish grinding or pulverizing by the effects of high velocities, from which some startling results obtained by bodies moving with great rapidity have been known for a long time; such, for instsnce, as firing a candlo from a musket through a wooden board; cutting, by means of a rspidly-rotating disk of paper, suhstances much harder than paper itself; incising figures on glass by rapidly-rotating disks of metal etc., in all of whioh cases the velocity of the candle or paper compensated for its softness, and the velocity of the motion of the molecules, constituting the soft substance, produced nnexpected results.

This same principle of high velocities is now being applied to *grinding*—a very different and more useful operation, and, in fact, one without which man can scarcely exist. The barharian grinds, or rather crushes his corn by meaus of a bowl and rolling stone, or a mortar and pestal; while civilized man thus far has crnshed his cereals between rotating stones. This is altogether to be reformed.

The New York Attrition Pulverizing Company make machines after Ryerson's patent, obtained two years ago, in which high velocity obtained by centrifugal power accomplishes the object without crushing. Tho difference in the power required for grinding by the old and new systems is most striking. For grinding 3 tons of marble or plaster to a powder, the power required to drive common Ryerson stones is from 2 to 3-horse power, while in this machine a single horse-power is sufficient to accomplish this, while it is also able to impalpahly pulverize quartz as well.

[The principle of the Ryerson machine has been tried in this State for reducing quartz, with unsatisfactory results. It is possiblo, however, that his more recent patent may comprise improvements which have rendered the principle a practical one.—Ed. Press.]

Measuring the Speed of Ships.—The reel hitherto used to measure the speed of ships is another time-honored institution that is passing away. The rhysimeter is an instrument which permanently connects the water with an indicator in the captain's room, marking the exact speed at all times.

Scientific Progress.

Current Scientific Progress.

Scientifio investigation wss never making moro active or earnest progress than at the present time; and in no depsrtment of research is this progross moro manifest than in that of

Chemistry,

In which soveral new suhstances have heen hronght to light within the past three or four months. Among them are mentioned *regianine*, discovered in the walnut; *acridine*, s new substance derived from anthracito; *carnine*, found in flesh, etc. Within the period mentioned, Solet has also announced the discovery of two distinct spectra in the flame of sulphur. In

Astronomy

The principal interest has centered in tho observations connected with the return of Encke's and Tuttle's comets. Some most interesting spectroscopic observstions on the light of these hodies have already heen announced, snd others may ho expected. Tho eclipse of the sun in December last has also furnished an important field of research. Two new asteroids hsve also been announced, making the numher of tho series, so fsr as now known, 117. In

Meteorology

Constant and satisfactory progress is heing msde. The establishment of the Signal Service of the United Ststes is sn important movement, and gives promise of much practical as well as scientifio utility. A paper has heen published by Strentz which shows as to the result of a careful comparison and study of numerous observations, that the moon does not exercise any appreciable influence upon the westher, contrsry to the common idea, and the opinion of some eminent writers. In

Tsrrestial Physics,

We have some interesting reports of experiments in India with the pendulum for the determination of the mass of mountains, from which it would appesr that the density of the earth, at the surface decreases ss we proceed from the sea coast to higher elevations and mountain ranges. These observations and conclusions are highly interesting. Prepsrations are also heing made for a series of pendulum and thermometic observations at the Mount Cenis tunnel, from which interesting results are expected.

Geography

Has been essentially advsnced, by the pubhcation of various memoirs and reports of expeditions, among which may be psrticularly mentioned the trip of the Ice Bear, which left a nothern port of Europe only in May lsst, and returned in October, having penetrated to 79° north on the 43d parallel of East longitude. An open polar ssa was easily reached. The departments of engineering, mechsnics, technology, zoölogy, and physiology, have also received many valuahle contributions.

Flowers as Disinfectants.—Professor Mantegazza has recently discovered that ozone is developed by certain odorous flowers. A writer in "*Nature*" states that most of the strong smelling vegotahle essences, such as mint, cloves, lavender, lemon, and cherry laurel, develop a very large quantity of ozone when in contact with atmospheric oxygen in light. Flowers destitute of perfume do not develop it, and generally the amount of ozone seems to be in proportion to the strength of the perfume emanated. Professor Mantegazza recommends that in marshy districts and in places infested with noxious exhalations, strong-smelling flowers should bo planted around the house, in order that the ozone emitted from them may exert its powerful oxidizing influence. So pleasant a plan for making a malarious district salubrious only requires to he known to he put in practice.

Curious Fact (?) —At a recent sitting of the Fronch Academy of Sciences, a curious communication was received from M. Zaliwski, which, if it were borne out, would he invaluable to navigation. He states that if a hollow cylinder made of thin materials, open at the top and provided with a sharp-edged bottom, be properly ballasted and then put into a tub or other vessel filled with water, it will soon move in a never-varying direction from west to east. The round tin boxes in which concentrated milk is preserved will do perfectly for the experiment, which will become more and more perceptible the oftener the same cylinder is made to do duty in that way.—*Engineer*.

The Origin of the Heat of Fire.

The origin of the heat doveloped dnring comhustion has hitherto heen a profound mystery. In the beginning of this century it was suggested that a portion of the spocific or of the latent heat of the bodies consnmed was set free dnring the process of combustion; but this ides was soon overthrown, as it was found that tho products of combustion often possess more specifio heat, and almost always more latent heat, thsn the hodies themselves did hefore *burning*—that is, before chemically combining under evolntion of heat.

To illustrate:—the specific heat of oxygen is 0.21, and of hydrogen, 3.4; if, now, 8 lhs. of oxygen comhine with 1 lb. hydrogen, forming 9 lhs. of water, the specifio heat of the mixture must he $8 \times 0.21 + 1 \times 3.4$, or 5.08; this, divided hy 9, to find the heat per 1 lh., gives 0.56. Now, the prodnct of this comhnstion, which is water, hss a specific heat of 1, nearly twice ss great; but, hefore becoming water, it was first stesm, of which the specific heat is only 0.48, hut which, by its condensstion, gives off not less than 966 units of latent heat. Hence arises the question:—Whence comes all this intense heat of combustion, and the subsequent great smount of lstent heat, when the resultant substance in the end posesses more specific heat thsn its elements before comhining?

It is curious to remark that some eminent physicians hsve concluded that combustion must he "an electric phenomenon," hut that scientists, who have studied its laws, should use this pretext for explaining firo, solar heat, volcanoes, and even earthquskes, seems almost incredible.

Notwithstanding the laws of heat and of electricity have heen thoroughly investigated, we are not ss yet sure of their ultimate nature; one thing only appears certsin, namely, that neither is a fluid, penetrating matter, but thst both are mere motions of the molecules or atoms of matter. Beyond that all is mere conjecture.

What is Going on in the Sun.—Recent investigations of the sun and other hesvenly bodies, by means of the spectroscope, have revealed the fact that all matter may he in a more than gaseous condition—incandescent gas of so high a temperature that the elements are dissociated; thst is, that all chemicsl affinities are destroyed, snd esch element exists separately in its uncombined condition, notwithstanding it is intermingled with the others. A descent from this exceedingly high temperature to that in whioh the chemical affinities can manifest themselves results in the comhination of the gases.

The chemical affinities of the different elementsry suhstsnces thus manifest themselves only between a comparatively limited range of temperature, below and ahove which they do not operate. Even as at an extreme cold no combinations csn take plsce, so at the extreme heat of say 8000° Fahrenheit, not only no combinations take place, but all componnds are separated into their ultimate elements. On cooling and reaohing 4000° or 3000°, or thereahout, the volatilized substances, or gases, will again combine, the chemical affinities come into play, and combustion will ensue, the heat of which will sgsin originate partial new dissociations. This is what continually appears to take place in the sun.

Agricultural Chemistry.—It is a well-established fact that the quantity of nitrogen contained in cereal crops frequently very far surpasses the amount contained in the manured earth from which they are grown; and the manner in which the additional nitrogen has been acquired is one of the many puzzles of agricultural chemistry. That it is derived from the air, there is no question, but in what manner? Has it been absorbed by the plants directly from the air, or has it heen first withdrawn from the atmosphere by some of the constituents of the soil, with which it could form compounds which were capahle of vegetable assimilation? M. Deherian seems to have succeeded in demonstrating what was never before suspected, *that in the presence of organic matter oxygen combines directly with nitrogen*, forming a compound analogous to the ulmic or humic acid, produced by neutralization by an acid of the potassic solution of garden mould. Into a perfectly dry tube he introduced oxygen, nitrogen, ammonia and glucose, and on heating the mixtnre finds that a black nitrogenons matter is formed, while at the same time a portion of the nitrogen disappears from the atmosphere of the tube.—*Les Mondes*.

Mining Summary.

The following information is condensed mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

Monitor Mill.—Monitor *Miner*, Feb. 3: After some vexatious delays this mill is now at its regular work. The ore coming out of the mine is improving rapidly in both quality and quantity.

Monitor No. 3 mine is rapidly improving, now that the completion of the ore house and chute allows of putting on men for ths purpose of taking out ore. The breasts at several points are in good ore of good quality. Some pockets of ssck ore taken out this week were nearly half pure black sulphurets; some peculiar veins of ore found in a lower level have astonished those best posted on this mine.

CALAVERAS COUNTY.

San Bruno Mine.—Calaveras *Chronicle*, Feh. 10: The tunnel is hut a few hundred yards from the Vance mill, and is easy of access. It is 4 hy 6 ft. and has been run into the hill 600 ft. and through quartz 350 ft. From the mouth of the tunnel 250 ft. is the first chimney. The second is 275 ft. and the third 370 ft. The third chimney is but 120 ft. to broken ground, where a shaft had previously been sunk. In sight is rock sufficient to satisfy reasonahle men. The Co. are running a second tunnel 220 ft. below the first. It is in ahout 115 ft. and gold bearing quartz has again been struck. This morning I saw the returns from 4 tons crushing—$542,77. This was from the Grasshopper, at Mosquito. The Good Hope, on the same lead as the San Bruno, is hauling quartz to Clark's mill at Rail Road Flat.

Gwin Mine.—All the stamps in the mills at the lower Gwin mine are crushing a fair quality of ore. In the upper mine the 400 ft. level is heing re-timhered. As soon as that is completed the shaft will he cleaned out and active operations resumed. It is the intention of the prop. to sink a mammoth shaft in the centre of the mine during the coming summer. Additional stamps will also he put up as soon as the weather and roads will permit.

Good Hope.—First-rate rock continues to be taken out of the Good Hope mines at Mosquito Gulch. The lead averages ahout 3 ft. in thickness and all the rock contains gold.

The Calaveras Hydraulic M. Co. are pushing forward matters at Central Hill rapidly. Five tons of pipe iron are on the way up from San Francisco. Everything is heing got in readinsss to commence operations upon an extensive scale.

EL DORADO COUNTY.

Immense Ledge. — Auburn *Stars and Stripes*, Feb. 8: The other day we were shown a number of handsome specimens of quartz from the Ella ledge, Greenward dist. These were heavily loaded with galena and black sulphurets. The ledge from which they were taken is full 6 ft. in thickness, and can be traced on top of the grouud for a distauce of 3,000 ft. so located that a tunnel can be run on the ledge at a depth of hundrsds of ft. helow the surface from which these specimens were taken.

INYO COUNTY.

Hot Springs.—Inyo *Independent*, Feb. 3d: Hot Springs is likely to have another 10-stamp mill in the spring.

NEVADA COUNTY.

Started Up.—Grass Valley *Republican*, Feb. 10: The Dartmouth mill commenced crushing gravel cement on Wednesday for the first time. The mill has 8 stamps, but only 4 are used at present on account of lack of power. The Dartmouth has its main tunnel in ahout 600 ft., and the gravel prospects well.

Quaker Hill.—Jacobs & Sargent are running 5 sets of claims, use 2,000 inches of water, and employ 45 men.

You Bet.—The English Co. cleaned up one set of their claims this week, after a run of 29 days, and realized $6,000.

Slide.—A heavy slide occurred in the claims of Ashhurne & Baker, at Scotch Flat, on Friday. The slide or cave was a strip of ground about 100 ft. in length by 60 in width. The meu engaged in handling the nozzle escaped without injury. The monitor was covered hy the slide, but was lot otherwise damaged. In 3 or 4 days the Co. will have the slide pretty well sluiced out.

The pump shaft at the North Star mine broke yesterday forenoon. An old shaft was procured at the Rocky Bar mine, so that the accident will cause but a short delay.

Ben Franklin Mine.—Grass Valley *Union*, Feb. 11: We noticed yesterday, at Findley & Co's. bank a quantity of gold dust valued at $2,300, from less than 50 tons of rock.

North Star.—Yesterday the North Star shipped to S. F. gold to the value of $15,-300. This is the second shipmeut for a month's run of the mine and mill. The total gold product, for 4 weeks, of the North Star is about $22,500, and of that amount the profits amount to ahout $13,-000.

Good Clean Up.—Roberts & Colley, in their claim at Rough and Ready, cleaned up on Saturday, after 6 days washing with 2 hands at work, between $600 and $700, or over $50 a day to the hand.

San Juan.—Nevada *Transcript*, Feb. 6: The American Gravel M. Co., is working 50 or 60 men and is, paying well.

On the San Juan Hill 3 Cos. are at work. Dunniker & Co., who had their new flume injured by the storm, were dslayed for a time, but they have everything ready for washing.

Davis, Bower & Co. are running about 500 inches of water and are employing 8 or 9 hands. The claims are doing well.

New Tunnel.—N. C. Miller & Co. have commenced a hedrock tunnel, to run from Sweetland Creek, to open the Manzanita claims in the hill near the town of Sweetland, Bridgeport township.

Relief Hill.—The Co. at Relief Hill are actively preparing for work. The Eagle Co., whose mine lilled with water, have their drifts all cleared and are about ready to commence taking out gravel. Other Cos. will soon start up.

Being Crushed.—National *Gazette*, Feb. 3d: Wyoming mine, on the north side of Deer creek, is having about 200 tons of good rock crushed at the Bunker Hill mill.

Providence Mine.—Work on the Providence mine, is being vigorously prosecuted. An incline shaft is being sunk on the ledge, and hoisting works are being erected.

PLACER COUNTY.

Mining Enterprise.—Auburn *Stars and Stripes*, Feb. 8th: Damsguard & Fields, of Alta, and J. Fewings, are making preparations for hydraulic operations on a large scale on a portion of the Fewings ranch, a short distance below this town. Their mining ground comprises ahout 60 acres, all of which is believed to be rich.

Rising Sun.—Grass Valley *Republican*, Feb. 8th: The rising Sun at Colfax is paying its owners good returns. The rock they are crushing averages between $40 and $50 a ton. They are down on their third level 300 ft. from the surfacs, and have a ledge of from 18 to 20 inchss wide. Preparations are being made to sink for the fourth level, which will be about 80 ft. below the third level. The Co. have had about all the water in the mine their pumps could hoist since the heavy storms commenced. Thirty men are employed in the mine and mill. The sulphurets from the Rising Sun are unusually rich, frequently yielding over $300 a ton.

SIERRA COUNTY.

Good Hope.—Downieville *Messenger*, Feb. 3d: The boys are getting out rock in this ledge, which is being crushed by E. Leonard's mill. The mine is promising well for its owners.

Brandy City.—Cor. same: Every Co. on the hill is working full handed. The Arnott will have the best season run. The Hicky is prospering. The Sharp Co., at Grizzly Hill, are working full handed. There has heen a small hreak in their ditch, but it must have heen repaired ere this. There was another in the Hosie's flume, helonging to the Hickey Co., but all damages are repaired.

TRINITY COUNTY.

Not Bad.—Weaverville *Journal*, Feb. 2: Hass & Co., of Junction City, are running 2 pipes and clean up every 2 weeks. So far their claim has paid them $100 per day.

Douglas City.—Cor. same: From all parts comes the information that this is going to be the best mining season we have had for many a year; every miner is busy, but as yet few have made any cleaning up. I hear of one Co. only and that paid a fraction over $10 per day to the hand.

The boys on Dutton creek are running off a tremendous amount of gravel, and toward the latter part of this week will make the first clean-up.

The Douglas City miners will all be running water in a few days; some are at work already. Tourot is running 2 pipes on his Douglas City claim and is getting dirt off fast.

The sale of the Sillcox mine on Indian creek has enlivened the quartz question considerably.

Hay Fork.—The miners are all at work and have better prospects than for several ycars. On the East fork, Sims & Co. are highly elated at their show. Billy Ruch and partner started in last week, struck the old streak and cleaned up 5 ounces the first week. This week they picked up a $29 *chispa*. Stevenson is working 4 hands besides himself. Squire Wells & Parlin are sluicing and doing well and Dennis Rourke & Conlin are making it pay; also the Sullivan boys.

In the Valley, Duncan's, J. S. Hoyt's and Jake Hilliard's claims are all running with plenty of water.

Nevada.

EUREKA DISTRICT.

Bullion.—Eureka *Sentinel*, Feb. 6: Paxton & Co. shipped, yesterday for the Pinto M. Co. to London, 4 bars, 179 lbs, valued at $3,254 48. The first shipment of hullion from the Pinto mill was made on the 2d. The amount was 13 tons, 520 lbs. valued at $9,455.68.

Rich.—We were shown an assay to-day of a piece of ore from Secret Canon, the result of which was $2,350. The owner avers that he has 40 tons of the same sort of rock on the dump.

Looking Well.—The Wide West mine is looking well, and a very fine body of ore is being disclosed.

McGarry.—We have been shown specimens of ore from the McGarry dist; it looks well for surface rock. They were from the Carahantes and Mexican Mines. The croppings on the Mexican location can be traced 60 ft.

Lemon Mill.—The mill will start up on the 9th and make a trial run.

Mill Site.—The Adams Hill M. Co. (formerly the Wide West Co.) have purchased a millsite near the Lemon Co.'s property. The work of building a 20-stamp mill will be soon commenced.

ELY DISTRICT.

Bullion.—Ely *Record*, Feb. 4: W. F. & Co. shipped since Jan. 18th bullion valued at $25,269.66.

Chapman Mine.—A whim of the Marshall patsnt has heen placed on ths mine. With this the Co. can sink to the depth of 400 ft. without other machinery. The shaft is being newly timbered throughout. It is 200 ft. deep, with a drift 24 ft. from the shaft to the eastward. Ths body of ore at the bottom of the shaft is large and well delined, and the general belief of mining men is that this is the Raymond and Ely Ledge, which runs east from Panaca Flat. The Supt. informs us that he will commence hoisting ore at once.

Raymond and Ely Co.'s Mills.—On the 4th of Feb. the new 30-stamp mill of the above Co., together with the old 20-stamp mill, started working, making 50 stamps put in operation that day.

Havana Mine.—This claim has been purchased, and work commenced at the bottom of the old shaft to develop the ledge. This claim is ahout 400 ft. southeast from the shaft of the American Flag.

Alps.—On the 26th inst. J. James, Supt. of the Co., shipped $5,026.89 in bullion, over .900 fine, the proceeds of 25 tons of ore worked at the Chicago Mill. The shaft is down 146 ft. and shows the body of ore at that point to be equal to that found in any other portion of the mine.

Newton Booth.—In running the drift south from the main shaft at the 180-ft. level a fine looking ledge has been cut, at a point 37 ft. south of the bottom of the shaft. At present the ledge is four ft. wide, and no evidence of wall rock has yet been found.

Pioche.—This claim still works, sinking the main shaft and preparing for work, when future developments shall expose a ledge of pay ore, which we think will be found within 100 ft. of the present workings of the company.

HUMBOLDT.

Bullion.—Unionville *Silver State*, Feb. 10: Amount shipped from the Arizona mine, since our last issue, was $8,000.

From the Old Sheha mine we have superlatively good accounts.

Inskeep, Henning and Eolipse Mines—Operations on all these mines continue. The Inskeep is looking well, and yields its accustomed amount of shipping ore. The Henning tunnel is in nearly 300 ft., still goes ahead on the vein, which varics from 1¼ to 5 ft. in thickness. The run of ore will average about $70 per ton.

REESE RIVER.

Belmont Bullion.—Reese River *Reveille* Feb. 3: We saw at W. F. & Co.'s office this morning awaiting shipment 5 bars weighing 5,484 oz. and valued at $2,453.21, the product of the El Dorado South at Belmont.

Bullion.—A. Paxton & Co., shipped during Jan. 38 bars valued at $27,113.17, of which 14 bars, valued at $15,925.31. were from the Metacom Mill, from ore from the Pacific M. Co.'s mines, and 24 bars valued at $11,187.86, from the Stetefeldt Mill, at Belmont, from ore from the El Dorado South.

Arizona Mine.—The ore channel improves every day under the work beiug prosecuted upon it. The shaft sunk on the second level is down 160 ft. at which point the lode shows a thickness of 5¼ ft. 3¼ of which consists of good milling ore and a considerable proportion of it of high grade shipping ore. A drift runs north from this shaft, at a point 120 ft. down, discloses a ledge 5½ ft. thick—4 of which is ore equal to anything ever found in the mine. Four other shafts carried down at various points north of the southerly end of the second level reveal at each a ledge equal in all respects to that brought out in the 160 ft. shaft.

Humboldt City.—Work has been started up on the Starlight lode. The Supt. has put on 2 shifts of miners.

Central Dist.—This dist. lies in the mountain range about 8 miles north of the C. P. Railroad. The ledges, though of moderate size, are compact and shapely, and carry ore generally from the surface. The ores are composed largely of chlorides and sulphurets with some galena, snd are mostly of high grade; the ledges being opened affording enough from the shafts and other exploratory works being driven to defray current expenses. There is a prospect of a 15-stamp mill being erected on the river near the mines next spring. There are now about 20 miners in the district.

De Soto Mine.—Work is heing pushed on this mine, adjoining the Sheba, in Star District with most satisfactory results.

Peru.—The lode shows a thickness of from 4 to 5 ft. It carries a large proportion of ore, which with a little assorting will mill from $100 to $150 per ton.

WASHOE.

Bullion.—Virginia *Enterprise*, Feb. 7: We yesterday noticed upon the counter of the Bank of Cal. 9 bars of Belcher and Crown Point bullion worth $31,500. Some of the Bslcher bars were over 60 fine in gold.

More Ore Found in the Savage.—A deposit of ore has been found on the fourth level of the Savage, 700 ft. below the surface. This new development is about 200 ft. south of the Gould and Curry line and is 2 or 3 ft. wide, of very good ore.

Ophir.—The rock is favorable and good progress is being made in ruuning the drift on the 1,100 ft. lsvel.

Sutro Tunnel.—The Sutro Tunnel was yesterday in 2,713 ft. They are in hard porphyry rock, and are making slow progress. Shaft No. 1 down 90 ft. The rock is trachyte, and works well. No. 2 is down 123 ft., the rock works well—some water coming in. No. 3 is down 83 ft. in ground that works well. They are timhering this shsft. No. 4 is down 78 ft. and is in hard ground. They are hoisting from this shsft about 1,200 gallons of water per 24 hours.

Sierra Nevada.—That the new strike is upon the vein from which came the rich dirt and float rock worked lower down the hill in 1862, we have but little douht. This new back ledge contains ore which presents precisely the same characteristics as the float rock found in early days, and the assays are better than any before ohtained in any deposit found in the hill, beiug from $45 to $150 per ton—$20 to $29 of which is silver. That they have a "big thing" if they have found the ledge from which came the rich dirt and rock worked 10 years ago, may be seen from the following items in regard to what was done in 1862 by the old Cedar Hill Float Rock and Surface M. Co. Thc Co. had a small stream of water and worked into the hill by the hydraulic process, saving all the rock they forked out of their sluices to be crushed at the mills—to which they sold it at $25 per ton. June 13, 1862, Mr. Clemens, one of them took $211.31 in sluicing 45 hours. June 21, they cleaned up 10 lbs. of amalgam worth $14 per ounce. For the 10 weeks previous to August 9, they took out 700 tons of rock which they sold at $25 per ton, and during that time the free gold paid regularly $1,000 to $1,500 per 10 days run—the last run of the 10 weeks paid $1,300. August 2, they found a chunk of gold quartz for which they refused $300.

Items.—The 1,200-ft. level of the Crown Point mine is looking and promising still better than ever. The cross-cut has reached the east wall and develops the ore deposit to he 118 ft. wide, with the richest ore lying next to the east wall. The annual report of the Belcher to Jan. 1 shows a production of 18,468 tons of ore,

valued at $1,199,135, or an average of $64.26 in the last 5 months, since when the new discoveries were available. The cost of production was $599,775, of which $12 per ton is for crushing and $7.50 per ton for labor. The south drift, at the 1,100-ft. level is in ore which averages about $132 per ton.

WHITE PINE.

Base Mines—Great Valley Co.—The mines owned by the Co. are at the foot of Babylon Hill, about half a mile from Swansea, near Shermantown, and consist of the Great Valley and Union mines, with a length of 2,000 ft. of ground. The location was made in April. A tunnel was started and run west 200 ft. in ore. Fifty ft. from the end of tunnel a shaft was put down and ore found. An air-shaft was sunk 125 ft. deep, to the bottom of the tunnel, and found a fine body of ore the whole distance down. Afterward a shaft 30 ft. deep was sunk on the side, and a ledge of mineral 5 ft. wide developed—making altogether a depth of 155 ft. in ore, from the top of the air shaft to the bottom of the 30-ft. shaft. Three other shafts are down on the line of the ledge, and ore found in all of them. The ledge is prospected for 1,000 ft., showing ore wherever the ledge is opened. Five hundred tons of ore were extracted from the mine; 100 tons were disposed of to the Matteson Furnace, and 400 to the other furnaces in the Dist., and turned out bullion to the satisfaction of the owners and purchasers. It is estimated that 75 tons of ore can be extracted daily from the present openings, and the number of tons increased after further openings are made.

In different openings are bunches of galena ore which assay (in silver) from $50 to $200 to the ton.

Launceston.—This mine is on the west slope of Treasurs Hill, and about ¼ of a mile from Shermantown. There ie 10 ft. of an open cut on the ledge, and a tunnel in 35 ft., making 45 ft. altogether run on the ledge. In the back end of the tunnel there is a well defined foot wall, and a good showing of ore. There are about 20 tons of ore on the dump. The length of the mine is 800 ft.

Empire.—The Empire mine is on the west slope of Treasure Hill. There is a tunnel in 100 ft., showing a large body of carbonate and milling ore. The pitch of the ore is almost vertical. Inside of the tunnel there is a lot of ore sacked up, that was taken out while running the tunnel. About a year ago a shipment of ore was made to S. F., which worked $100 to the ton.

Monile.—The Mobile is about half a mile up the cañon, above the Great Valley mine. A tunnel is run in on the ledge 200 ft., and shows a true fissure vein, with well-defined walls. In the center of the location there is a shaft 70 ft. deep, showing ore from 3 to 5 ft. in width, that assays $80 and $200 to the ton. A drift is in 80 ft. from the bottom of the shaft. There is about 450 tons of ore on the dump that was taken out of the drift. A force of men is at work prospecting and making further developments.

Bowie & Brown.—Thie location is 1,000 ft. in length, on the northweet end of Blue Hill. There is a tunnel in 100 ft., which taps the mine at 75 ft. from the surface. The ore is of a bluish green cast, of a copper character, and requires roasting. A shaft is down 45 ft. from the bottom of the tunnel showing the ore body increasing in thickness. About 50 tons of ore were breasted out and milled, going from $90 to $100 to the ton.

Reindeer.—The Reindeer is an extension of the Empire, and owned by the same Company. There is a shaft down 40 ft., showing a fine body of carbonate ore, going down vertically, as in the Empire. 45 tons of the ore taken out of the shaft was worked, and averaged $100 to the ton. Assaye of the ore go as high as $500 to the ton. The length of the mine ie 1,400 ft.

Live Yankee.—A shaft is down 65 ft., from which 67 tone of ore were taken out and sold on the dumps for $20 per ton. The ore assays $60 to $900 to the ton, and will average about $100. The character is copper, with a showing of lead. The last shift of men averaged a ton of ore to the hand in the breast. The location is 1,000 ft. in length.

Other Base Mines.—Among the most prominent base mines are the Imperial, Monitor and C. O. D. There has been a large amount of work done on the Imperial, showing an immense body of ore.

Treasure Hill Mines—North Aurora. The Risdale chamber has improved very much in appearance since our last visit. The ore ie of a higher grade and requires hut little assorting. Shipping from 30 to 35 tons daily by tramway. Rich bunches of high grade ore have come in. Hoisting night and day through the Engine shaft, and shipping 50 to 60 tons daily by tramway to mill.

East Shenoygan.—Ten men are employed in the different works. The south drift has made 6 ft. in depth since last report. Exchange incline made 3 ft.; spar in the bottom. Regent drift made 7 ft. the past week, making a total distance of 95 ft. The ore in sight is of a better quality than any ever before taken out. The ore is one foot in thickness, lying on a spar wall.

Asbury Tunnel.—Norris has resumed work in the tunnel with a force of men. He has a contract for the whole work. The tunnel is in over 300 ft. Running ahead and prospecting in the side drifts.

Eberhardt.—There is one shift at work cleaning out the snow from the Keystone tunnel. Shipping ore every alternate day by tramway to mill.

Gen. Lee.—Following spar seam up the hill from the ore chamber. There is a width of 3 ft. of ore in sight, and improving in quality as work is pushed ahead. The indications for opening up a good body of ore are flattering.

Copper Glance.—Two men employed. Drift at the bottom of shaft driven ahead 3 ft. since last mentioned. The new or north shaft is sinking in limestone; cap put down 3 ft. since last report.

San Juan del Rio.—The ore is improving in quality as depth is attained.

Beecher Cons.—There is a shift of two men working at present.

Beecher. — Sinking the winze in the Phillpotts chamber to connect with the East drift of the Lady's chamber. Running 2 shifts of 6 men.

South Aurora.—Work progresses as usual in the tunnel and shafts with encouraging prospects.

Pocotillo.—The ore is of a fair milling grade.

Outside Dists.—Grant is 65 miles south of Hamilton, and about 12 miles north of the mines of the Troy M. & M. Co. The mines are favorably situated and easy of access. Within a radius of a half mile is a group of mines that have been more or less developed. Following are the results of assaye made from a number of the mines: Chieftain lode, South of the cañon, carries 2 ft. of ore that assaye $300 to $600 to the ton. A short distance south are the White Cloud, Poorman, and Patriarch. The first named has a shaft down 6 ft., showing with well-defined footwall, 2 ft. of mineral, assaying $70 to $500 to the ton. On the Poorman there is a shaft down 60 ft., with a vein of 4 ft. in width, 2 ft. of it good milling ore, which assaye $120 to $500 to the ton. The Patriarch shows a fine body of ore on the surface that is traced out for several hundred feet. Assays go from $80 to $600 per ton. About a mile and a half southwest ie the Ramshorn, on which a shaft is down 10 ft., showing well-defined walls and a vein of mineral, going $50 to $250 per ton. The Rocket, South of Fish Springs, is also a well developed lode. The ore assaye $50 to $250 to the ton. Connel lode is north of Hunter's cañon, a short distance below the spring. This ledge promisee to be the leading mine of the Dist. The country rock is quartzite. There is a shaft down 40 ft., with 6 ft. of ore, pitching at an angle of 45 degrees. The ore assays from $90 to $300 per ton.

Idaho.

Quartz.—Silver City *Avalanche*, Feb. 3: During Jan. the quartz weighed at Garlick's scalee foote up 2,200 tons.

Local Record.—The Elmore mine still continnee rich in the 7th level which is being run north fast. The ledge looks well in the winze, which is being both sunk and raised. The only bad feature about this chimney of ore is, that it commencee about 100 ft. north of the shaft, and cannot be mined out until the 6th level drift is in far enough to sink a winze from the 6th to the 7th level, to give ventilation of air, which will occupy about 2 months. The object of sinking the winze from the 7th level is to determine whether the rich body of ore goes down. If such is found to be the case, the main shaft will then be sunk for the 8th level.

That portion of the Oro Fino mine owned and worked by the Elmore Co., is not turning out quite as much ore as it was a short time ago, neither is the ore quite so good.

The Oro Fino Discovery North, which Minear is working for the Owyhee Co. is turning out more ore daily than usual, and of a somewhat better quality.

The ore is improving in the 3d level drift north, which is being run by the North Oro Fino Co. This drift is run for the purpose of getting into the ground of the latter Co., and is nearly to the line. The waste rock and ore is hoisted through the main shaft of the North Discovery ground.

The Golden Chariot mine is being worked under considerable disadvantage, on account of the great distance of the shaft eastward of the ledge. At the 8th level it was found necessary to run a cut 75 ft. in order to tap the ledge, and at the 9th level it would take a cross cut of more than 100 ft. to connect the shaft with the ledge. Supt. Davies proposes, if his Co. is willing, to remedy this, and save the expense of running cross cuts by constructing a new shaft—with 3 compartments, 2 for hoisting and 1 for pumping—down through the old stopes on the same incline as the vein. The mine sent 800 tons of the ore to the Owyhee mill last month.

The South Chariot Co. is still running its 4th level drift north. The drift is in 200 ft. from the shaft, or 268 ft. from this south line. In the face of the drift, the ledge is considerably split up, but the walls are good.

An immense rich body of ore is said to have been struck in the winze of the War Eagle mine this week, which is creating considerable stir in camp.

Mr. Knott continues operations in his Florida Mountain mine and has been rushing the ore down to the Cosmos mill for several days past.

Montana.

Helena Reduction Works.—Helena *Gazette*, Jan. 29: The last furnace lighted is yielding at the rate of 2,000 lbs. of bullion every 24 hours. The product from 6 P. M. on Tuesday to the same hour last evening, was 38 bars, weighing from 53 to 55 lbs. each. Another furnace will be fired to-morrow.

Utah.

Pioche Bullion.—Salt Lake *Tribune*, Feb. 3: During the last week, W. F. & Co. have received and forwarded the following lots of fine bullion from Pioche. Jan. 27, 6 bars, $7,538.20; Jan. 29, 7 bars, $9,188.29; Jan. 31, 7 bars, $9,066.42; Feb. 1, 16 bars, $49,003.40. Total, $74,816.31. Today 6 bars more will be received which will swell the amount to more than $80,000.

New Gold Field.—By telegraph—St. George, Feb. 3. Rich discoveries of gold are reported on the bars of the Colorado river, below the mouth of Diamond river, and about 100 miles south of this place. With copper sheets $14 per day can be washed out by one man. Miners are constantly passing through here *en route* for the new El Dorado, and large numbers are going up the Colorado from Lower Cal. and Arizona.

The Silver Belt dist., near Pinto, is creating considerable excitement among prospectors, and new discoveries are being made. The average assay of the ores in that dist. is about $50 per ton silver.

S. F. Stock Exchange Board.

San Francisco, February 15, 1872.

The mining share market has fluctuated considerably during the past week and transactions generally have been large. Friday, stocks were rather weak; Saturday, very much depressed, and a general collapse to a certain extent; Monday, further depressed; Tuesday, strong again; Wednesday, fair, and to-day the excitement had quieted down materially, all descriptions show a marked decline over prices of last Thursday.

The receipts from the North Star mine, at Grass Valley, for the month, aggregate $22,330. The sales for the week ending Wednesday the 7th inst., at the Stock Board, amounted to the unprecedented sum of $8,045,600; for the previous week they amounted to $4,208,000. Saturday last showed a very marked decline in the prices of mining stocks, all the prominent Washoe descriptions being lower and the decline being from $10 to $90 per share from the day before. The last clean-up of the Succor mine yielded $8,200, and that of the Virtue mine $3,350; the yield of the latter for January was $7,500. The January receipts from the Meadow Valley mine were $141,000, and on this month's account $25,300 have been received. Last week 796 tons of ore were taken from the Crown Point mine, valued at $33,000, and 888 tons from the Chollar-Potosi, assaying $48.62 per ton.

The Lemon Mill & Mining Co. elected the following Trustees on the 10th inst.; G. W. Clark (President), John Hahn, H. H. Shafer, H. Baroilhet, and F. A. Oliver. J. T. Milliken was re-elected Secretary and G. Dussol, Treasurer.

Last week the Savage mine produced 987 tons of ore averaging $37.47. On the 10th inst. the Superintendent of the Raymond & Ely mine sent down $18,300 from the old mill.

Comparative Prices—Extremes. Advance and Decline.—S. F. Stock and Ex. Board.

	Feb. 8.	Highest.	Lowest.	Feb. 15.	Adv.	Dec
Alpha	$40	40	27	24½	—	12½
Amador	—	—	—	—	—	—
Belcher	680	680	620	630	—	50
Buckeye	5	5	4½	4½	—	—
Chollar-Potosi	86	86	54	66	—	20
Caledonia	19	19	10	10	—	9
Cons. Virginia	52	52	40	42	—	10
Crown Point	760	770	750	—	—	—
Daney	—	2½	2	2½	—	—
Eureka Cons.	26	26	24	25½	—	½
Eureka	19½	19¾	17½	—	—	—
Exchequer	18	18	15	15	—	10
Gould & Curry	345	345	140	217½	—	131½
Golden Chariot	15	15	12	—	—	—
Hale & Norcross	305	305	210	255	—	50
Imperial	130	130	72½	85	—	45
Ida Elmore	14½	14½	13	—	—	—
Kentuck	260	260	190	242½	—	17½
Mammoth	50c.	60c	50c	—	—	—
Meadow Valley	19	19	16	16¾	—	2¼
Mahogany	10¼	10¼	9c	—	—	—
Ophir	125	125	80	105	—	20
Orig. Hid. Treas.	—	8	7¾	—	—	—
Overman	65	80	52	57½	—	7½
Piocho	14	14	10¾	11	—	3
Raymond & Ely	141	141	121	138	—	3
Savage	310	310	140	230	—	80
Sierra Nevada	34	34	22½	23	—	—
Succor	9½	9	5¾	5¾	—	1½
Wash. & Creole	6	6¼	4¾	5	—	1
Yellow Jacket	80	80	65	73	—	17
St. Patrick	20	20	16	—	—	—
Sag. Belcher	67	67	53	68	1	—

Latest Prices—Bid and Asked.

	BID.	ASKED.		BID.	ASKED
Alpha Cons.	26	27	Ida Elmore	—	—
Amador	—	—	Imperial	83	84
Belcher	630	630	Kentuck	140	142
Chollar-Potosi	62	63	Meadow Valley	16½	16¾
Crown Point	770	800	Ophir	110	115
Daney	2	2½	Orig. Hid. Treas	—	—
Eureka Cons.	24½	24¾	Overman	55	56
Eureka	—	—	Savage	225	230
Golden Chariot	—	—	Raymond & Ely	134	134½
Gould & Curry	212½	215	Sierra Nevada	21	22
Hale & Norcross	250	255	Yellow Jacket	71½	72

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the Scientific Press and other San Francisco journals.]

ASSESSMENTS.

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT	DAY DELINQUENT.	DAY OF SALE.
Alhambra Hill M. Co., Nev., Dec. 9, 50c.	Jan. 13	Feb. 27*
Buckeye G. & S. M. Co., Nev., Jan. 9, $1.	Feb. 13	Mar 14
Caledonia S. M. Co., Nev., Feb. 1, $4.	Mar 8	Mar. 29
Cherokee Flat, Butte Co., Jan. 3, $2.50.	Feb. 6	Feb. 23
Daney G. & S. M. Co., Nev., Feb. 1, 65c.	Mar. 4	Mar. 25
Emerald Hill M. Co., U. T., Jan 11, 25c.	Feb. 19	Mar. 14
Empire M. & M. Co., Nev., Jan. 6, $10.	Feb. 8	Feb. 25
Golden Age & Empire M. Co. Feb. 9, $2.50.	Mar. 12	Apr. 3
Gould & Curry, Nev., Jan 30, $16.	Mar. 4	April 26
Golden Chariot, I. T., Jan. 31—$2 50,	Mar. 9,	Mar 30
Ida Elmore, Idaho. Dec. 30 $3.00.	Jan. 31	March 4
Imperial S. M. Co., Nev , Jan. 5, $10.	Feb. 8,	Feb, 26
Kentuck, Nev., Jan. 20, $10.	Feb 24	Mar. 13.
Lemon M. & M. Co., Nev., Jan. 6, 50c.	Feb, 10	March 2
Mabogany G. & S. M. Co, I. T. Jan. 26, $1.50	Mar. 6	Mar. 23
Mina Rica M. Co., Cal., Jan. 16, 20c.	Feb. 19	March 11*
Monitor & Magnet, N. T. Dec. 4, 25c.	Jan. 23	Feb. 17
Mt. Jefferson M. & M. Co., Cal., Jan 8, 25c.	Fe 6	Fe 22*
Nevada L. and M. Co., Nev., Jan. 9. 4c.	Feb. 13	Mar. 4*
Nonpareil G. M. Co., Cal., Dec. 27, $3.50.	Feb. 3	Feb. 24
Noonday S. M. Co. White Pine, Feb. 1, 20c.	Mar. 5	Mar 25
Overman, Nev., Feb. 22, $4.	Feb. 22	Mar. 11.
Phœnix, Nev., Jan. 18, 75c.	Feb. 22	Mar. 13.
Piermont M. & M. Co., N., Jan. 20, 80c.	Mar. 1,	Mar. 23*
San Buenaventura Co. Cal., Jan. 19, $1.	Feb. 29	Mar. 29
Sierra S. M. Co., Nev., Jan 4, $3.	Feb. 6	Feb. 23
Silver Wave, White Pine, Dec. 19, $3.	Jan. 25	Feb. 23*
Silver Wave, Nev., Jan. 30, $1.	Feb. 26	Mar. 19.*
South Chariot M. Co., I. T., Feb. 8, $1.	Mar. 9	April 1
St. Patrick M. Co. Placer co. Cal. Feb. 8, $4	Mar. 13	Apr. 2
S. Gulch Gr. M. Co., Cal., Feb 7, $1.50.	Mar 13	April 3*
Succor. M. M. Co., G. H., Jan. 8, $1.50.	Feb 6	Feb. 27
Tecumseh, Cal., Jan. 23, $4.	Feb. 27	Mar. 15.*
Tallulah M. Co., Nev., Jan. 30, $1.	Mar, 5	Mar. 26
Union G. M. Co., Cal., Jan. 4, $1,00.	Feb. 5	Feb. 26*
Wm. Penn, Nev. Jan. 16, 60c.	Feb. 10	Mar. 11.*
Washington & Creole M. Co. Feb. 16, 50c.	Mar. 15	Apr. 11

MEETINGS TO BE HELD.

Central S. M. Co.	Annual Meeting Feb. 28
Chapman M. & M. Co.	Annual Meeting Mar. 11
Justice M. Co.	Annual Meeting, Feb. 19
Virtue G. M. Co.	Meeting, Feb. 23
White Pine Smelting Co.	Meeting Feb. 17

LATEST DIVIDENDS—(Within Three Months).

Belcher, $15	Payable Feb. 5
Chollar Potosi, $1	Payable Feb. 10
Crown Point, $15	Payable Feb. 12
Eastport, Coose Bay, Coal M. Co. 1 perct.	Payable Feb. 12
Eureka Gold M. Co., $1	Payable Jan. 6
Keystone M. Co., $3	Payable Feb. 10
Meadow Valley, $1.50	Payable Dec. 16
North Star G. M. Co., $3	Feb. 10
Raymond & Ely, $5	Payable Dec. 18
San Francisco T. & M. Co.	Annual Meeting Feb. 5
Yule Gravel M. Co., 60c.	Payable Dec. 6

—*Advertised in this journal.

San Francisco Metal Market.

[Corrected weekly by Hooker & Co., 117 and 119 Cal. street.]

PRICES FOR INVOICES

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

THURSDAY, February 15, 1872

IRON.—			
Scotch and English Pig Iron, ₱ ton	$52 50	@	55 00
White Pig, ₱ ton	45 00	@	— —
Refined Bar, bad assortment, ₱ lb	— 04	@	— 04½
Refined Bar, good assortment, ₱ lb	— 05	@	— 05½
Boiler, No. 1 to 4	— 05	@	— —
Plate, No. 5 to 9	— —	@	— 05
Sheet, No. 10 to 13	— 05½	@	— —
Sheet, No. 14 to 20	— 06	@	— —
Sheet, No. 24 to 27	— 06	@	— —
Horse Shoes	7 50		
Nail Rod	10		
Norway Iron	8		
Rolled Iron	5		
Other Irons for Blacksmiths, Miners, etc.	5	@	5
COPPER.—			
Sheathing, ₱ lb	— 24	@	— 26
Sheathing, Yellow	— 24	@	— 25
Sheathing, Old Yellow	— 11	@	— 11½
Composition Nails	— 24		— —
Composition Bolts	— 24		— —
TIN PLATES.—			
Plates, Charcoal, IX ₱ box	12 00		— —
Plates, I O Charcoal	10 00		10 50
Roofing Plates	11 00		— —
Banca Tin, Slabs, ₱ lb	— —		— 45
STEEL.—English Cast, ₱ lb	— 16		— 17
Drill	16		17
Flat Bar	17		20
Plough Points	3 75		
Russia (for mould boards)	12½		
QUICKSILVER.—₱ lb	— —		— 85
LEAD.—Pig, ₱ lb	— 05½		— 06½
Sheet	— 08		— 8½
Pipe	— 9		— 10
Bar	— 08		— 09
ZINC.—Sheets, ₱ lb	— 10		— 10½
BORAX.—Refined	— 25		— 30
Borax, crude	— 5		— —

Wastage of the Precious Metals.

BY ALMARIN B. PAUL.

[Written for the PRESS.]

The fact that a high percentage of the precious metals is loet in the manipulating of ores hy the present modee of working, no one for a moment questions; hut when it comes to any special data, hut little has heen presented to the puhlic. Some aseort their lose to he only a trifle, while others, who more closely investigate, know it to be greater than it should be. Shakespeare says, "He who knoweth not what is lost, loseth nothing;" and in that senee, some lose notbing; hut invectigation shows that it is too enormous to he continued. The precious metals are the life hlood of the nation, tbe vital element that electrifiee and ennerve a people. They spread comforts and expand ideas, and with tbeir abundance nations as well as iudividuals dare to act. While their scarcity cauees all to shrink within themselves, deadening a life, that otherwise might shine with startling brilliancy.

It therefore behoves all to augment the yield, and the first step to that end is a clear realization of the loss.

Having closely investigated the eubject forthe past five years, I find the average loss so great, tbat really I think, if there is not more care taken in the husbanding of our richos, when extracted from the earth, the Government sbould take measures to do eo.

There is an idea that all gold is readily amalgamated, and therefore it is not neeessary to be so particular; consequently there is an unwarrantable degree of carelessnees. I have learned by practical working in both gold and silver that a higher percentage of silver ie more readily obtained by the known system of working for silver, than the percentage of gold hy *its* moet advanced system, showing that gold milling is far hehind silver working, although as before remarked, gold is considered so "readily amalgamated." Yet to adopt the eystems for gold that are used in silver, affords no especial relief.

That many readers may have eome data, as a corner-stone, to build tbeir ideae upon, before I go to far in my general obeervations, I will give a few tests of the many which I have made in the last two years, and intersperse with them, as additional evidence, views of other parties. And here I would call the reader's especial attention to the fact of a goodly percentage of eilver in all of our California ores; and I will also remark that the aesay of tailings does not even show what percentage of eilver the ores contain, as some may he in the form of chlorides which move off in the water. But to the tests of our gold mining.

TEST No. 1.—Average yield of ore in mill, $18.60. Wastage after complete washing, including concentrating,—Silver $3.14; Gold, $10.04; total $13.18.

TEST No. 2.—Same mill tailings 350 feet from mill,—Silver, $3,93; Gold, $5.02; total, $8.98 Showing that a percentage secreted itself in its passage down stream.

TEST No. 3.—Average yield of 150 tons, $3.50. Assays of tailings carefully sampled,—Silver, $6.28; Gold, $13.55; total, $18.83. Silver, $6.28; Gold, $8.79; total, $15.07.

The ahove bad results were occasioned by the extreme fineness of the gold. And even the ahove does not show the full wastage. To corrohorate this, I will give some admirable tests made to get at the qnestion of "float gold."

A friend of mine, having somewhat similar ideas to my own, concluded to test the question of float gold as well as he could at the time, and embraced the opportunity of cleaning up the slum from a water tank for supplying the hattery, where the water was used over and over again in conee-quence of its scarcity. The ores were worked after the usual wet metbod for gold ores. The water and pulp were first paesed through a sluice to tailing bed, 190 feet. The tailings heiug deposited, the water was drawn off at the top, flowing into a well, where it was raised, and passed through a sluice 120 feet to tank at battery. This is the tank cleaned up.

The residue was amalgamated in a tub quite rudely, hut with a large body of mercury and chemicals. The result was $33 in silver and $56 in gold, making a total of $89 per ton. It will he obsorved that there were two chances for the metals to precipitate previoue to reaching this tank:—first, in the tailing reservoir, and second, in the well.

This "float" metal question is further established by a system of teets made hy Mr. McDougal, of Grase Valley, who very kindly allowed me to extract the same from bis books of test. And here let me say that these teets are made from water flowing from mills at a point three-fourths of a mile belew the mills.

1st test of 20 gallons of water gave					1.10 cents
2d	"	"	"	"	2.13 "
3d	"	"	"	"	.95 "
4th	"	"	"	"	.83 "
5th	"	"	"	"	1.02 "
6th	"	"	"	"	1.13 "
7th	"	"	"	"	.97 "
8th	"	"	"	"	3.12 "
9th	"	"	"	"	1.07 "
10th	"	"	"	"	.63 "
11th	"	"	"	"	1.01 "
12th	"	"	"	"	.90 "
Average					1.18 "

It was eetimated that 576,000 gallons of this "muddy water" flowed hy every 24 hours, whicb, according to these tests, contain $339.84. Let us carry this calculation a little further.

The average amount of ore worked in 24 hours was given as 58 tons. This ehows that $5,85 per ton "floats," which probahly is at leaet 20 per cent. of the yield. Let us run this loss a little further. Suppose the two mills run 250 days in each year, which is not unreasonable, and we have a yearly loss in "float gold" alone, to say nothing of loes hy imperfect pulverization and general wastage, of $84,960.00 from two eingle mills.

Ae additional evidence, I introduce tbe following from a pamphlet of G. W. Baker.

In commenting upon the methods employed at *Morro Velho* for saving gold contained in sulphuret ores, the following statement was made in regard to the pulp issuing from the mills. It is copied again in view of fixing the authority upon which we assert the "loss hy flow," as an important item in our calculation.

1st. Free gold capahle of concentration hy washing.

2d. Free gold in a lamellar form, liable to be carried off in suspension by water.

3d. Mechanically combined gold, enclosed in particles of pyrites, hut capable of heing liberated by furtber grinding No mercury having heen allowed in tbe hattery, tbis pulp is properly thinned by adding water and then conducted "ovcr inclined platforms ahout eighteen inchee in width and from twenty-seven to thirty-five feet in length, which have a fall of one inch per foot. The first eixteen feet of these 'Strakes' are covered with hullock skins two feet two inches long, and of the width of the strake, tanned with the hair on them; a series of baize cloths, each two feet ten inches long, are employed helow these, which are again followed, at the lower end of the arrangement, hy another eeries of over-lapping skins. A certain quantity of finely divided gold is caught even on the last of theee ekins, wbilst a considerable portion, *estimated at ten per cent. of the total amount present, is carried off in suspension by the water.*" The last two lines are italicised to draw attention to the fact etated. Some time since, when we made it a little rough on Gilpin county practices, we stated that the assays of tailings puhlished by ue did not, and could not, show the lose actually carried off by the water. Here we find the estimate placed at ten per cent. after a *thirty-five feet of catch* has been passed over. How much more is the loss here, with no catch excepting amalgamated plates for a few feet?

[To be continued.]

A Beautiful Chemical Experiment.

The following heautiful chemical experiment may easily be performed hy a lady, to the great astonishment of a circle at her tea party: Take two or three leaves of red cahbage, cut them in small bits, put them into a baein, and pour a pint of hoiling water on them; let it stand an hour, then pour off the liquid in a decanter. It will be of a fine blue color. Then take four wine glasses; into ono put six drops of strong vinegar, another eix drops of solution of soda, into a third tbe same quantity of a strong solution of alum, and let the fourth glass remain empty. The glasses may be prepared eome time hefore, and the few drops of colorless liquids wbich have been placed in them will not he noticed. Fill up the glasses from the decanter, and the liquid poured into the glass containing tbe acid will quickly become a beautiful red, that in the glass containing the soda will be a fine green, that pourcd in the empty one will remain unchanged. By adding a littlo vinegar to the green it will immediately change to a red, and adding a little solution of soda to the red it will assume a fine green, thue showing the actions of acids and alkalies on vegetahle hlues.

The Acorn Woodpecker.

The accompanying cut represents the result of the woodpeckers' industry and forethought in providing for himself provisions for winter use, and storing them where they are safe from tbe depredations of his enemies. In the forests of the Pacific slope these birds ahound, and their work may be seen on every thick-harked tree where acorns are plenty, the hark perforated with little holes from the hottom to tbe top. When it is horne in mind that one variety of trees grown in this State, the Sugar Pine, furnish the finest specimen of tree growth in the world, and that their trunks often form a perfectly true column for over 100 feet without a knot or hranch, towering altogether sometimes over 200 feet high, these iudustrious little birds must have a good deal of work to do to perforate the bark of such trees, as they often do almost continuously, from the lower hranches to within twenty feet of the ground.

Somo old weather-wise individuals claim that these husy little elfs unerringly foretell in autumn the severity of the approaching season hy the numher of acorns they put in store for winter, hiding away unusually large quantities before our

hardest seasone. Whether this he so or not, they display great ingenuity in the manner in which they out the holes, for they are made in such a manner that the squirrels oan not take the acorns out. The acorns in this country are much larger than those in the Eastern States, and the birds cut a hole ahout two iuches long, push in the acorn and drive it in tight with their hills in such a manner that it is difficult to extract it even with a knife. They never put an acorn twice in the same hole and as a consequence the trees of our forests are pretty generally covered with them. At any time duriug the autumn the traveler may hear tbeir peculiar drumming eound as he passes through the woods. Some people state that they never eat the acorn itself hut the littlc worm which is alwaye found iu them after a certain time, which accounts ior their not consuming them early in the winter. However this may he the acorns are pretty generally destroyed hy spring, and the little holes with the shuck of the acorn remain to show where the woodpecker's storehouse has heen.

A LIVE FISH EMBEDDED IN ICE.—A small fisb, imhedded in ice, was found by some workmen engaged in taking ice from the Humholdt to fill the ice-house of Mr. Haynes. The little fellow was eolidly encased in ice as clear as crystal, and when placed in water and the ice gradually melted from about it, its rigidity left, the tail quivered, and after turning over a few times it swam away as if nothing had happened. How long his minnow-sbip had been thus housed is not known but probahly not less than two months. It is now a companion of the gold fish at Haynes' saloon.—*Ex.*

A miniature steam-engine, built of gold, set with diamonds, and standing on a three-cent piece, was one of the attractions at the Schenectady Masonic bazaar.

THE United States issued during the year 1871 ahout $500,000,000 of postage stamps.

The Strike in the Savage Mine.

The following article which we condense slightly from the Virginia *Enterprise* of the 8th inst., shows the wonderful extent of the Comstock lode and gives a good description of the late strike in the Savage which has caused such an excitemeut in stock.

A Look at the New Strike.

Yesterday, for the first time since the report of a strike in the Savage mine, visitors were allowed to enter the mine and examine the new development. Calling upon Colonel Shamp, Superintendent of the mine, at his office, we received an order directing the foreman to admit us to the underground regione under his supervision.

Down the Incline.

Upon landing at the hottom of the shaft we were furnished with candles and then marched Indian file eastward along a tunnel a distance of something over one hundred feet. Here we reached the incline, which runs down from the main shaft eastward at an angle of thirty-eight degrees. In this incline, which is spacious and most suhstantially timbered, on one side a car track and on the other the pump column and a flight of steps. Single file we descended the etaire a distance of 170 feet. This brought us to a drift opening on the south side of the incline and to the now famoue 1,400-ft level, where center the hopes and fears of so many persone on the Pacific Coast.

The New Development.

Stepping from the incline into the mouth of the drift last mentioned, we advauced along it eouth, 29 degrees eaet, a dietance of 100 feet, and hefore ue was the spot in which the new deposit of ore hae been found. Some workmen were engaged in extending the drift still further southward, while on our right, or to the west, a cross-cut about 25 feet in length had been made. In this cross-cut, in hut a ehort distance from the drift, is that part of the new hody which containe the rich hlack eulpburet ore which appears to be the centre and heart of the new development. It ie from four to six feet in width and is filled with streaks and hunches of exceedingly rich hlack sulphuret ore. On each side of this central streak thore is good ore for eome feet, hut going west it gradually diminishes in richness, till at the end of the cross-cut it is of little or no value; to the eastward it eeeme to taper off much in the same way, though in that direction no cross-cut from the drift bae been made. Altogether there may be said to he a width of about 20 feet of ore, the richest of wbich is the part containing the hlack sulphuret rock. They seem to have struck upon the north end of a body of ore which is opening out to the southward.

The first traces of pay-ore are found in the drift back to the northward, near 30 feet from the cross-cut, and the appearance of the rock steadily improved to where the cross-cut west was made. In examining this cross-cut at the point where it passes through the hlack sulphuret section more good ore will be found on the south than on the north side; indeed everything seems to indicate that if there be a large body of ore found it will lie to the soutbward. Thus far all tho openinge that have been made into the deposit are the drift running eouth and the croes-cut from it to the weet. What may be ten feet ahead in any direction no one can tell; hut there is every indication that in going that far south etill fine ore would he found. This new development is the moet important that has been made in years on the north end of the Comstock, in that it proves the existence of rich deposits of ore at the greatest depths, and, cheers, encourages and gives new life to all the mining companies at work upon this end of the great lode.

Still Another Level.

From the 1,400-foot level the incline is being vigorouely pusbed on down, and is now within 50 feet of the point where another level—the 1,500—will be opened. At this great depth no water is fonnd; indeed, instead of pumping, the little water found above is from time to time run down the pump column to the end of the incline for use in hlasting. The quantity thus sent down only serves to make it somewhat slushy at the bottom of the incline, and the surplue is sent up hy the car—it amounts to eo little. After leaving the tenth station—1,300-foot level—and entering the incline, the air is everywhere very hot, and causes the perspiration to stream from the visitor's every pore; but it is fresh and produces no dissagreeahle feeling. In coming to the surface, by the advice of Mr. Bonnomort we took the car from the 1,400-foot level and rode up to the 1,300, saving 170 feet of stairs.

Useful Information.

Gutta Percha Soles.—The method of putting gutta percha soles on leather is similar to this. First take all the nails out and rasp the sole all over as coarse as possible, then give it a coating of solution, made of gutta perch and naphtha, and let it dry. Then get your gutta percha, which has been boiled in water until quite soft, and work it with your hands until the water is out of it. Now get a lump that you believe will be enough to make the sole, and work it into a ball. Heat your hoot a little, and lay the ball on the centre of the sole, and with the palm of your hand spread it over, taking care to cover the whole. Give it a slight rap on an iron plate. In about half an hour cut it round with a hot piece of iron smoothly, and sand-paper it. The heels should have a little scooped out of the centre, which makes a good foundation for the lump to rest iu.

Antificial Milk Used in Paris During the Siege.—When natural milk became acarce in Paris, an artificial milk was made by dissolving 1¼ ounces of augar in a quart of water, addiug an ounce of dry albumin (from white of egg) and 15 to 30 grains of soda crystals, and then emnlsiouizing therein from 1¼ to 2 ounces of olivo oil. As the war progressed, golatin was subsituted for the albumin, and then slaughter-house fats—purified hy melting at 150° and then projecting in them small quantities of water—for the olive oil. One firm made in this latter way, 132,000 gallons of milk daily for Paris consumption.

The Australian Meats now sold in Europe, and elsewhere, have not found their way to this country, bnt it will not be long before the plan will he adopted here with our own meats. It has many advantagea which commend themselves. If a large business be done in the putting np of canned meats, and they are put upon tho market the same as oysters and canned fruits, tbere will be found economy hoth in price and ahsence of waste. It will particularly be a trade which will meet the demands of new towns in remote localitiea, which at certain seasons are almost without a market.

Aniertine.—Abiertine or extract of Fir Balsam, is a recently discovered agent which is commanding considerable attention. It is manufactured about forty miles above Oroville, the proprietore having put up works there for the distillation of the balsam from which it is made. It is highly recommended for cleaning type, taking paint and other stains out of clothing. It is also recommended for spraina, burna, neuralgia, tooth-ache, etc. Should this California production possess the virtue claimed, the discoverer and mannfacturer has made a profitable inveatment.

Whisky.—It is atated that when Russian troops are about to start on a march in a very cold region, no grog is allowed. The men once drawn up, it hecomes the corporal's duty to smell their breath and send back all who have been drinking. Many more examples might be cited, to prove that it ia the universal experience of all who have fairly tested it, that alcohol diminishes onr power to resist cold.

How is This?—An exchange (we find the paragraph among the "miscellany" of the *College Courant)* says: "Mr. S. S. Packard has for some years held open a standing offer to educate gratuitonsly fifty women in hia business college. He atates that the result has been two hundred applications, twenty trials, and two successes." What was his atandard of "success?"

A new description of carpet known as India Brussels, has been introduced of the same width aa ordinary tapestry Brussels, and aaid to possess an equally good appearance. It is made of a superior quality of wool, felted so as to make the fabric heavy and durable; and on the face are printed, in colors, designs of recent introduction.

The Bat's Wing.—It has heen found that the bat'a wing and the ear of the white mouse are most abundantly provided with nerves, apparently for the purpose of supplying, by means of a very refined seuse of touch, the imperfection of vision. The number of nerve endiugs on each ear of the white mouse are estimated at 6,000.

Beet Suoar in France.—The production of beet sugar in France gives employment to upwards of 400 factories.

Good Health.

Butter and Worms.—There is no doubt that the larvæ of the various worms which infest the alimentary canal of children, and frequently, too, of adnlts, are taken in with tho food. Greasy substances are apt to abound with them. In a late German medical journal, a Dr. Hubber relates many experiments he has made on tbis subject, and he comes to the conclusion that no article used by man as food, especially during childhood, is so prolific a canse of intestinal worms as butter. The use of butter serves also for the introdnction of insects, as well as worms; and, as American children seldom eat bread without a thick coatiug of butter, the general presence of intestinal worms need not be wondered at.—*Home and Hearth.*

Rioidity of the Jaws in Drownino Persons not a Sign of Death.—A recent writer assures us that the rigidity of the jaws in a person taken out of the water after long emersion, instead of being a sign of death, is really an indication that life is still present, as it disappears only when life is actually extinct. This, of course, is not to be confounded with the atiffening of the entire body after death, but refers entirely to the local symptoms. We aro, therefore, advised, under the circumstances indicated, not to lose hope, hut to continue to make use of all the methods that present themselves as appropriate for the restoration of suspended animation, whether hy the injection of air into the lungs, or by other means.

The Lamp in a Sick Room.—The following aimple arrangement will remedy the evil of foul gas, gcnerated by burniug a kerosene lamp all night in a nursery or sick room: Take a raisin or any other suitable aized box that will contain the lamp when set up on end. Place the lamp in the box, outside the window, with the open side facing the room. When there are blinds, the box can be attached to each hy leaving them a little open, and fastening with a cord; or the lamp box can be nailed to the window casing in a permanent manner. The lamp hurns quite as well outside, and a decided improvement of the air in the room is experienced.

Distinguishino Real from Apparent Death.—A new mode of distinguishing hetween real and apparent death has been recently submitted to the consideration of the Academy of Medicine, in Paris. It consists in the insertion of a hright steel needle into the body; and it is said that when life is present the needle soon becomes tarnished by oxidation; while, on the other hand, if death has taken place, the needle will retain its brightnesa for half an hour or more. According to Dr. Laborde, the author of the communication, oxidation, with its attendant electrical phenomena, indicates that death is only apparent, and the entire absence of oxidation is a sign of real death.

Quinine Biscuits.—A new dietary article haa heen introduced by the London bakers, in the shape of quinine biscuits. They are small, extremely well made, and have a pleasant and delicately bitter flavor. Each biscuit is estimated to contain one-fourth of a grain of quinine, and for delicate atomacha, or where it ie desirable to disgnise medicines as much aa possiblé, or to combine food with medicine in a perfectly agreeable form, these biscuits are likely to become very popular.

Lime.—We find the following in an exchange: A etanding antidote for poison by oak, ivy, etc., is to take a handful of quick lime, dissolve in water, let it etand half an hour, then paint the poisoned parts with it. Three or four applications will never fail to cure the most aggravated cases. Poison from bees, hornets, spider bites, etc., is instantly arrested hy the application of cqual parts of common salt and bicarbonate of soda, well rubbed in on the place bitten or atung.

Toothache.—A correspondent of the *English Magazine*, gives the following curious remedy: Put a piece of quick-lime as big as a walnut in a pint of water in a bottle. Clean the teeth with a little of it every morning, rinsing the mouth with clean water afterwards. If the teeth are good, it will preserve them and keep away toothache; if the teeth are gone, it will harden the gums so that they will masticate crusts and all.

Sore Mouth and Tonoue. — Three drachms of borax, two of sugar of lead, half an ounce of alum, and a pint of sage tea, will cure a sore mouth and tongue. It must be used as a wash.

A Deserted City.

Onr readers all remember the great Excelsior or Meadow Lako excitement of some half a dozen years ago, when ambitious crowds of fortune-hunters went rushing with bag and baggage over the Henness Pass route, among the tall pines, tamaracks and perpetual snows of the Sierra Nevada. Summit City, on the borders of the pretty little meadow Lake, sprang np from amid fresh pine stumps, developed into a big town, with broad streets, big hotels, fine drinking saloons and two burdy-gurdy houses, all in the space of six weeks. Gold Hill and Virginia were both plentifully represented, not only in town, bnt throughout the district. Everyhody made plenty of locations, and nohody felt sure of bis fortune unless he had "feet" in Excelsior, where the ledges were all rich. We know how it was onrself, for we aaw the clephant from stem to stern, and invested all our reportorial earnings therein, fortbwith, aud subsequent assessments kept us continually broke for three years afterward, till we got "froze out" entirely. The Grass Valley *Union*, of Jannary 26th, thus tella tbe present atatus of things "way over in Excelsior:"

Meadow Lake City, which was once called Summit City, boasted in the days gone by, of a population of 3,000 or 4,000 souls. In its day of prosperity it had fine atorcs, good hotels, theatres, aaloons in number, and an Exchange at which mining stocks were sold. Meadow Lake City was a second Virginia City, and attempted to revive the good daya of Washoe, the flusb times of the Comstock lead. In 1865, we think it was, some persons found gold-hearing rock in some ledges near Meadow Lake, and these being assayed and the assay being talked about, the city of Summit or Meadow Lake was horn. It sprung up, like Jonah's gourd, and in a night has withered. In the excitement which followed the discovery of quartz apecimens around Meadow Lake, fine houses were erected, and husiness promised to he brisk. The ledges, however, failed to yield up their treaaure "hy mill process," and people became disheartened. The sanguine held on in hopes that chemiatry would get the gold out of the rock where mechanism had failed. The ores were rebellious, it is said, and the ordinary appliances of atampa and quicksilver would not save the gold of those rich ledgcs. Chemistry would find a way to get the richness out of the rock. "Old people saw eigns and young people dreamed dreams" in efforts to save that gold. The Burna process was invented in a dream to save gold, and for a long time Meadow Lake City continued to hold its own in the hope of the auccess of the Burns dream. It failed, and the doubtera began to intimate that the gold was not in the rock, and the assayers were wrong or had been imposed upon. Mills, chemicals, and even dreams failed to make mining there a success. Science, mechanics and the black art had each failed in its turn to turn the rock into gold.

So the city went down and is deserted. A few daye ago a friend of ours visited Meadow Lake City. He went up on snow shoes and took a look at the deserted and snow-covered place. The houses which were only one story in hight were covered to tbeir roofs with snow. The two-story housea were surrounded with anow to the aecond story. Not a living being was to be aeen by him. He was monarch of that anowy desolation. Signs swung in the cold wind, and just grazed in their swinging the surface of the snow. Prominent among the signs was that of a broker'a office, just opposite the old hall of the Board of Brokers. The large hotel there was yet furnished, and beds and bedding remained there. Our friend, standing in his snow-shoes, gazed into the hotel while he stood on the enow surface, level with the second story, and he saw clean linen on the deserted beds. He wanted to take a rest in the comfortable looking quarters, but there was no fuel or food in sight, and he had to go down lower to a ditch-tender's cabin to get fire and appease his hunger. Many of the houses have this winter been broken down by the weight of snow on their roofs, but many more remain just as they were when their owners left. The property deserted is safe, as cold and snow have locked all against the depredation of burglars. Meadow Lake is a winter residence no more.—*Gold Hill News.*

Bessamer Steel Rails.—The ship Patroclus, recently arrived from Newport, Wales, brought 6,888 Bessamer steel rails for the Central Pacific Railroad. It is atated that this is the firat importation of this kind of rails to California.

Daily Weather Record,*

By the U. S. Army Signal Service, for the Week Ending Wednesday, February 7, 1872.

Date and Place of Observation.	Hight of Barometer.	Thermometer.	Tel. Humidity.	Direction of Wind.	Vel. of Wind, Miles per Hour.	Force of Wind, Scale of Approximately.	Amount of Lower Cloud.	Rainfall since last Report.	State of Weather.
San Fran'co. Th—1st..	30.15	47	85	N.W.	18	Fresh			Clear
Fr—2d...	30.07	55	93	Calm			4-4		Threat.
Sat—3d..	30.19	51	93	S. E.			4-4		Threat'g
Sun—4th.	30.11	49	90	Calm			3-4		Cloudy
Mon—5th	30.03	50	93	W	8	Fresh	4-4		Threat'g
Tu—6th..	30.17	51	86	N. E.	2	Light	2-4		Cloudy
Wed—7th									
San Diego. Th—1st..									
Fr—2d...	30.11	51	93	Calm			1-4		Cloudy
Sat—3d..									
Sun—4th.									
Mon—5th									
Tu—6th..									
Wed—7th									
Virg'a, M. T. Th—1st..									
Fr—2d...	29.69	18	91	S. E.	2	Light	3-4		Cloudy
Sat—3d..	29.42	34	79	W.	12	Fresh	3-4		Cloudy
Sun—4th.	29.65	10	58	Calm					Clear
Mon—5th									
Tu—6th..	29.67	10	80	S.	5	Gentle	3-4		Cloudy
Wed—7th									
Corinne. Th—1st..									
Fr—2d...	30.19	22	72	N.W.	3	Gentle	3-4		Cloudy
Sat—3d..	30.04	37	80	S. W.	12	Fresh	4-4		Threat'g
Sun—4th.	29.91	19	29	N. E.	20	Brisk			Clear
Mon—5th									
Tu—6th..	30.32	12	61	N.	4	Gentle	3-4		Cloudy
Wed—7th									
Cheyenne. Th—1st..									
Fr—2d...	30.03	22	60	W.	15	Brisk			Clear
Sat—3d..	29.85	31	79	W.	8	Fresh	3-4		Cloudy
Sun—4th.	29.80	10	77	N.W.	5	Gentle			Clear
Mon—5th									
Tu—6th..	30.11		69	S. W.	14	Fresh			Clear
Wed—7th									
Denver. Th—1st..									
Fr—2d...	30.11	9	88	S.	10	Fresh			Clear
Sat—3d..	29.83	36	64	N.W.	13	Fresh	3-4		Cloudy
Sun—4th.	29.89	4	87	Calm			3-4		Cloudy
Mon—5th									
Tu—6th..	30.19	2	84	Calm					Clear
Wed—7th									
Omaha. Th—1st..									
Fr—2d...	30.30	12	80	N.W.	4	Gentle			Lt. Snow
Sat—3d..	30.04	13	81	S.	8	Fresh			Fair
Sun—4th.	30.20	6	76	N.W.	1	Light	3-4		Cloudy
Mon—5th									
Tu—6th..	30.49	6	76	N.W.	6	Fresh			Clear
Wed—7th									
Davenport, I. Th—1st..									
Fr—2d...	30.44	8	77	N. E	4	Gentle	1-4		Fair
Sat—3d..	30.30	10	78	Calm			1-4		Fair
Sun—4th.	30.28	8	77	N.	3	Gentle	4-4		Lt. Snow
Mon—5th									
Tu—6th..	30.52	2	87	Calm					Clear
Wed—7th									

*This report is continued on page 108 of this issue.

Book Notices.

The Cabin Book, or National Characteristics. By Chas. Gealsfield. Translated from the German by Sarah Powell. St. John & Coffin, 198 Broadway, New York.

This is an amusing collection of tales which were told abont a cabin fire in Texas. The time during the independence of Texas. The personages, some of the most noted characters who took part in the struggle of that State for its independence. The stories themselves are told for the amusement of the company by the chief actors. One or two, however, are historical in character. Taken all in all the book is very pleasant reading and contributes not a little toward the stock of knowledge of the time just preceding the war with Mexico. The descriptions of Texas are all very vivid and in the main correct.

The Annual Illustrated Catalogue and Oarsmans' Manual for 1871.

This is a large quarto volume, 500 pages, printed in colors or tinted paper, containing 65 illustrations on wood, and 12 plates on etone, bound in gilt muslin, beveled edges.

We have received from the publiahers, Messrs. Waters, Balch & Co., 303 River street, Troy, N. Y., a copy of this work. It is especially addressed to the lovers of rowing in racing shells, thongh a considerable portion of the work is devoted to the interests of those who, less daring or less energetic, find enjoyment in paddling a canoe, or pulling a akiff that one can stand up in.

It givea a very good history of the chauges and improvements which have taken place in the construction of racing boats, since racing in boats first came in fashion, and this naturally leads to the discussion of the merits of the last change, *i. e.* the substitution of paper for wood in the outer sheathing of these boats. Tbe defects, which the bookclaima, are inherent in wooden aheathed boats, are acknowledged by many prominent oarsmen, and testimonials in support of the claims of the paper boat are not wanting. Besides being illustrated with many fine woodcuts which exhibit the variona atyles of boata in use in the United States for hunting and fishing, a very full list of the different rowing and hunting clubs in the United States and British Provinces is given. In a word, the amateur or professional oarsman will find in this volnme everything he wishea to know, whether on the subject of training, care of his boat, hoat building or the past history of boat racing. All this and mnch more he will find in the clearest of type, in the finest of tinted paper, and elegantly bound.

A new telegraph cable is talked of, bebetween New York and London.

Scientific Press.

W. B. EWER.....SENIOR EDITOR.

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ADVERTISING RATES.—1 week.	1 month.	3 months.	1 year.
Per line..... .25	.80	$2.00	$5.00
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English and Colonial subscriptions, per year, £1 3s.; 6 months, 11s. Advertisements, per line, first insertion, 1s.; subsequent insertions, each, 3d. Large advertisements at special rates.

San Francisco:

Saturday Morning, Feb. 17, 1872.

Gold and Legal Tender Rates.

SAN FRANCISCO, Wednesday, February 14, 1872.—Legal Tenders buying 91; selling, 91¾. Gold in New York to-day, 110¼.

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Notices to Correspondents.

EDS. PRESS:—What can a miner do for himself when accidentally salivated by mercury in retorting, or otherwise?

We are told by a prominent quicksilver mine owner that at their works they found it best to have at hand a bottle of tincture of myrrh. A teaspoonful reduced by twice its amount of water. Rinse the mouth with it as strong as can be borne, *i. e.* gargle it. This is before the mouth becomes sore, but after the miner knows he has been exposed. After the system has been effected, take a solution of iron—Nichol's tincture of bark and iron is very good. The quicksilver has an effect to thin the blood, and the iron to restore it to its natural condition.

ONE DAY EARLIER.—We are now mailing the SCIENTIFIC PRESS from San Francisco on Friday afternoon, so that it may reach some points one day earlier than formerly. We are very careful and thorough in our mailing system, and if an occasional a subscriber does not get every number of his paper, we wish to know it, and we will do our best to find out where the fault may be and correct it.

ASBESTOS.—The Jackson *Dispatch* has seen a fine specimen of asbestos which was recently found in the upper part of Amador county. The mineral is supposed to exist in abundance in that locality.

UNIVERSAL CROP REPORTS.—The article on this subject referred to by Mr. Roach in his letter, in another column, was one which was written at the time that the letter of Lieut. Maury, on the subject of "grain reports," was going the rounds of the press here and in the East some four or five months ago. Mr. Roach, however, made the first suggestions on the subject in the *Examiner* long before Lieut. Maury's letter was published. Moreover, he gives a broader scope to the utility of the proposed system than Maury, from the fact of suggesting that it be made a subject of international treaty. The system is an important one and the honor of being the first to suggest its adoption should remain where it is due.

Our Home Industries.

This is usually the dullest season of the year for the foundries, yet most of the works are kept very busy and some are working up to their full capacity. They all look forward to a busy season and orders for work are coming in freely. One reason why business is at all slack, is the difficulty of forwarding freight, unless to points in immediate connection with the railroads, on account of the state of the roads incident to the bad weather we have had all over the coast.

The Risdon Iron and Locomotive Works,

Corner of Howard and Beale streets, are very busy, and employing about 250 men. They are making an engine, 20x30, and hoisting and pumping gear for the Gould & Curry mine. Have just shipped two hoisting engines 18x27 and gear to the Crown Point, and two, 20x30, to the Belcher mine. A quantity of mining machinery is being made for the Yellow Jacket. A number of narrow-gauge mining cars for the Eureka mine, Virginia City. Four large hoilers for the Sutro Tunnel are under way, and engines, boilers and pumps for the San Francisco Artificial Ice Co. They are altering the steam-tug, S. L. Mastick, from high to low pressure and putting in an improved surface condenser. Have just completed all the machinery and castings for the Pacific Gas works and the Metropolitan Gas works. They are kept very busy casting car wheels for the C. P. R. R., Southern P. R. R., Northern P. R. R., and supplying the city railroads with street car wheels.

About six miles of water pipe are being manufactured for the Pioche Water Works. This pipe is 5⅛ inches in diameter and made of 16th iron. Some of it was subjected to a pressure of 800 pounds recently, which is equal to a head of 1,860 feet. The pipes remained perfectly tight under this heavy pressure—a somewhat remarkable fact. A mile of 30-inch pipe is being made for the Dutch Flat Co., also pipe for the Independent Mining Co., Butte county. They are building a railroad for the Pacific Mail Co. for the purpose of unloading coal ships and coaling up steamers by steam winches and a travelling steam crane. A number of hydraulic water hoists are being made for this city.

The Union Iron Works,

Corner of First and Mission streets, are very busy and are employing about 320 men—almost a full force. They are making extensive repairs and additions to their already large working facilities and are preparing for a heavy season. A large amount of mining machinery is being made for the Overman mine, among which is a 300-horse power engine and four large pumps. They are filling extensive orders from the Japanese Government in machinery for gun boats, irrigating pumps, etc; one of the advantages derived from a more close acquaintance with that nation and our facilities for steam communication. Considerable work is being turned out for the Orcbilla Company, Magdalena Bay, and for the California Powder Co. A flouring mill is being put up, to go to Watsonville, and a large amount of general jobbing work is being done.

Pacific Iron Works,

Corner of First and Fremont streets, are turning out some work connected with the holder and retorting and distilling works for the Metropolitan Gas Works; are making machinery for a steamboat on Owens Lake, and during the past month they have manufactured a good deal of mining machinery to go to Mexico. They are doing the usual amount of general jobbing work. At the

Fulton Foundry and Iron Works,

corner of Tehama and Fremont streets, they have just completed a 10-stamp mill with three of Varney's pans and three settlers, same make, for the Guadalupe de los Reyes mine, Mexico. They are getting up sawmill machinery for Evans & Co., Eureka, Humboldt Co., doing work for the Pacific Stone Co., and making retorts and other castings for the San Francisco Chemical Works. A hand car and a very neat little passenger car for the Sutro Tunnel are standing in the shop ready for shipment. Castings are being made for the City Railroad Co. and for the Spring Valley Water Co. They are getting up a hydraulic press for the Shot and Lead Pipe Works, making shoes and dies for the Manhattan Mining Co., turning out machinery for the Oakland Cotton Manufacturing Co., and doing considerable jobbing work.

The Etna Iron Works,

Corner of Fremont and Tehama streets, are at work on machinery for Flint, Peabody & Co's. Barrel Factory, repairing machinery for the Golden Gate and Commercial flour mills, and making bead blocks for Renton, Smith & Co., lumber men. They are also making a large cast-iron propeller for Goodall & Nelson, malt rolls for the Philadelphia Brewery, and doing repair work for the Bay Sugar Refinery. They have also received orders for four of Thier's patent automatic pumps and fog alarm, for the Government vessels on this Coast and are doing considerable small work. At the

Miners' Foundry,

First street, between Howard and Folsom, (co-operative) we saw two diamond drills mounted on cars for tunelling work, for Severance & Co. They are putting up an engine boiler and batteries for the San Francisco Copper Works, and a pony-gang sawmill to go up the coast. Also a quartz crusher to go to Arizona, and one of Crocker's trip-hammer batteries to go to Dun Glen, Nevada.

The Golden State Iron Works,

No. 19 First street, are turning out work for the quicksilver furnaces at Pope Valley, and considerable quartz-mill work, castings, etc., to go to Virginia and Gold Hill; making hoisting and pumping machinery for the Manhattan quicksilver mine, Knoxville, Lake county. For the Oaklaud Railroad Co. they are making horse powers and pumping machinery, and are turning out hydraulic pipes, elbows and distributors to go to Dutch Flat, besides considerable small work. At the

San Francisco Boiler Works

Nos. 123 and 125 Beale street, a gasometer is being made to be used at the residence of Milton S. Latham, Menlo Park. They are also making a large boiler for Pope and Talbot, one 68 inches in diameter for the Portland Water Co., Oregon, another for the South San Francisco refinery, and one for the Kimball Carriage Factory in this city, all of large size. The one intended for Pope & Talbot is somewhat peculiar, all the fire surface being made of cast steel 5-16th of an inch thick. This is among the first of the kind made here; two were sent by the same works to the Almaden mine some 11 years since and are standing well yet; there is also one of the same style at Tay, Brooks & Backus' foundry, across the bay. They are making coke cars for the new gas company at the Portrero, overhauling engines and boilers belonging to the ice company and doing considerable steamboat work.

San Francisco Screw Bolt Works,

Phelps Bros.' proprietors, Nos. 13 and 15 Drum street, commenced operations in this city in 1863. Within the past year many important improvements have been made and their business has consequently been greatly extended. The main buildings are 137x45 and two stories high. All the bolts are manufactured by machinery; 23 men being employed. The Emerson patent bolt heading machine is used here, and is furnished also, ready for use, to purchasers of State and county rights, the castings and drawings alone being forwarded when so desired. The attention of bolt manufacturers and railroad companies is particularly called to this machine, two of which, we believe, have recently been turned out at this establishment for the Central Pacific R. R.

A. L. Fish,

Agent for Knowles' Patent Steam Pump, No. 9 Front street, has in front of his place a pump of the above named pattern, with a water cylinder 30 inches in diameter, which is calculated to throw 73 gallons a stroke, or 4,000 per minute. The pump was made for Stevenson & Son, at the mouth of the Merced river, for the purpose of irrigating their land. They have a tract of some 10,000 acres and are going to cultivate a considerable portion of it. Two of these pumps were sent to the Sutro tunnel this week and a number of orders have been received from all parts of the country for more.

Australian News.

The steamship Moses Taylor which arrived on the 4th inst. brings us some news concerning the mining interest in Australia. Reports of extraordinary yields of gold continue to be received from the Tambaroora gold fields. The crushings for one week were, according to the Sydney *Herald* of Dec. 22: Byers & Kerr from 22 tons realized 650¼ ozs., and 28 tons from the same claim yielded 761 ozs. Halman & Co. crushed 56½ tons which returned 1,650 ozs. and 80 tons of second-class rock yielded 1,076 ozs.

The same paper says that the appendix to the gold fields' Royal Commission contains a number of interesting papers one of which is a return stating the quantity and value of gold received by escort from the several gold fields of the colony from the 1st of January, 1871 to the 30th of September. The amount received by the western escort was 140,532 ozs., of the value of £543,197. The amount received by the southern escort was 53,503 ozs. valued at £202,614. The gold brought by escort from the northern gold fields was 11,522 ozs. valued at £44,198. The total amount brougbt by escort from all the gold fields during the period above specified was 205,557 ozs. worth £790,000. The value of the gold received by escort in the whole of 1870 was £763,655.

A large area of rich tin-bearing land has been taken up at Cope's Creek, in the Inverell district. Fourteen ounces of tin were washed out of one quart of earth on one claim.

An extensive copper mine has recently been discovered near Bourke, and a company has been formed to work a selection.

The gold Commission, in their recently published report, recommend the establishment to a separate and distinct department to mines under a responsible Minister of the Crown.

The yield of gold from the Western gold fields, for the last month, has been greater than for a long time past. On the 24th of November, an escort left Guloug with 7,809 ounces of gold, and on the 27th of the same month an escort left Grenfell with 2,188 ounces. An escort which set out from Mudgee on the 21st of December had with it 8,230 ounces of the precious metal.

Messrs. Paxton have just finished at Hill End a crushing of 253 tons of quartz, which yielded 3,317 ounces of gold. The claim declares a dividend of £2,148 per share for thirteen weeks' work.

Marysville Foundry.

In a notice of the Marysville Foundry which we published last week we expressed a wish to have a report from month to month of the work which the new firm turns out. The Marysville *Appeal* in copying our item says: We would like to accommodate the *Press* with a full monthly report of this live institution, but can not, for we have not the data from which to make the articles. But we will come as near it as we can, in a few words. The foundry and machine shop now employ thirty men. The work is mostly on mill and mining machinery. They are now engaged in building two saw mills, and are about to commence a twenty-stamp mill for the Salt Lake country. They are also building quartz mills for White Pine, Nevada, besides being engaged on mining machinery other than quartz and sawmills. They are about commencing the erection of some small engines, for the use of printing offices and other places where light horse power is required. Mr. Eckhart is the patentee of the engine, and the inventor also, and has already put up some on this coast, one of which is employed in a Vallejo newspaper office. There, Mr. *Press*, is a short report of what the foundry is doing.

We are very much obliged to the *Appeal* for their kindness in accomodating us with the above items so soon after we asked for them.

IMPROVED SLUICE.—In answer to enquiries, we would say that we believe that Frey and Evans' pateut sluice, advertised in our columns by Waters, of Sacramento, is a good article for many of our mines. We advise enquirers to write to the patentees and inform themselves; also to those who have used them.

Niagara Falls.—Its Physical Changes.

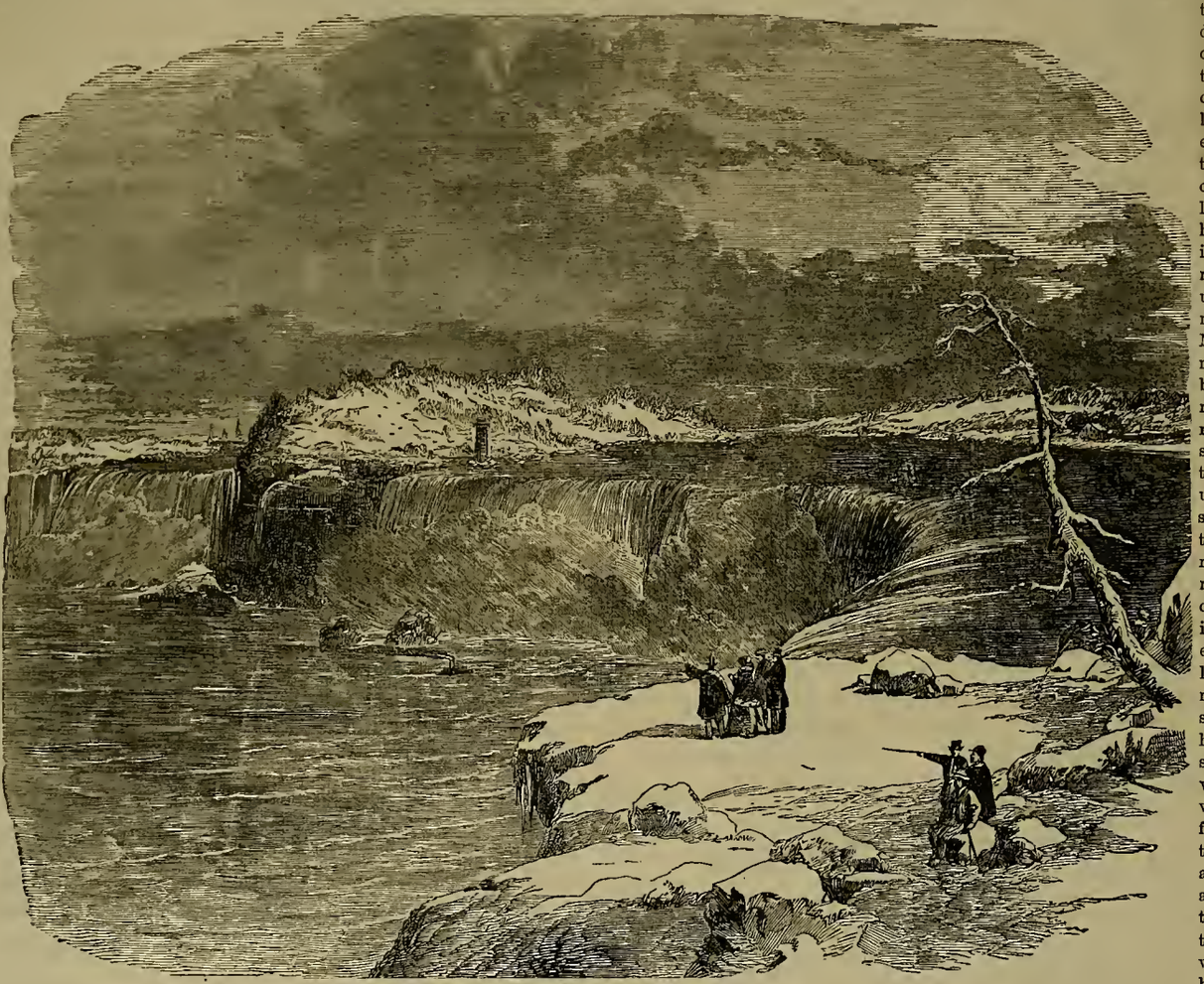
The view of Niagara which we herewith present is a most accurate and excellent one, and represents the Falls as they appear on a pleasant winters day. The description of the general appearance of these falls and their surroundings is so familiar to every American reader that it is not necessary we should repeat it here; but the geology of the region, and the changes which are being wrought in the locality by the action of this immense fall of water is a matter not so generally known, and is well worth attention for a moment.

This great sheet of water is precipitated over a ledge of hard limestone lying in horizontal strata, below which, but considerably above the bottom of the fall, is a strata of soft shale, which wears away, under the action of the water, much faster than the overlying limestone. As a consequence of this peculiarity, a projecting roof of limestone is always overhanging the water below. This overhang, at the present time, in some places projects 40 feet or more over the boiling waters, and thus there must be a point where the overhanging mass will break off and cause the falls, at that point to recede a distance equal to the extent of the break.

It is estimated that this continual destruction of the underlying rocks and the occasional breaks of the overhanging mass, is causing the falls to recede at an average rate of from two to three feet a year. There is no doubt that within the present geological period they have moved up stream, from Queenstown, seven miles to their present position—Queenstown being the point where the river merges into the plain, and below which there could have been no falls. This retrocession is still going on. A large projection on the Canadian bank, known as Table Rock, partly fell off in 1863, and there is good reason to expect other similar breaks and slides at a very early day.

There is another very significant consideration inseperable from the fact of this retrocession: The falls are about 160 feet high, while Lake Erie is but 70 feet deep, the river having a fall of some 30 or 40 feet from the outlet of the lake to the top of the falls; hence if the falls continue to recede, as they must, the time will come when Lake Erie will be completely drained, nothing being left of it but a river, following its central and deepest channel from Detroit to Buffalo. It may be some consolation, however, to the present holders of wharf property on that lake to know that the distance from the Falls to the Lake is about 20 miles; hence if the retrocession is no more rapid than now estimated, it will be about 40,000 years before the catastrophe will be realized.

To Californians, who, perhaps, more than almost any other people, have learned to realize the mighty influence of water in moving and wearing away rocks and other heavy masses, the results above hinted at will not appear at all strange, when the fact is kept in mind that the mass of water pouring over Niagara, even in average seasons, is not less than *one million of tons per minute!* When we reflect upon the terribly destructive force produced by the constant fall of such a mass from the hight of 160 feet, added to the abrasive effect of the whirlpools in undermining the soft underlying strata below, the wonder is that the action is not much more perceptible and rapid than above estimated.



NIAGARA FALLS—WINTER VIEW.

THE COMSTOCK MINES.—It is the fashion among very superficial persons to assert that the Comstock mines have been a bill of expense rather than a profit to stockholders. Such random assertions, however, are made with a perfect disregard to the case, as will be seen by the following figures which have been compiled by the *Alta*:—"The fifteen leading mines (on the Comstock lode) show the product, according to the annual reports, from their origin to August last, to have been $84,355,002; the assessments in the same time were $7,691,058; the dividends $19,991,058; being $12,300,000 net dividends, or 14 per cent. of the production. If we take the thirteen mines exclusive of the Belcher and Crown Point, the facts are as follows:

Total production to August, 1871	$76,449,083
Dividends, less assessments	13,269,300
Value of mines at market prices	4,783,100

Thus these mines paid an average of 20 per cent. of their market prices per annum during their whole existence, and that when mining was in its infancy and the operation a costly experiment. The facts now go to show that when full knowledge of the business has been acquired and easy means of transportation, development and production have been furnished, the ores are coming in again at more than their old values and the properties are more valuable than ever."

SUTRO TUNNEL.—The Sutro Tunnel company are pursuing their operations actively. The Virginia *Enterprise* says that the engines for each of the four shafts are now on the ground and will be shortly set up. The hoisting gear and other machinery for the several shafts are also in Virginia City. Teams are busy hauling to the mouth of the tunnel the machinery of a first class machine shop which will be run by steam.

The Bullion Product of Nevada.

John J. Valentine, General Superintendent of Wells, Fargo & Co.'s Express, furnishes the following report of the bullion produced in the State of Nevada during the year 1871:

Aurora	$45,761 00	Oreana	6,900 00
Austin	965,536 17	Pioche	3,982,227 89
Belmont	263,963 14	Pine Grove	137,672 00
Battle Mt. Station	120,411 21	Palisade	27,129 83
Carson	119,636 20	Rye Patch	41,259 07
Carlin	27,811 35	Reno	192,977 14
Eureka	2,173,105 56	Silver City	200,800 00
Galena	206,357 00	Toano	40,034 00
Hamilton	1,239,420 38	Unionville	343,696 43
Mineral Hill	701,014 00	Virginia and Gold Hill	11,053,328 28
Mountain City	149,273 82	Wadsworth	20,276 36
Mill City	4,485 00		
Total			$22,177,045 75

These figures are as near correct as it is possible to get them, since they are furnished by the Express Co., through whose hands pass almost, if not quite all the bullion produced there. By these figures, it will be seen that in point of bullion production, Washoe ranks first, Pioche next, and Eureka third. In regard to the Washoe yield, all the mines together have produced less than $1,000,000 per month. This year, however, we may expect a much larger showing from that locality according to recent reports concerning the Comstock ledge. The Belcher and Crown Point ore body has alone turned out $1,000,000 per month, leaving all the other mines in the district out of the question, and with the prospective new mills and machinery it is to be hoped that the yield will be still greater.

White Pine District has not by any means came up to what was expected of it, and other districts not so well known to fame promise to exceed it and show more productive lodes. The English companies who own a large proportion of the property there are industrious and zealous miners and it is to be hoped that the enterprises in which they have invested their money, will yet give a favorable return. Pioche, which has sent away $3,982,227, is in a flourishing condition and the ledges in Ely District, in which it is located, are proving themselves more valuable in proportion to developments made. The *Bulletin* thinks that in a few years, with a multiplication of mills in the new districts, and with the more general use of improved reducing and separating processes the annual yield of the State of Nevada will rise to $40,000,000. Since most of the mines in Nevada are wholly or in part owned by persons residing in this State, we have direct interest in an increased yield of bullion, and the recent developments in the leading mines on the wonderful Comstock lode are as important to us as to the people of the State of Nevada.

The discovery of immense bodies of ore in this lode, in the different mines, of such magnitude, are well calculated to enhance the general mining interests of this coast, and to lead people who have money to invest to look more leniently upon the business of mining. No other business holds out better inducements for large returns for small ventures than this, but unfortunately such has been the management of the mines on this coast that mining is not looked upon as a legitimate business, but as a species of gambling. Men of small capital who have invested in good faith have seen their savings appropriated, and taken entirely out of their control without their being able to help it. These things are much to be deplored, but we hope ere long that a new era will dawn upon this important branch of our industry, and that the recent developments and the above figures will aid in strengthening the better feeling which already exists in favor of the much abused mining interest, that is in reality the bone and sinew of the Pacific Slope.

PLACERS IN SAN DIEGO COUNTY.—The telegraph informs us that some specimens of coarse placer gold taken out at the San Ysidro Ranch about 14 miles south of San Diego, have been shown in that place. They think that there is water enough in the vicinity to work the ground and that they will find good paying diggings.

MECHANICS' INSTITUTE REPORT.—We have received the report of the Eigbth Industrial Exhibition of the Mechanics' Institute of the city of San Francisco, held at the Pavilion of the Institute in August and Septemher 1871. It is voluminous, comprehensive in detail, and reflects credit upon the Secretary of the Institute, for his endeavors to keep pace with the requirements of the day and the progress of events, in giving a full and complete report of the workings of an institution or association that has already attained a position of interest and importance, second to no other of its class in the world. Its essays upon a diversity of subjects are of the highest order.

DOMESTIC ECONOMY.

The Philosophy of Frying.

All bonsekeepers know that to fry well, tbeir fat should be bot. Bnt they do not attend to it half as scrupulously as they would if tbey understood the true philosophy of it. Boiling, huhhling hot fat cannot penetrate anything, and cooks to perfection; tepid fat penetrates everywhere, and does not cook at all, bnt actually prevents cooking. Any housekeeper who reads this, and chooses to profit hy it, need never put any greasy, fried, half-cooked indigestible food upon ber tahle.

The whole secret consists in baving tbe fat hoiling hefore the tbings are put in. There is one other condition wbicb follows naturally from tbe first one, hut which is almost invariahly lost sight of even hy good cooks, and tbat is that tbe fat should entirely cover tbe article to he fried. The reason of this is, that tbe part not at once covered hy the fat remains cold, cools off the fat near it, and tben absorhs the tepid fat just tbe same as if it never had heen hot. Frying-pans sbould he deep, well filled, and beated to the boiling point, and tben it is easy to turn out fried food nicely crisp, hrown, and dry, on the outside, and perfectly soft, moist and well cooked within. It is a peculiarity of tbe outside crust of things fried in boiling fat tbat tbe fat itself drips off from it as readily as water; hence, well fried articles are neither greasy in appearance nor very greasy in reality. Frying ought to be as easy as hoiling.—*Christian Union.*

To Polish Silver, Brittania and Tin.—A lady for wbose judgment we bave tbe bighest respect, says tbe *American Rural Home*, declares the following to he worth tbe price of the *Rural Home* to all bonsekeepers in poor health. She accidentally discovered tbe effectiveness of the metbod awbile ago, bas cleaned all her tahle-ware hy it ever since, and says tbat very little etrengtb is required, and tbat tbe polish is much tbe best sbe ever used: Sprinkle freely, tbe best kind of dry zinc—No. 1, sucb as painters use—after ruhbing it fine witb a knife, upon a soft flannel cloth, or tbe top of an old woolen stocking will answer, tben ruh tbe silver, etc., witb the clotb, then brush off with tissue paper, or any clean soft clotb or paper, and all will be as brigbt as new.

Save Your Bread Crumbs.—Never tbrow away a bit of bread, if clean. Keep a sballow tin pan for tbe special purpose of drying etale bread. When tbe ovens are not in nse, slip in the pan of bread scraps, leaving tbe oven door open, that tbey may not scorch. As fast as one installment is well dried, roll it fine, keoping one side of your hread board for that special purpose, and tben sift it througb a moderately coarsé seive. Put the bread crumhs into a hag, and suspend it in some cool dry place, adding to it as you get more dried. Crumbs thus saved are very useful for stnffing, or to roll cbops, oysters, or scollops in, for frying, and just as good as cracker crumbs for every purpose.

Try It.—A well known writer on bousekeeping says there are people who raise the hest of wbeat, year after year, and live on fine flour always, and bave no idea how sweet, as well as bealtbful, the unholted or Grabam flour is. Make Grabam musb as you do corn meal basty-pudding, sifting the meal with your hand slowly into boilwater, stirring briskly meanwhile. A few minutes hoiling seems to cook it sufficiently, thougb many cook it longer. Sweetened cream is an excellent dressing for it, and then if you add fresh herries !—well just try it. Many persons like it witb unsweetend cream or milk, as tbey eat bastypudding.

To Preserve Pegged Boots and Shoes. It is said that if pegged hoots are occasionally dressed witb petroleum hetween the soles and upper leather, tbey will not rip. If the soles of boots and shoes are dressed with petroleum they will resist wet and wear well. The pegs, it is said, are not affected hy drynese after being well satnrated with the liquid.

Cottage Cheese.—Boil two chiokens till tender, take out all the hones and chop the meat fine, season to your taste with salt, pepper and hutter, pour in enough of the liquor they were hoiled in to make it moist, put iuto wbatever mold you wish, and when cold turn out and cut into slices. It ie excellent.

Make the House Comfortable.

We bave no patience with a man wbo allows tbe windows to rattle in tbe casements, while with a bammer, a few nails, a latb or two, and a little putty, he could, in an bour or two, make the liouse snug and comfortable. We believe in thorough ventilation, hut it should be under our control. There are thousands of homes where the inmates spend a wretched winter simply for want of a little attention to such matters. See that the outside doors fit snug. A damper in the stove-pipe prevents tbe beat from going up the cbimney, and saves fuel. See that the wood house is well supplied witb dry wood ready for tbe stove, and tbat there is some kiudling always prepared ready for use. Where coal is used and in tbe absence of cbarcoal, have a harrel of dry corn-cobs ready for starting fires.

Let the family room be well ligbted, and make home attractive to the young people. Let there he no lack of good hooks and useful papers. Pleasant winter evenings at home constitute one of the great charms of country life. It is bere tbat cbaracter is formed, and the future usefulness of our cbildren in a great degree determined. A comfortahle family room, warm beds, nutritious food, and plenty of sleep will enahle a farmer and his family to spend tbe winter pleasantly and profitahly. There is plenty work to be done, and the cold, instead of henumbing tbe faculties, will stimulate exertion. Do not spend your winter days hy tbe stove, or in complaining of hard times.

A Relish for Breakfast or Lunch.—Take a quarter of a pound of cbeese, good, fresh; cut it up in thin slices and put in a spider, turning over it a large cupful of sweet milk; add a quarter of a teaspoonful of dry mustard, a dash of pepper, a little salt and a piece of butter as large as a butternut; stir the mixture all tbe time. Have at band three Boston crackers finely powdered or rolled, and sprinkle tbem in gradually; as soon as tbey are stirred in, turn ont the contente into a warm dish and serve. It is very delicions.

Silver Tipped Shoes.—Sboes are an important item in tbe expense of clotbing children, as every parent will understand. Tbey invariably wear out their sboes at the toe first, and not unfreqnently before the otber parts are a quarter worn. Cbildren'e sboes witb silver or copper tips never wear out at tbe toe, and last twice as long as tbe ordinary shoe. Housekeepers will do well to remember this fact.

Mechanical Hints.

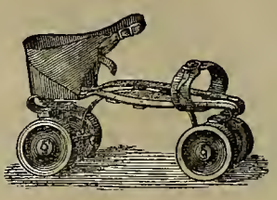
Facing Oil Stones.—A correspondent of tbe *Scientific American* says:—I have in the course of my life spent a good deal of time in facing off my oil stones. I bave used sand on a board, wet and dry, or an old mill stone, or a bard brick. If the oil stone was eoft, it could be cut or ruhbed down in a short time; but if a hard one it was a serious job. The tbougbt struck me ahout two years ago that emery would be the thing to quickly cut a bard stone, whicb I bave. I dressed of a white pine board, put a thin coat of glue on it, when dry put on anotber, sprinkled coarse emery on the glue, ruhbed it in well, and wben dry put on anotber coat of glue and emery. I bave heen using it ever since; it does not take one-tentb of tbe time to face off tbat stone than it formerly did witb sand, etc. Tbis may save some one some bard rubbing.

Metal for Bearings.—The following alloy has heen found to give bigbly eatisfactory results for plummer hlocks, axles, hrasses, etc. To 30 parts of melted copper are added 70 parts of antimony; the mixture is melted, and run out into thin plates. These are then re-melted witb tin in the proportion of 90 parts of tin to 10 parts of the copper and antimony, and run out again into thin plates. When used, it is re-melted, and run into tbe forms required. M. Volk, of Regenshurg, bas employed an alloy for many years of wbich the following are the component parts:—Copper, 5-6 per cent.; antimony, 11-2 per cent.

Liquid Polish.—The preparation of hlacklead ready for use in a fluid state, is a recent Englisb invention. The composition adopted consists of hlacklead, sucb as is used for polisbing stoves and for other uses, combined witb turpentine, water and sugar or saccbarine matter, and the proportions wbich have heen found to answer well are, to each pound by weight of the blacklead, one gill of turpentine, one gill of water, and one ounce of sugar; but these proportions may be varied, and in some caeee all the ingredients are not neceesary.

The C-Spring Roller Skate.

PATENTED 1871.



Rights and Skates for Sale.

This superior Skats is now hsginning to attract the attention of Rink Owners, it heing the only Cramping Skate now hefore the pnhlic (except the Plympton Skate) that can run without infringing a former patent.

This Skate is Positively no Infringement

Of anyhody's patent. It is made in the most suhstantial and workmanlike manner, and possesses the following points of merit: Beauty, Elasticity, Ease of Movement, Strength, Lightness, and does not injure the skating floor as much as the ordinary skate.

Every pair Warranted to be just what it is rsprssented. Parties intending to

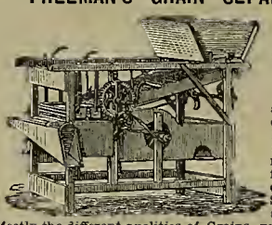
START A RINK,

Should examins and test this Skate. Sample pairs sent C. O. D. on application.

In ordering samples state the numher of boot or shoe worn, and whether for lady or gentleman.

☞ For City, County or Rink Rights, call on or address WIESTER & CO.,
No. 17 New Montgomery street (under Grand Hotel), SAN FRANCISCO.

FREEMAN'S GRAIN SEPARATOR.



THE BEST PATENT SEPARATOR MADE.

I will guarantee it to Excel any other Machine extant in separating Grain from all kinds of Foreign Seeds. It will separste perfectly the different qualities of Grains, producing pure Seed. It is in every way a Practical and Successful California Machine. It as proven successful over all other Machines on trial, and has taken two First Prsmiums at the Petaluma Fair. Machines and State and County Rights for sals by W. D. FREEMAN,
Tomales, Marin county, Cal.

Send for Circulars.

P. S.—The right to use my superior Patent Pod Screen will be sold at reasonahls prices to owners of Threshers. 4v3-2m-eowhp

Important to Miners.

FREY'S IMPROVEMENT ON

Evans' Under Current and Sluices,

For Saving Fine Gold and Floating Quicksilver.

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Suction Hose, Hydrant Hose, Conducting Hose, Engine Hose, Round Packing, Rubber Belting, Packing, Valves, Caskets, Purs Vulcanized Shest Rubber, Fire Buckets.

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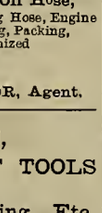

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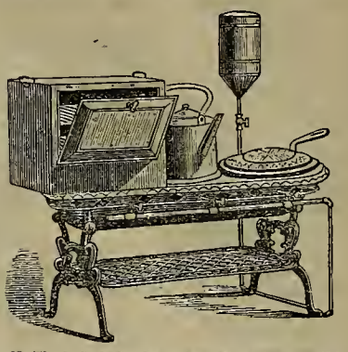

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Varney's Patent Amalgamator.

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☞ For rapidity pulverizing and amalgamating ores, they have no equal. No effort has heen, or will he spared, to have them constructed in the most perfsct manner, and of the great numher now in operation, not one has sver reqnired repairs. The constant and increasing dsmand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam hottoms, as desired.

This Amalgamator Operates as Follows:

The pan heing filled, the motion of the muller forces the pulp to the center, whers it is drawn down through the appertura and hetween the grinding surfaces.—Thsnce it is thrown to the periphery into the quicksilver. Ths curved plates again draw it to the center, where it passes down, and to the circumference as hefore. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and ths metal amalgamated.

Setlers made on the same principle excel all others They bring the pulp so constantly and perfectly in contact with quicksilver, that ths particles ars rapidly and completely absorhed.

Mill-men are invited to examine thess pans and setlers for thsmselves, at the office, 229 Fremont Street, San Francisco.

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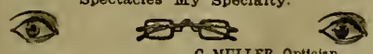

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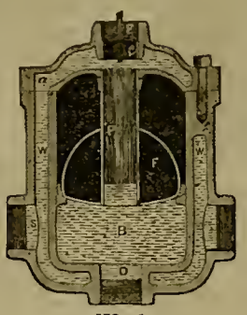
Eastern Advertisements.

CRAIG & BREVOORT'S
Patent Condenser for Steam
PUMPS, &c.



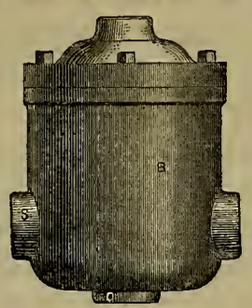
NO. 1.

The annexed engravings represent a Condenser intended to be attached to the ordinary steam pump, thereby bringing it within the class of low pressure, or more properly speaking, of condensing engines; the steam, when it has done its work in the cylinder, instead of being exhausted into the atmosphere, is conducted to the condenser, on its entry into which, it meets the water drawn by the pump, and is immediately condensed.

The Cut No. 1 represents a vertical section of the Condenser, and No. 2 an elevation.

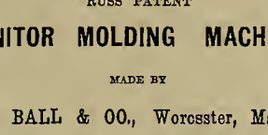
The flange D is bolted to the suction orifice of the pump, and the flange S to the pipe leading to the well, or whatever source of supply the pump may have; W is a water jacket surrounding the main chamber of the condenser, B, and with which the suction pipe, S, communicates, permitting a free circulation of water within the jacket and into the hollow cover or top through the series of openings, one of which is shown at A, and from thence into the body of Condenser, B, through pipe P, carried by float F; the pipe P also acts automatically as a valve to enlarge or contract the space through which the water enters it, by which means the possibility of the condenser being at any time flooded is avoided. The pipe P, it will be observed, also acts as guide to float F.

The valve, C, (shown in Cut No. 1), which is raised or lowered by means of screwed stem—shown coming through elbow in Cut No. 2—is for the purpose of increasing or decreasing the flow of water according to the capacity of the pump to which it is attached.



NO. 2.

The exhaust pipe from steam cylinder is screwed into cover at E; the exhaust steam is thus thrown directly into contact with the water entering the condenser on its way to water cylinder of pump through D. A vacuum being of course immediately formed, acts on the exhaust side of the steam piston, aiding it in its work. If at any time it is desirable to run the pump without the condenser, it is only necessary to turn the three-way cock, which is placed in the exhaust pipe, into such a position as to cause the steam cylinder to exhaust into the atmosphere; when this is done the pump is perfectly free from the condenser, and acts as if it were not attached. This condenser is specially useful for pumps running in mines, or any other position where trouble is experienced in getting rid of the exhaust steam. Address H. L. BREVOORT,
6v23eowly 128 Broadway, New York City.



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Manufacturers of the latest Improved WOOD-WORKING MACHINERY for Planing Mills, Car Shops, Agricultural Implements, Furniture, Sash, Blind, and Door Factories., etc., etc. Send for Illustrated Catalogue and Price List.
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Glass reservoir, with white metal coupling cast on.
Substantial brass stem, with graduating plug—V slot on one side, as shown in magnified cut—in the top.
The best and cheapest OILER in the market; perfect lubrication on loose pulleys and all kinds of bearings. Any kind of Oil in any kind of weather. Price, $4.50 per dozen Liberal discount to agents and to the trade.
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TO CONTRACTORS, MINERS, ETC.

By this invention, one man, with one horse and five cars, does the work of ten men, ten horses and ten cars.
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Album of Designs,
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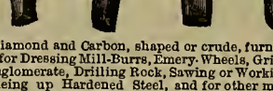
DICKINSON'S
Patent Shaped Diamond Carbon-Points.
Fig. 1 Fig. 2 Fig. 3 Fig. 4



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Manufacturers and have constantly on hand
SPORTING,
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And BLASTING
POWDER,
Of SUPERIOR QUALITY, FRESH FROM THE MILLS. It being constantly received and transported into the interior, is delivered to the consumer within a few days of the time of its manufacture, and is in every way superior to any other Powder in Market.
We have been awarded successively
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3v24-3m SAN FRANCISCO.

Daily Weather Record,*

BY THE U. S. ARMY SIGNAL SERVICE, FOR THE WEEK ENDING WEDNESDAY, FEBRUARY 14, 1872.

Place of Observation.	Date	Hight of Barometer.	Thermometer.	Per. Humidity.	Direction of Wind.	Vel. of Wind. Miles per Hour.	Force of Wind. vel. to Beaufort's Scale. Approx.	Amount of Lower Cloud.	Rainfall since last Report.	State of Weather.
San Fran'co.	Thu.. 8	30.12	55	87	Calm			4-4	.10	Threat.
	Fri.. 9	30.02	58	99	S. W.	15	Brisk	4-4		Rain
	Sat.. 10	30.25	50	86	Calm					Clear
	Sun.. 11	29.98	53	83	Calm			4-4	.37	Threat'g
	Mon.. 12	30.15	49	78	W.			2-4		Fair
	Tu... 13	30.17	50	86	N. W.			4-4		Foggy
	Wed.. 14	30.12	54	93	S. E.	3	Gentle	4-4		Threat'g
San Diego.	Thu.. 8	30.18	47	92	N.	1	Light			Clear
	Fri.. 9									
	Sat.. 10	30.16	52	99	N. E.	2	Light	2-4		Fair
	Sun.. 11									
	Mon.. 12									
	Tu... 13	30.09	50	93	N. E.	2	Light	1-4		Fair
	Wed.. 14									
Portland, Or.	Thu.. 8									
	Fri.. 9									
	Sat.. 10	30.02	44	84	S. E.	4	Gentle	4-4	.03	Lt. Rain
	Sun.. 11									
	Mon.. 12									
	Tu... 13									
	Wed.. 14									
Virg'a, M.T.	Thu.. 8									
	Fri.. 9									
	Sat.. 10	29.55	25	88	W.	11	Fresh	3-4		Cloudy
	Sun.. 11									
	Mon.. 12	29.44	17	77	S. W.	14	Fresh			Clear
	Tu... 13	29.75	7	68	S.	13	Gentle	1-4		Fair
	Wed.. 14	29.50	34	89	N. W.	10	Fresh	1-4		Fair
Cormne.	Thu.. 8	30.01	36	90	S. E.	10	Fresh	4-4		Cloudy
	Fr.... 9									
	Sat.. 10	30.10	33	79	Calm			3-4		Cloudy
	Sun.. 11									
	Mon.. 12	29.94	27	66	N. W.	8	Fre-h	2-4	.04	Fair
	Tu... 13	30.24	24	74	W.	6	Fresh	3-4		Cloudy
	Wed.. 14	30.07	32	79	N. E.	5	Gentle	3-4		Cloudy
Cheyenne.	Thu.. 8	29.82	36	45	W.	14	Fresh			Clear
	Fri.. 9									
	Sat.. 10	29.79	26		N.	19	Brisk	3-4		Cloudy
	Sun.. 11									
	Mon.. 12	29.48	26	67	W.	24	Brisk	2-4		Cloudy
	Tu... 13	29.96	19	85	W.	10	Fresh	0		Clear
	Wed.. 14	29.86	39	63	W.	28	Brisk	4-4		Cloudy
Denver.	Thu.. 8	29.97	25	75	S. W.	6	Fresh			Clear
	Fri.. 9									
	Sat..10	29.81	34	43	W.	16	Brisk			Cloudy
	Sun..11									
	Mon..12	29.60	34	43	N.	8	Fresh	3-4		Cloudy
	Tu...13	30.03	21	71	S.	3	Gentle			Clear
	Wed..14	29.92	33	61	S.	6	Fresh	3-4		Cloudy
Omaha.	Thu.. 8	30.09	19	84	S.	1	Light	1-4		Fair
	Fri.. 9									
	Sat.. 10	29.64	28	88	Calm					Clear
	Sun..11									
	Mon..12	29.46	35	80	S. E.	16	Brisk	4-4		Threat'g
	Tu...13	30.44	3	66	N. W	19	Brisk	4-4		Cloudy
	Wed..14	30.66	5	63	N. W.	6	Fresh			Clear
Davenport, I.	Thu.. 8	30.30	17	67	S. W.	1	Light	2-4		Clear
	Fri.... 9									
	Sat.. 10	29.83	26	88	E.	4	Gentle	2-4		Fair
	Sun..11									
	Mon..12	29.90	28		E.	5	Gentle	2-4		Fair
	Tu...13	29.82	7	62	W.	30	High	3-4		Clg. up
	Wed..14	30.18	4	61	N. W.	14	Fresh	3-4		Cloudy

*This report is continued from page 103 of this issue.

Amount of Rain Measured at San Luis Obispo, Cal.

EDITORS PRESS:—I send herewith a copy of my rain measurements in this town:

MONTH.	YEAR. 1869–70.	YEAR. 1870–71.	YEAR. 1871–2.
October	.84	.63	.00
November	.66	.38	2.40
December	.78	2.90	13.93
January	.71	1.51	5.16
February	4.85	4.43	....
March	.74	.00	....
April	2.40	2.79	....
May	.85	.28	....
Total	11.83	12.97	....

The rains this season have occurred as follows:

Nov. 26, 1871	1.90
Nov. 28, 1871	.50— 2.40
Dec. 17 and 18, 1871	2.00
Dec. 20 and 21, 1871	1.10
Dec. 23 and 24	6.00
Dec. 27 to 30	4.83—13.93
Jan. 1, 1872	1.64
Jan. 6 to 9, 1872	3.52— 6.16

The rain of December 23d was the heaviest I have ever seen—nearly the whole of it having fallen within 12 hours. These measurements are correct—being the mean of the records of two gauges placed in different positions, which seldom vary the tenth of an inch.

Respectfully, W. W. H.

Rainfall at Sacramento.

[By T. M. LOGAN, M. D., Secretary State Board of Health.]

Jan. 1, 1872. Rainfall for the season to date....12.421 inches
Feb. 11, 1872. Rainfall since above date..... 6.160 inches

Total for the season up to date.....18.581 inches

REMARKS.—The theory was advanced in some remarks relating to our annual rain table January 1, 1871, and which has been sustained thus far, that there is a general correspondence between the amount of rain falling before the 1st of January of each season, and the amount which falls afterwards. Thus, if the rainfall is below the average, as for instance in 1863-4, before the 1st of January, it will prove deficient afterwards; and on the other hand, if excessive before the 1st of January, as in 1867-8, it will maintain the same proportion subsequently. Basing our calculations on this standard, we may then expect, according to the above data, at least six inches more of rain during the balance of the present season, which will bring up the total to 24½ or 25 inches. Our agricultural friends will make a note of this, and regulate their operations accordingly.

COMPLETE VOLUMES

Of the SCIENTIFIC PRESS can be had from January 1, 1864, to date, at $3 per single vol. or $6 a year. They afford the cheapest and best information on mining and the industry of this coast of any work published.

Also—Bound volumes of the PACIFIC RURAL PRESS furnished at same rates from its commencement.

Mining Companies

Should advertise their Meetings, Assessments, and Sales, in the SCIENTIFIC PRESS. Rates more than one-half less than daily publications. Stockholders should take the hint and request their managers to truly economize by advertising in a MINING JOURNAL, where all notices may be seen by cheaply purchasing and examining a weekly. You will thus save money and uphold a journal which upholds your interests.

UNIVERSITY OF CALIFORNIA.—The Preparatory Department is under the charge of five Professors of the University, and six tutors.

Besides the studies of the public schools, Algebra, Geometry, Latin, Greek, German, French, Spanish and Book-Keeping are taught.

Terms: Board and tuition, 4 weeks, $30. Students received at any time. GEORGE TAIT, Oakland, Master Fifth Class. sc9bptf

Leather Market Report.

[Corrsctsd weekly by Dolliver & Bro., No. 109 Post st.]

SAN FRANCISCO, Thursday, February 15, 1872.

SOLE LEATHER.—The demand is still equal to the supply, and prices still continue firm.

City Tanned Leather, ₱ lb	26@29
Santa Cruz Leather, ₱ lb	26@29
Country Leather, ₱ lb	25@28

The market well supplied with French stocks, and prices have a downward tendency. Heavy California skins are firm, with an upward tendency.

Jodot, 8 Kil., per doz	$60 00@
Jodot, 11 to 14 Kil., per doz	76 00@ 95 00
Jodot, second choice, 11 to 15 Kil. ₱ doz	60 00@ 80 00
Lemome, 16 to 19 Kil., ₱ doz	85 00@
Levin, 12 and 13 Kil., per doz	68 00@ 70 00
Cornchlan, 16 Kil., per doz	70 00@
Cornchlan, 20 to 24 Kil., per doz	80 00@ 83 00
Ogerau Calf, ₱ doz	54 00@
Simon, 18 Kil., ₱ doz	65 00
Simon, 20 Kil. ₱ doz	68 00
Simon, 24 Kil. ₱ doz	72 00
Robert Calf, 7 and 8 Kil	35 00@ 40 00
French Kips, ₱ lb	1 10@ 1 30
California Kip, ₱ doz	65 00 to 80 00
French Sheep, all colors, ₱ doz	15 00
Eastern Calf for Backs, ₱ lb	1 5@ 1 25
Sheep Roans for Topping, all colors, ₱ doz	8 00@ 13 00
Sheep Roans for Linings, ₱ doz	5 50@ 10 50
California Russett Sheep Linings	1 75@ 5 50
Best Jodot Calf Boot Legs, ₱ pair	5 25
Good French Calf Boot Legs, ₱ pair	4 50@ 5 00
French Calf Boot Legs, ₱ pair	4 00
Harness Leather, ₱ lb	30@ 37½
Fair Bridle Leather, ₱ doz	48 00@ 72 00
Skirting Leather, ₱ lb	34@ 37½
Welt Leather, ₱ doz	30 00@ 50 00
Buff Leather, ₱ foot	17@ 21
Wax Side Leather, ₱ foot	18@ 26

MARAVILLA COCOA.—No breakfast table is complete without this delicious beverage. The *Globe* says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoas, but we doubt whether any thorough success had been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of Maravilla Cocoa. Adapting their system of preparation to this finest of all species of the Theobroma, they have produced an article which supercedee every other Cocoa in the market. Entire solubility, a delicate aroma and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homœopaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all Grocers, of whom also may be had Taylor Brothers, Original Homœopathic Cocoa and Soluble Chocolate Steam Mille—Brick Lane, London. Export Chicory Mills Bruges, Belgium. fe25-1y

$6 to $20 PER DAY AND NO RISK.—Do you want a situation as salesman at or near home to introduce our new 7-strand White Wire Clothes Lines, to last forever. Don't miss this chance. Sample Free. Address Hudson River Wire Works, 75 William street, N. Y., or 1 Dearborn street, Chicago, Ill. 23v1-12mbp

LADIES DESIRING TO PROCURE A FIRST-CLASS SEWING Machine against easy monthly installments may apply to No. 294 Bowery, 157 E. 26th, 477 9th Ave., New York Good work at high prices if desired. 21v1-12mhp

Travelers' Guide.

CENTRAL PACIFIC RAILROAD.

February 8, 1872.

San Francisco & Sacramento.

Leave going East.			Arrive from East.	
*4.00 P M	7.00 A M	San Francisco	8.30 P M	*2.20 P M
4.35 P M	7.35 A M	Oakland	8.00 P M	1.50 P M
4.10 P M	7.50 A M	San Jose	8.30 P M	2.10 P M
5.35 P M	8.35 A M	Nilee	7.05 P M	12.45 P M
9.25 P M	11.28 A M	Lathrop	4.43 P M	9.45 P M
8.48 P M	11.50 A M	Stockton	4.07 P M	9.07 P M
10.45 P M	1.45 P M	Sacramento	2.20 P M	7.15 A M
Arrive from West.			Leave going West.	

San Francisco & San Jose.

Leave going South			Arrive from South	
.....	3.00 P M	San Francisco	10.40 A M	.....
7.10 P M	4.40 P M	Nilee	8.35 A M	5.30 P M
8.30 P M	5.30 P M	San Jose	7.10 A M	4.10 P M
Arrive from North.			Leave going orth	

Stockton, Lathrop & Merced.

Leave going South			Arrive from South	
.....	7.35 P M	Stockton	10.20 A M	.....
*9.45 A M	8.25 P M	Lathrop	9.30 A M	*8.20 P M
11.35 A M	9.45 P M	Modceto	8.13 A M	6.45 P M
2.40 P M	12.15 A M	Mcrced	5.45 A M	3.30 P M
Arrive from North			Leave going North	

Sacramento, Colfax, Reno & Ogden.

Leave going East.		Arrive from East.	
2.00 P M	Sacramento	2.00 P M	
5.40 P M	Colfax	10.30 A M	
1.00 A M	Reno	2.10 A M	
9.10 A M	Winnemucca	4.15 P M	
12.00 M	Battle Mountain	1.25 P M	
4.40 P M	Elko	8.45 A M	
6.20 A M	Ogden	5.20 P M	
Arrive from West.		Leave going West.	

Sacramento, Marysville & Red Bluff.

Leave going North		Arrive from North	
*8.45 A M	2.35 P M	Sacramento	1.05 P M	*4.45 P M
10.25 A M	3.25 P M	Junction	12.15 P M	3.25 P M
1.50 P M	5.15 P M	Marysville	10.20 A M	12.00 M
8.00 P M	8.35 P M	Tehama	6.50 A M	5.30 A M
.....	9.30 P M	Red Bluff	6.00 A M	.....
Arrive from South		Leave going South		

San Francisco, Vallejo & Calistoga.

Leave going North			Arrive from North	
*4.00 P M	7.30 A M	San Francisco	8.00 P M	*12.15 P M
6.30 P M	9.30 A M	Vallejo	6.05 P M	10.30 P M
7.28 P M	10.40 A M	Napa	4.50 P M	9.30 P M
9.10 P M	12.00 M	Calistoga	3.00 P M	8.00 A M
Arrive from South			Leave going Sonth	

San Francisco, Vallejo & Knight's Landing.

Leave going East.			Arrive from East.	
†7.30 A M	*4.00 P M	San Francisco	*12.15 P M	†8.00 P M
9.35 A M	6.25 P M	Vallejo	10.25 P M	6.05 P M
12.05 P M	10.10 P M	Davis	7.10 P M	3.30 P M
1.00 P M	11.45 P M	Knight's Land'g	5.30 A M	2.30 P M
Arrive from West.			Leave going West.	

San Francisco & Healdsburg.

Leave going North.			Arrive from North.	
.....	*2.00 P M	San Francisco	*11.00 A M	.....
*7.10 A M	4.35 P M	Donahue	8.45 A M	*5.35 P M
8.20 A M	5.00 P M	Petaluma	8.20 A M	5.00 P M
9.45 A M	6.00 P M	Santa Rosa	7.30 A M	3.30 P M
10.20 A M	6.45 P M	Healdsburg	6.45 A M	2.00 P M
Arrive from South			Leave going South	

Stockton, Milton & Oak Dale.

Leave going South			Arrive from South	
.....	*11.25 A M	Stockton	*3.25 P M	.....
.....	11.52 A M	C.P.R.R. Depot	12.52 P M	.....
.....	12.42 P M	Peters	3.02 P M	.....
.....	1.32 P M	Milton	2.12 P M	.....
.....	1.44 P M	Oak Dale	2.00 P M	.....
Arrive from North			Leave going North	

CAL. P. R. R. CO.'S STEAMERS.

Leave going East.			Arrive from East.	
*4.00 P M	*4.00 P M	San Francisco	*10.00 P M	*8.00 P M
6.00 P M	.....	Vallejo	.....	6.00 P M
7.00 P M	6.00 P M	Benicia	5.00 P M	5.00 P M
.....	2.00 A M	Stockton	2.00 P M	.....
2.00 A M	.....	Sacramento	.....	12.00 M.
Arrive from West.			Leave going West.	

Explanation.

For trains running "from" San Francisco, take the left hand columns and read downwards.

For trains running "towards" San Francisco, take the right hand columns and read upwards.

OAKLAND BRANCH.—LEAVE SAN FRANCISCO, 7 00, 8 10, 9 2, 10 10 and 11 20 a. m., 12 10, 1 50, 3 00, 4 00, 5 15, 6 30, 8 06 9.20 and 11 30 p. m. (9 20, 11 20 and 3 00 to Oakland only).

LEAVE BROOKLYN, *5 30, 6 40, 7 50, 9 00 and 11 00 a. m., 1 30, 2 40, 4 55, 6 10, 7.40 and 10 10 p. m.

LEAVE OAKLAND, *5 40, 6 50, 8 00, 9 10, 10 00, and 11 10 a. m., 12 00, 1 20, 2 30, 3 50, 5 05, 6 20, 7.50 and 10 20 p. m.

ALAMEDA BRANCH.—LEAVE SAN FRANCISCO, 7 20, 9 00, and 11 15 a. m., 1 30, 4 00, 5 30, and 7 00 p. m. (7 20, 11 15, and 5 30 to Fruit Vale only).

LEAVE HAYWARDS, *4 30, 7 00 and 10 45 a. m., and 3 30 p. m.

LEAVE FRUIT VALE, *5 25, 7 35, 9 00 and 11 20 a. m., 1 30, 4 05 and 5 30 p. m.

*Sundays excepted. †Sundays only.

T. H. GOODMAN, Gen'l Pass'gr and Ticket Agt. A. N. TOWNE, Gen'l Supt.

Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the Scientific Press, we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

Alhambra Hill Mining Company—Location

of works, Alhambra Hill, Pinto District, White Pine county, Nevada.

Notice—There are delinquent upon the following described stock, on account of Assessment (No. 1) levied on the Ninth day of December, 1871, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No of certificate.	No. shares.	Amount.
Andreas Fisher	not issued,	263	$126.50
R. Bsverly Cols	"	253	126.50
R. Mayrisch	"	253	126.50
C. P. Schmidt	"	253	126.50
R. Steinheimer	"	253	126.60
J. Hausmeister	"	263	126.50
D. H. Jackson	"	506	253.00
L. Schumacher	"	161	80.50
J. Napthaly	"	161	80.50
D. B. Arrowsmith	"	161	80.50
John Shoenbar	"	161	80.50
Thos. J. Reed	"	80½	40.26

And in accordance with law, and an order of the Board of Trustees, made on the Ninth day of December, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction by Maurice Dore & Co., at No. 327 Mongomery street, on the Fifth day of February, 1872, at the hour of 12 o'clock M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

HENRY G. LANGLEY, Secretary.

Office—612 Clay street, San Francisco, Cal. jr20-4w

POSTPONEMENT.—The above sale is postponed to Tuesday, February 27th, 1872, at 12 o'clock M., to be held at the same place. By order of the Board of Trustees. HENRY G. LANGLEY, Secretary.

San Francisco, February 3, 1872. fe10-2w

Mina Rica Mining Company—Location of

works, Auburn District, Placer county, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 16th day of January 1872, an assessment of Twenty (20) cents per share was levied upon the capital stock of said company, payable immediately in United States gold and silver coin, to the Secretary at the office of the company, room No. 2, 418 California street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Monday, the 19th day of February, 1872, shall be deemed delinquent, and will be duly advertised for sale by public auction, and unless payment be made before, will be sold on Tuesday, the 26th day of March, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

GEO. R. SPINNEY, Secretary.

Office—Room No. 2, third floor, 418 California street, San Francisco, California. ja30-5w

Mount Jefferson Milling and Mining Company—Location of works, 1st Garote, Tuolumne county, Cal.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the 8th day of January, 1872, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. shares.	Amount.
Creamer, J M	14	100	$26.00
Lewis L J, Trustee	48	100	25.00
Lewis, L J, Trustee	61	100	25.00
Lewis, L J, Trustee	56	126	21.26
Nelson, J H	15	100	26.00

And in accordance with law, and an order of the Board of Trustees, made on the 8th day of January, 1872, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of said company, on the 22d day of February, 1872, at the hour of 2 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

J. W. OLARK, Secrstary.

Office, 418 California street, San Francisco, Cal. fi0-4

Nevada Land and Mining Company—Location of Works, Spruce Mountain District, State of Nevada.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the 9th day of January, 1872, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Am't.
Thos. Kane	unissued	600	$20 00

And in accordance with law, and an order of the Board of Trustees, made on the 9th day of January, 1872, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Company, Room 6, No. 302 Montgomery street, San Francisco, California, on the 4th day of March, 1872, at the hour of 2 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

WM. H WATSON, Secretary.

Office, Room 6, No. 302 Montgomery street, San Francisco, California. fe17-3t

Piermont Milling and Mining Company—

—Location of works, Pierpont Mining District, White Pine County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the Twenty-fifth (25th) day of January A. D. 1872, an assessment of eighty (80) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of said company. Any stock upon which said assessment shall remain unpaid on Friday, the first day of March, A. D. 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the Twenty-third day of March, A. D. 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. J. W. CLARK, Secretary.

Office, No. 418 California street, San Francisco, Cal. fi-4w

Union Gold Mining Company—Location of

works, Howland Flat, Sierra County, State of California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the 4th day of January, 1872, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. of Certificate.	No. of Shares.	Am't.
Crosett, James F. Trustee.	166	62	$ 62 00
Crosett, James F. Trustee.	167	100	100 00
Frontin, Joseph, Trustee.	234	100	100 00
Frontin, Joseph, Trustes.	235	95	95 00
Gilbert, Mrs. E. W.	205	15	16 00
Gilbert, Mrs. E. W.	212	10	10 60
Hale, William F.	129	60	60 00
Mahoney, Denis	46	100	100 00
Mahoney, Denis	47	60	60 00
Mahoney, Denis	62	75	76 00
Mahoney, Denis	63	100	100 00
Stuart, W. A.	90	7	7 00

And in accordance with law and an order of the Board of Trustees, made on the 4th day of January, 1872, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Company, Room No. 22, Merchants' Exchange, California street, San Francisco, California, on Monday, the 26th day of February, 1872, at the hour of 1 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale. ALFRED K. DURBROW, Secretary.

Office: Room No. 22, Merchants' Exchange, California street, San Francisco, California. fc10-

Silver Wave Mining Company----Location

of works, White Pine Mining District, White Pine county, Nevada.

Assessment of Three ($3) dollars per share, levied December 19th, 1871, having been rescinded by vote of the Board of Trustees,

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 2 th day of January, A. D. 1872, an assessment of One Dollar per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company. Any stock upon which said assessment shall remain unpaid on Monday, the 26th day of February, A. D. 1872, shall be deemed delinquent, and will be duly advertised for sale, at public auction, and unless payment shall be made before, will be sold on Tuesday, the 19th day of March A. D., 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. J. W. CLARK, Sec'y.

Office, 418 California St., San Francisco. jr27-4w.

South Gulch Gravel Mining Company.

Location of Works, Brushville Mining District, Calaveras County, California.

Notice is hersby given, that at a meeting of the Board of Trustees of said Company, held on the 7th day of February, 1872, an assessment of ons dollar and fifty cents per shars was levied upon ths capital stock of said Company, payablx immediately, in United States gold coin, to the Secretary at the office of the Company, No. 409 California street, up stairs, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the thirteenth day of March, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the third day of April, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of ths Board of Trustess.

T. F. CRONISE, Secretary.

Office, 409 California street, San Francisco, Cal.

Tecumseh Gold, Silver and Copper Mining Company.—Location of works, Gopher District, Calaveras County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 23d day of January, 1872, an assessment of Four ($4.00) dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, F. J Herrmann, at the office of the company, No. 516 Kearny street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the 27th day of February, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the 16th day of March, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

F. J. HERRMANN, Secretary.

Office 516 Kearny street, San Francisco, Cal. jr21td.

Wm. Penn Consolidated Mining Company

—Location of works, Storey and Lyon Counties, State of Nevada.

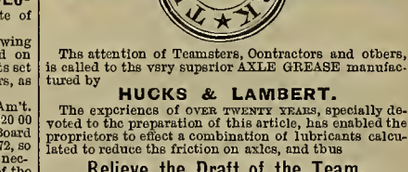
Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 26th day of January, 1872, the assessment of 50 cents per shars levied on ths 16th day of January, was rescinded, and an assessment of $1.00 per shars was levied, payable immsdiately, in U. S. gold coin, to the Secretary, at the office of the company, No. 338 Montgomery street, San Francisco, California.

Any stock upon which said assessment sball remain unpaid on Thursday, ths 29th day of February, 1872, shall be deemed delinquent, and hs duly advertised for sals at public auction, and unless payment be mads before, will be sold on Thursday, the 21st day of March, 1872, to pay ths delinquent assessment thereon together with cost of advertising and expenss of sale. By order of ths Board of Trustees.

HENRY ROOMY, Secretary.

Office, No. 338 Montgomery street, Rooms 3 and 4.

H & L AXLE GREASE.



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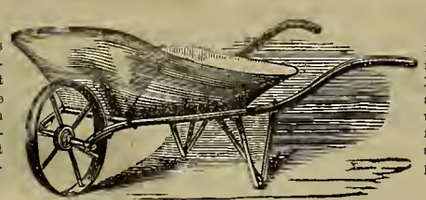
7v24-1am4t

PATENT TUBULAR WHEELBARROWS.



These Barrows are made entirely of Iron—the Frames being Tubing, and the Trays, Wheels, etc., Wrought Iron. They are the Strongest, Most Durable and Economical Barrow made. Over 1,000 are in use on this Coast, and are giving entire satisfaction. If from constant wear or accident any part gives out, it can be immediately duplicated.

	Tubing.	Wheel.	Tray.	Weight.
No. 1, Canal Size	1 inch.	16 inch.	36x32 inch.	58 lbs.
No. 2, Banded	1 "	16 "	38x44 "	80 "
No. 3, Banded	1¼ "	18 "	38x44 "	101 "
No. 4, Banded	1¼ "	18 "	40x48 "	116 "
Wood Barrows	1 "	16 "		64 "

MANUFACTURED ONLY BY

CALVIN NUTTING & SON,

417 and 419 Market street, below First,.....SAN FRANCISCO.

We have been using the Tubular Barrows for two years, and for Economy and Durability they cannot be equalled.
SAVAGE & SON, Empire Foundry.

For economy and durability the Tubular Barrows cannot be excelled. Would not be without them.
H. T. HOLMES & CO., Lime Manufacturers.

CAMERON'S
STEAM PUMPS.
PICKERING'S
Engine Regulators.
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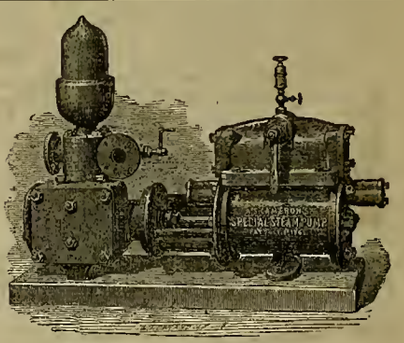
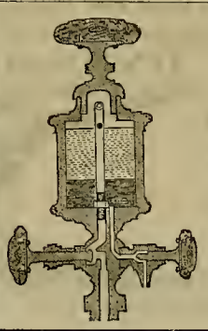
INJECTORS.
BARTOL'S
STEAM TRAP.
Surface Condensers.
DAVID STODDART,
114 BEALE STREET, S. F.



STEAM CYLINDER LUBRICATOR.



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PATENT SELF-OILERS

And Cylinder Cups

Save from 75 to 95 per cent. of Oil. No better investment for the amount can be made by any person having machinery or running shafting. They are so well known as to need no description. All the trouble of "oiling up" is avoided. There is no waste of oil, and no cans are needed. A single trial will prove their value.

We will put them into any mill, and if not perfectly satisfactory, they may be returned at our expense, and the price will be refunded. We have a large stock on hand, of all sizes, adapted to all descriptions of boxes.

Send for Price List and Circular.

TREADWELL & CO.,

1v24-eow-tf Corner Fremont and Market Streets, San Francisco.

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FOR GOPHERS, SQIRRELS, RATS, CAYOTES, and other "Varmints."

This Trap, as may be seen, is of simple construction and not likely to get out of order, and very durable.

It is Very Efficient

and can be used conveniently by women or children. THE CHEAPEST AND BEST YET INVENTED. Price 50 cents. By mail, prepaid (to places where express charges are high), $1. A liberal discount to clubs or dealers who buy by the dozen. Address the inventor and manufacturer, D. N. PHELPS,

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Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

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Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

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MACHINE WORKS,

109 and 111 Mission Street,

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STEAM ENGINES,
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Printing Presses,

AND MACHINERY MADE OF EVERY DESCRIPTION.

Improved Safety Store Hoists,

Fitted with Cutting's Patent Cams, unequaled for safety, convenience and cheapness. This Hoist can be built for about half the price of any other in use. To be seen at HAWLEY & CO.'S.

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TURNING LATHES, Etc., constantly on hand.

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RAILROAD AND OTHER IRON

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The Globe Iron Works, Stockton, Cal.

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Requires **50 Per Cent.** LESS POWER Than any Blower Now in Use.

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CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

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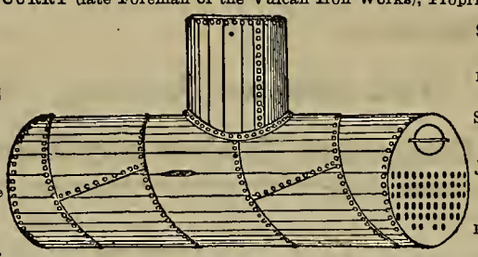
F. I. CURRY (late Foreman of the Vulcan Iron Works), Proprietor.

High and Low Pressure **BOILERS** of all descriptions.

SOLE Manufacturers of the CELEBRATED **SPIRAL BOILER.**



Sheet Iron Work of every DESCRIPTION done at the Shortest Notice.

All kinds of **JOBBING** and Repairing Promptly Attended to.

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To Coal Operators, Miners and Railroad Corporations.

YOUR ATTENTION IS INVITED TO

THE GRICE & LONG LOCOMOTIVE WORKS,

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Patentees and Builders of Mining and other Locomotives;

☞ Also, Patent Traction Engines for Suburban and NARROW GAUGE Roads, Furnaces, Quarries, Contractors, Etc. Now extensively introduced and indorsed by many of the Largest Coal Operations and Furnaces in Pennsylvania and elsewhere—and adapted for gauges of two feet and over, and weighing from four to nine tons.

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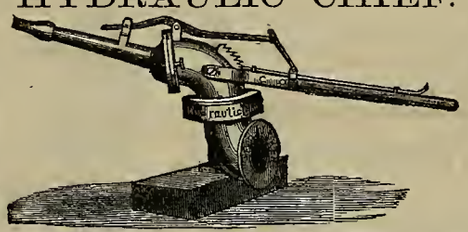
FISHER'S **KNUCKLE JOINT** AND **NOZZLE** IS THE Cheapest and Best Hydraulic Machine in use.



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IRON CASTINGS of all descriptions at short notice.

NOTICE.—Particular attention paid to the making of Superior Shoes and Dies. 3v24-3m

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COPARTNERSHIP NOTICE.

We have this day admitted Mr. William R. Eckart as a member of our firm, the business of which will be hereafter conducted under the firm name of Prescott, Scheidel & Co. PRESCOTT & SCHEIDEL.

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Referring to the above, we respectfully solicit the patronage which has for the past twenty years been enjoyed by our predecessors, pledging our best attention to the wants of all who may so favor us.

Quartz and Amalgamating Machinery,

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Repairs upon all kinds of machinery promptly made and at moderate charges. Having unrivalled facilities, we are prepared to make to order, at short notice, everything required in our line.

Specimens of our work may be seen in all the mining regions on this coast.

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Iron and Locomotive Works.

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CAPITAL.....$1,000,000.

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Manufacturers of Steam Engines, Quartz and Flour Mill Machinery, Steam Boilers (Marine, Locomotive and Stationary), Marine Engines (High and Low Pressure). All kinds of light and heavy Castings at lowest prices. Cams and Tappets, with chilled faces, guaranteed 40 per cent. more durable than ordinary iron.

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24v17-qy

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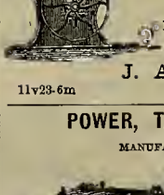

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SCROLL SAWS,
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For RAILROAD, CAR, and AGRICULTURAL SHOPS, Etc., Etc.

☞ Superior to any in use.

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☞ Woodworth Planers a Specialty. 2v23-1y

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Manufacturers of New Files.

Old Files re-cut and warranted equal to new.

REAPER AND MOWER SECTIONS, BARS AND KNIVES COMPLETE,

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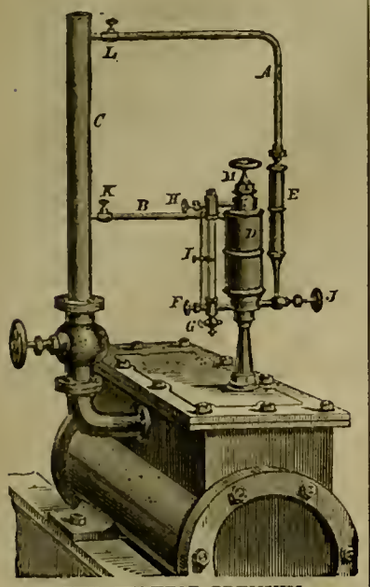

THE HIGHEST PREMIUM

Awarded by the Mechanics' Institute Fair, San Francisco, and State Fair, Sacramento, 1871.

These Lubricators are acknowledged by all engineers to be superior to any they have ever used; feed constantly by pressure of condensed water, supplied by pipe A, regulated under the oil by valve J, and forced out through check valve and pipe B into the steam pipe C; it then becomes greasy steam, passes to all the valves and cylinder at every stroke of the engine; glass tube I indicates amount used per hour. Packing on rods and stems lasts longer, and the rings on the piston will not corrode. One pint of oil will last from three to six days, according to speed and size of engine; I, sliding gauge; K, valve to shut off when engine stopps; H, F, valves to shut off in case of frost; steam does not enter the cnp; it is always cool; warranted to give satisfaction. Patented February 14, 1871. Manufactured by California Brass Works, 125 First street, S. F. 24v23tf

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PHELPS BROTHERS, Proprietors,
MANUFACTURERS OF ALL KINDS OF
Machine Bolts, Bridgs Bolts, and Ship or Band Bolts.
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Particular attention paid to Ores received on consignment.
ALL ORDERS EXECUTED AT THE SHORTEST NOTICE. 5v24-6m

Notice is hereby given, that the copartnership beretofore existing hetwcen A. J. Severance, Charles W. Randall and J. Gus. Burt, under the firm name of "Severance, Holt & Co.," is this day dissolved hy mntual consent. A. J. Severance, having purchased all the interest of bis lato partners, will continue the business of manufacturing and selling Diamond Drills, as hefcre, under the style of A. J. Severance & Co.
Dated San Francisco, Nov. 24, 1871.
Office, 315 California street. A. J. SEVERANCE,
CHAS. H. RANDALL.
22-v23-tf J. GUS. BURT.

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BOILER MAKERS
AND GENERAL MACHINISTS,
Howard st. between Fremont and Beale, San Francisco.

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AGENTS FOR
Thomas Firth & Sons' Cast Steel.

MANUFACTURERS OF
Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools.
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THE
Risdon Iron and Locomotive Works
Corner Howard and Beale Streets,
Are prepared to make SHEET IRON AND ASPHALTUM PIPE, of any size and for any pressure, and contract to lay the same where wanted, guaranteeing a perfect working pipe with the least amount of material.
All kinds of CAR WHEELS, AXLES and RAILROAD WORK made to order. Standard sizes of Wheels constantly on band. Wheels bored and pressed on, Axles turned, etc., at Reasonable Rates.
☞ All kinds of Machinery made and repaired.
24v22-3m JOSEPH MOORE, Superintendent.

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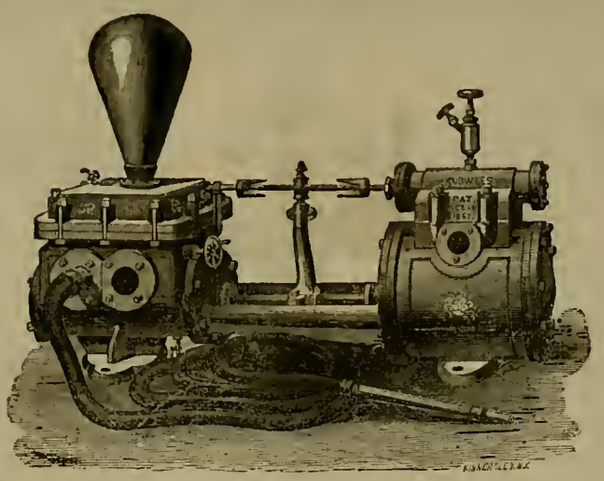
John T. Bunker & Co.'s—We wisb to inform Dealers and Iron Workers that we are Agents for these celebrated Files, and are offering superior inducements to introduce them. (22-v23-3m) HOOKER & CO.

KNOWLES' PATENT STEAM PUMP.

Awarded First Premium and Diploma

Over all Competitors, at Mechanics' Institute Fair of San Francisco, 1871; also Special Medal and Diploma at State Fair.



It has no Cranks or Fly-Wheel, and has no dead points where it will stop, consequently it is always ready to start without using a starting-bar, and does not require hand-work to get it past the center. Will always start when the steam cylinder is filled with cold water of condensation.

The trial of Steam Pumps at the Eighth Industrial Fair in San Francisco, by a Committee of Five of the most thoroughly practical mechanics on this coast, showed the Knowles Pump to lose but 11½ per cent., while others lost as high as 40 per cent., showing great difference in economy.

CENTRAL PACIFIC R. R., OFFICE OF THE GEN'L MASTER MECHANIC,
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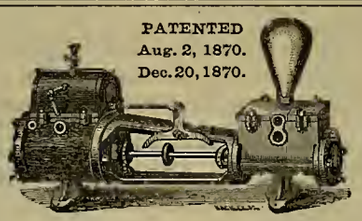
A. L. FISH, Esq., Agent of the Knowles' Steam Pump, San Francisco—Dear Sir: In reply to your inquiry as to the merits of the Knowles' Steam Pump, in use npon tbis road, I will say tbat we bave nineteen of them in use on this road as fire engines, and pumping water for shop and station use. I consider tbe Knowles Steam Pump tbe best in use, and prefer it to any other. Yours truly, A. J. STEVENS, General Master Mechanic.

WE BUILD AND HAVE CONSTANTLY ON HAND
THE LARGEST STOCK OF PUMPS IN THE WORLD,
And for Every Conceivable Purpose.
A. L. FISH, Agent.
No 9 First Street, San Francisco, Cal.

P. S.—All kinds of new and second-hand Machines on hand. 3v24-eow-bp

PATENTED
Aug. 2, 1870.
Dec. 20, 1870.



Combines Simplicity and Durability to a Remarkable Degree.

Its parts are easy of access, and it is adapted to all purposes for which Pumps are used—especially Mining.

Full description in *Scientific Press* of August, 1871.

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FIRST PREMIUM
American Institute, 1867 and 1870.
CHARLES B. HARDICK,
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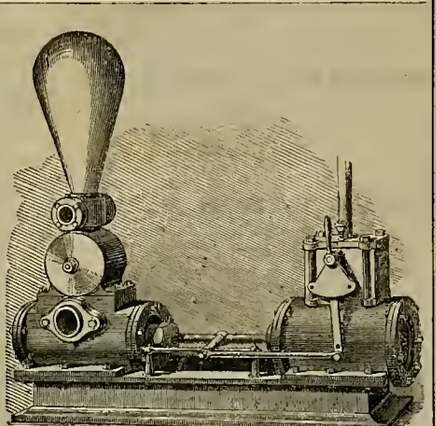
SOLE MANUFACTURER
Hardick's Patsnt Double-Acting
Steam Pump and Fire Engine.



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PATTERNS AND MODELS,
(Over W. T. Garrett's Brass Foundry),
N. W. corner Natoma and Fremont streets, S. F. Entrance on Natoma street. 6v23-3m

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and Maker of Models for Inventors. All kinds of Dies, Stamps and Punches made. Also, all kinds of Small Gears Cut.
Repairing done on very Reasonable Terms and in the best manner. No. 32 Fremont street, S. F. 19v23-3m

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ADVANCES MADE
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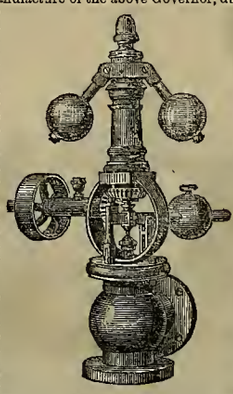

The Gardner Governor is so well known that we think it unnecessary to enter into a detailed explanation of the principles involved, or details in its construction, merely giving the leading objects realized by this important invention. The Governor combines with the greatest simplicity of construction, accurate regulation of speed, POSITIVE INSURANCE AGAINST ALL ACCIDENTS LIABLE TO OCCUR FROM SLIPPING OR PARTING THE GOVERNOR OR DRIVING BELTS, and a convenient arrangement for ADJUSTING THE SPEED OF THE ENGINE WHILE IN MOTION, without change of pullies.

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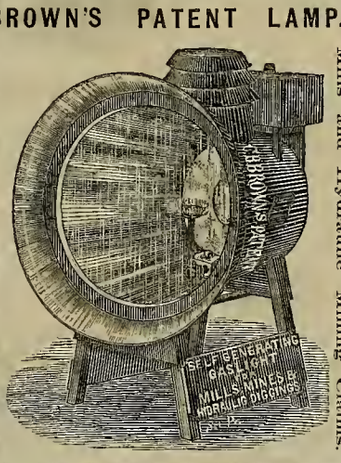

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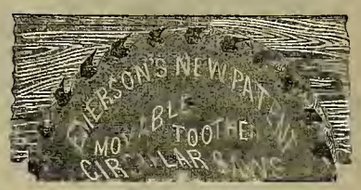

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SAN FRANCISCO, SATURDAY, FEBRUARY 24, 1872.

VOLUME XXIV. Number 8.

The Vapor of Mercury.

Mercnry is, with the cxception of hromino, the only clement that is fluid at ordinary temperature. It froezes at — 40° and boils at ahont 660° F. For some timo it was supposed to ho non-volatile at ordinary temperaturcs, hnt the experiments of Karston, Brame and othcrs, provo that at even 32° tho volatilization of the metal is perccptihle as well in contact with air as *in vacuo*. This may ho provcd by suspending a gold ring or gold leaf in a flask containing some of the metal, when, after a few weeks it will appear amalgamated. Karsten asserts that at 32° mercury gives off as much vapor as to develop the image on a dagnerreotype plate held over it at a convenient distanco. By the aid of sulphnr in a finely divided condition, as when precipitated from a state of vapor, Brame found that at 53.6° the tension of the vapor rises to the hight of three feet and even higher. He is also of the opinion that in air, and the vapor of sulphur, the vapor of mercury diffuses itself according to the laws which governs other gases.

How to Detect ths Vapor of Mercury in the Atmosphere.

M. Merget has discovered that hy dissolving iridium, palladium, platinum, gold, or silver, in *aqua regia*, a reagent is obtained, which is extremely sensitive to mercnry, and which will, he helieves, prove of great value in solving a numher of practical and theoretical prohlems, among them the hight to which mercnrial vapor rises at ordinary temperatnres. A piece of paper impregnated with the solution, when hronght in contact with mercury or mercnrial vapors, no matter how small an amount or how low the temperature may he, is immediately marked with an indelihle hlack stain. M. Merget expects to he ahle to prove that the vapor which mercury constantly sends forth, ascends to the hight of 1700 metres, at the rate of 180 metres per second.

These experiments are of great practical value to all who are compelled to work in the presence of vapor of mercury, for hy means of these test papers it will he made manifest in all workshops, warehouses and mills where the metal is nsed or stored. The injurions effects consequent upon inhaling the fnmes or vapor into the system are well known, and all chances of doing so should be avoided as far as possible. This metal, like lead, remains in the system and will increase little hy little until it seriously impairs the health. Cases are known where lead when absorhed from water which had flowed through lead pipes, showed its eumulative effects in 25 or 30 years. Mercury will act somewhat in the same manner, and if a workman passes hut one hour a day in atmosphere containing its fumes his clothing, face, hair and heard hecome impregnated with it. By using these prepared papers the workman has hut to touch one and the prcsence of mercury is shown by a well-defined hlack mark. When this happens, means should he taken to keep it closed in flasks properly corked.

Stebins' Hydraulic Elevator.

Among the necessities called into existence by tho reqnirements of modern civilization, aro convenient methods for raising and lowering persons and goods in our high bnildings, so as to save time and muscle. For this purpose steam was formorly nsed, hut rccently water has heen employed as a motive power for this purpose. Although the latter is by far the more economical and convenient power, a difficulty has been experienced in eontriving a machine that would do its work regularly and without leakage. A recent invention hy Mr. Timothy Stehins, seems to embody these advantages with that of simplicity of construction. It consists in the employment of two operating cylinders and pistons, moving in opposite directions, with racks which mesh into opposite sides of a pinion on the shaft of the elevating pulley so that either one or hoth cylinders may he employed as the load may require, and so that when the two are used the strain upon the shaft is reduced to a minimum. The two cylinders are so arranged that one takes water helow tho piston and the other ahove. The piston rods are extended npwards in the form of racks; one of these racks passing np at one side of the shaft and the other upon the opposite side, as shown in *Fig.* 1. The shaft carries the hoistiug pulley and the pinion and the two racks operate upon the opposite sides of the pinion, and thus drive the pulley.

The racks are kept in contact with the pinions by friction wheels hehind them. One cylinder takes the water ahove the piston and therefore has a stuffing hox through which its piston rod passes. The rack is high enough ahove the stuffing-hox to allow the piston to descend to the hottom of the cylinder. The other cylinder which takes its water helow the piston needs no stuffing-hox, hut the rack can he carried down into the cylinder. The water is hronght through a pipe and nnder pressure to the distrihuting valves, and by means of a rope passing around a pulley which operates the valves, and through the platform of the elevator this pulley can he turned to admit the water to one or hoth of the cylinders, or to cut it off altogether hy means of a valve. The lower inside pulley has also a rope passing through the elevator platform and hy this pulley a valve is operated to cut off one cylinder and allow only one to act. When this is done the cylinder which is cut off is allowed to communicate with the air through an opening, so that the vacuum or the condensation of air may not retard its free movement. The upper curved pipe conveys the water to one cylinder, and the lower pipe to the other. Lugs on the pnlleys limit their motion and determiue their position, whether open or closed.

Fig. I.

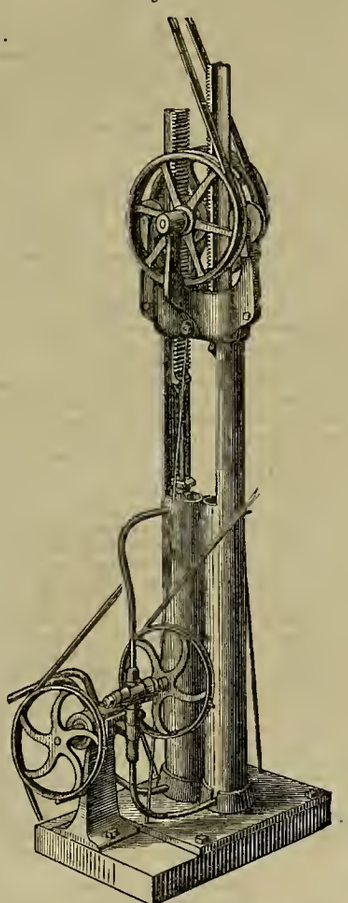

Fig. II.

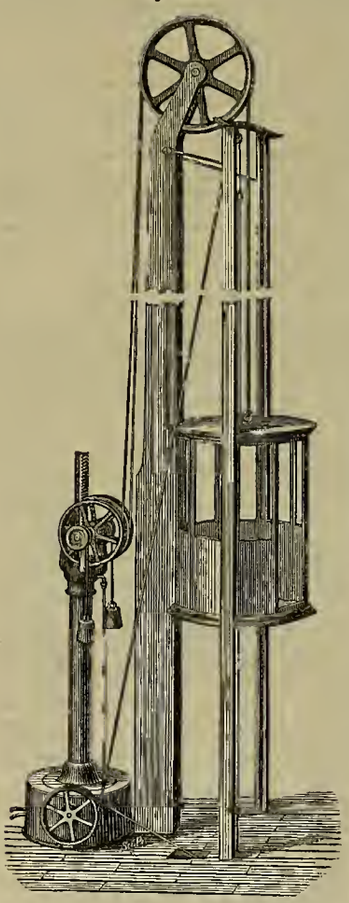

Fig. 1 represents the douhle cylinder apparatus which is calculated to raise 1,000 lbs. on the platform, 30 feet with 42 gallons of water. With light loads one cylinder only need he nsed, and in that case the amount of water required is reduced. Fig. 2 shows the apparatus with but a single cylinder and a cage represented in the act of being hoisted. The heams are represented as hroken to show that the cage and heams are not proportioned in length. This single cylinder uses the same amount of water as when hoth are nsed in the other. The hoisting apparatus may he placed perpendicnlarly as shown, or horizontally, if more convenient, and may be located away from the cage and conneeted with it by gearing. A safety clntch, invented hy the same patentee, is nsed, which grasps the upright heams in case the rope should hreak, and precludes the possihility of accident. The apparatus will he found very convenient in high huildings, where goods have to he hoisted and stored, for hy simply pnlling the rope the cage is raiaed or lowered without manual lahor. Its speed can be regulated at will. For offices in high hnildings it is invaluable, and hy general use second and third story rooms would he even preferahle to those on the street floor on account of heing away from noise and confusion.

The inventor has secured protection for this invention through the SCIENTIFIC PRESS Patent Agency. A working model may he seen at No. 13 Fremont street. For further particulars address Timothy Stebins, San Francisco, Cal.

Beet Sugar Machinery.

On making the necessary inquiry it will he found that a considerahle part of the nice machinery at Alvarado, including centrifugals for the separation of the juice of the heets from the pulp, and the molasses from the crystallized sugars, were made in Germany and imported at large cost. So also of the Sacramento Valley Beet Sugar Company, nearly all of its machinery was imported from Europe, and the mere cost of freight alone, exceeded $10,000. In view of the fact of the undouhted success of hoth of these establishments, we can safely rely upon an additional numher of heet sugaries in California at an early day; and this consummation would he hastened materially if some one or more of our foundry men wonld turn their attention in the direction of supplying what is sure to become a certain want. If our farmers hy association, or onr capitalists, could contract for the requisite machinery, the construction of which would he under their direct supervision, without heing ohliged to send or make a trip to Europe, to get their orders filled, we should hear more of new sugar factories ahout to he erected than we do now.

ABOUT $50,000,000 are invested in manufacturing in Fall River, Mass.

CORRESPONDENCE.

Our Auriferous Gravel—Mining Low-Grade Gravel.

EDITORS PRESS:—At no time in the history of California has there been more interest directed towards gravel mining in thie State than at the present. In this connection it may be well to state some facts that may be interesting to the general miner, as well as those seeking safe investmente in mining enterprisee.

It is a fact that there are several hundred thousand acres of auriferous gravel deposits in the State of California yet unworked, and in fact unexplored. That these vast deposits are accessible and open to enterprise, and can he made profitable by working systematically, is also a fact. Two questions are suggested: How low-grade gravel can bs worked with profit? And 2d. What can be taken as a fair average yield of the deep placers or gravel deposits? In answer to the first proposition we can etate facts. Williams & Cox, undsr the euperintendence of G. W. Cox, washed off at Chandlerville, Sierra Co., last year, fiftesn claims of one hundred feet square each, averaging gravel thirty feet in depth; this gives a little over one hundrsd and eixty-six thousand six hundred and sixty-six cubic yards, (166,666). From this wash seventeen thousand dollars ($17,000) was realized.

Expense of water about	$10,00
Expense of labor about	3,000
Net profit	4,000
Total, (omitting fractions)	$17,000

It will be eeen that this gravel yielded only ten cents per cuhic yard, or about one third of a cent per cubic foot. The chance of getting "a color" by washing this quality of ground in a pan would he very doubtful. If any poorer grade gravel has been washed in the State with profit let us hear from it, for it is important to know how poor ground can he profitably washed off. The above washing was done with 800 inchee water, 150 feet pressure, Craig's globe joint-throwing 5½-inch stream, tail-flume four feet wide.

That the average yield of the gravel depoeit will be more thanfifty cente per cuhic yard there can be no doubt. At Smartsville the upper trata to a depth of 130 feet paid about 48 cts. per cubic yard, the eighty feet next helow paid 84 cts. per cuhic yard, while the bottom strata pays much greater. Cherokee Flat, Butte Co., ehows a still much greater yield. Also at San Juan the gravel is said to pay an average of over 60 cte. per yard. At Dutch Flat there is a very extensive deposit of gravel now being opened by capitalists of San Francisco. This deposit is said to carry $1.80 per cubic yard.

It is safe then to assume that with a liberal supply of water our deepest gravel deposits can he profitably washed, off and that no better and safer investment need be sought after.

Much of the water now flowing to the ocean, should be held in reserve in the mountains for eummer use by means of large reservoirs; canals should be constructed to bring forward large quantities of water to mines now lying idle for want of this indiepensable element. The field is a broad one and capital is required.

MINER.

The Carson Mint.

The *Register* of 14th says: Superintendtent Rice, having received his dies from San Francisco, commeneed work in earnest at the mint yesterday. Owing to the detention of his dies from the East, by the blockade on the railroad, he was forced to borrow from the California Mint, in order to enable him to meet the necessitiee of the community who are dependent to a great extent upon this institution for coin for home purpoees. Yesterday was employed in turning ont half dollars at the rate of about seventy pieces a minute, and to-day some $90,000 in gold—twenty-dollar pieces—will be finished and ready for circulation. Altogether the institution is a success, a credit to the State, and reflects honor upon ite present mauagement. Extensive and important improvements are being made in the refining room, which will greatly facilitate in the general workings and economy of that department. From this time forward throughout the spring and eummer, husinese will steadily grow and augment into figures little dreamed of when the institution was firet projected.

Humboldt Mining Region.

A correspondent of the *Bulletin* writes as follows about mining matters in Humboldt county: In proof of the prosperous condition of the mining interest hero, we have the fact that the value of the precious metals produced in Humboldt county the past year approximate a million of dollars, bullion and shipping ores included; the prospect heing that the yield for the current year will donble that amount. This calculation is based on the aesurance that the out-turn of the Arizona mine, much the largest producer in the county, will double that of last year, which reached nearly half a million, and that a corresponding increase may be counted upou from other leading sources of production. As warrant for this opinion we have the further fact that nearly all the older mines are steadily increeing their yisld, while many new ones are being constantly developed to a productive condition, and considerable accessions made to the ore-crushing capacities of the district. The expectation is therefore not extravagant that the yield of the Humboldt minss will come hard upon two million dollars for the next twelve months.

Mills.

There are now thirteon ore-crushing mills in the county, exclusive of the smelting works at Oreana, and the Auhurn mill at Reno, the latter mostly fed hy Humboldt ores. These several works are ahle to dispose of at least 200 tons of ore daily. Supposing them to operate 250 days out of 365, on ores averaging $40 per ton, we have sn annual production of $2,000,000; making no account of ores shipped away, which last year amounted to $150,000. As the above is a very low estimate average of Humboldt ores, our calculation is well within bounde.

The Most Active Mining Localities.

In the Humboldt region are found just now about Unionville, in the Star, Central, Winnemucca and the Bsttle Mountain districts, and in the vicinity of Dun Glen, Rye Patch and Oreana, at each of which places there is one or more mills—Oreana being the site of the smelting works before mentioned. At Unionville there are four mills, three of them belong to the Arizona company, one of the number being supplied with an Aiken furnace is used exclusively for the working of tailinge.

The Arizona Mines,

Situated on the brow of the mountain, a mile and a half above this place, is not only the most thoroughly explored and largely productive, but also so far as appearance goes, the most valuable mine in this section of the country. Though not a massive vein—ranging only from two to five feet in thickness—it is nevertheless exceedingly compact, uniform and shapely, suffering little contraction and but few displacements so far as developments have extended upon it. The predominating ore is a sulphuret mixed with a chloride and much metallic silver. A large proportion of the vein matter is metalliferous, two-thirds of the entire mass being sent to the mill. As a consequence—although a large amount of ore is daily raised—the miue is not being worked in a rapidly exhaustive manner. At the lowest points reached the ledge has an average thicknese of four feet, the milling oree yielding, tailings inclnded, from sixty to eeventy dollare per ton, and those shipped away, from three to eight—averaging ahout five hundred dollars per ton.

The ores from the Arizona are let down a perpendicular distance of nearly a thoueand feet over a tramway laid against the side of the mountain, which slopes at an angle of forty-five degreee. This work, constructed at a cost of $8,000, obviates the necessity of making a circuitons journey to and from the mine by the wagon road formerly in use, and greatly facilitatee the labor of taking up supplies and getting down the ores.

Other Mines and Mining Operations.

Lying on the same ridge and not far from the Arizona are the Inskip and the Henning lodes, both actively worked and well opened up, and affording a considerable quantity of millable with some shipping ore. A little south of this place is the Peru, an early and somewhat noted location, which, with its extensions, gives employment at intervale to a small working force, and is looked upon here as a promising, not to say, already really valuahle property. Proceeding towarde the south we pass successively the Indian and Sacramento into the Relief District, population growing more sparse aud the evidences of active exertion more feeble as we recede from Unionville, the most thrifty and stirring mining locality in Hnmbolt, Sacramento and Indian are old districts, Relief being of more recent formation. In the latter the common blunder seems to have heen committed—that of getting in a mill first and looking out for ore eupplies aftsrwarde; a mistake that is said to have imparted to the name of the district a peculiar fitness from the manner in which parties inveeting there were afterwards relieved of their money. It is contended, however, by those having best opportunity for knowing that there are really good ledges there, the trouble met with arising from a neglect to properly open them.

Traveling eix miles north from this place we arrive in Star Cañon the eite of.

The Sheba Mine.

The mine now occupies a broad and fertile fissure, ie turning out steadily large complements of rich ore, and is likely to justify the high expectations at first entsrtained of it. A small operative force is kept at work on the Sheba, the owners not caring to raiee any large quantity of ore until a suitahle mill is provided for ite reduction. Works of limited capacity were put up last summer for concentrating the ore, hut not snewering a good purpose, they were run only for a short time. The ore now heing extracted is separated into two claesee, the poorer being retained for milling on the ground, and the other shipped to San Francisco for a market. It is of high average grade; that kept back ranging from $50 to $100 per ton, while much of that sent away runs up into the thousands. It is not neceesary that ehipping ores here ehould be assorted so closely now as aforetime to admit of their profitable transportation to market. With railroad carriage a class can be sent off with a good margin for gain which would not have paid cost of hauling on wagons over the deeerts. It ie for this reason that fewer small lote of extremely rich ores make their appearance in San Francisco now than was the case some yeare ago. The owners of the Sheba will put up a first-class mill near their property the coming summer.

There are a number of other claims in and about Star cañon upon which a large amount of exploratory work has bsen done, and some of which promise good results in the future. Upon several of these, operations, for a long time suspended, have been renewed eince the Sheba strike, and Star City, now nearly deserted, is likely eoon to become a stirring camp once more.

Rye Patch and Oreana.

The mill at Rye Patch, burnt down last fall, hae since been rebuilt, and ie now running 15 stamps, having capacity for 5 more, hereafter to be added. The destruction of the old mill proved a great detriment to the mining intereet in the neighborhood, bringing operatione, which had beoome quite thrifty, for the time being to a stand still. With the etarting up of the new works business has revived and thinge again look cheerful about Rye Patch.

The mill and smelting works at Oreana, built eeveral yeare ago, but which have never as yet accomplished much—halting now, and then getting on with a hobbling gait—having lately passed into more competent, or, at least more fortunate hande, have been put in an efficient condition, and are likely hereafter to fnlfill another purpose than that of drawing drafte on San Francisco to keep them going. Considerable ehipments of bullion are now being made, whioh the proprietore believe they can keep up and eomewhat increase. The mill is rnn chiefly on ores from the Montezuma, Brazil, and other mines in the Arabia Dietrict, cloee at hand.

In and About Dun Glen.

Across the broad valley lying east of here, towers a broken and timherless range of mountains. Along its slopes toward the north were organized eeveral mining districts in the early days. The mineral indications abounding there, enticed many silver huntere into that region. They toiled diligently but their rewards came slow, or more often failed altogether. Like the buried treasure of the money diggers, the coveted deposite, though apparently close at hand, some how or other, always eluded their grasp. And thus they etruggled on, the conteet being long and of dubious issue. One set of prospectors was succeeded by another, the conntry now being thronged with adventurers and again quite deserted. Glowing reports would emanate from that quarter, to be followed soon after by othere equally doleful. The history of these districts brought to mind the grim etories told of people buried in a trance and afterwards by some strange accident released from entombment. This industry seemed to be laid out and, as we thought, pretty effectually buried, when next would he heard a kicking over there, with accounts of a mining spectre stalking about. If what we eee now is really a ghost, it is indeed a sturdy one, ae things have a decidedly life-like look in that eection at presant.

Paut Process.

At Dun Glen a mill has been bnilt, and ie running with a succees not heretofore achieved in those monntaine, the favorable results attained being largely due to the employment of the Paul Electro Amalgamating Process, which is accomplishing real wonders. Nothing directed to effecting the ends especially proposed to be secured by this proeees—the speedy, thorough and economical separation of the precious metals from base combinations—hae yet done its work so well. As this invention is particularly well euited to the treatment of Humholdt ore, is portable and inexpensive, it will probably soon be introduced into general use in this region.

The principal mines now being worked in and about Dun Glsn, the centre of greatest activity in the East Range, are the Tallulah, formerly under the superintendence of the lamented James A. Banks, now extensively opened and fast developing into a valuable property; the Lang Syne, affording ores for the new mill, the Peabody, the Cumbsrland, and a few others of lees distinction.

Central, Winnemucca and Battle Mountain Distcs

In the Central Dietrict, lying eeven milee north of the railroad, opposite Raspberry Station, there are some twenty or thirty mines working away quite independent of capitalists and folk of that ilk. These men mostly own in the claims they are prospecting from which enough ore is extracted in process of development to defray all expenses. They generally explore their lodee by means of ehafts carried down in the vein-matter, nearly all of which affords more or less ore. Selecting from this ore a emall portion of the beet, it is sent over the railroad to Reno and San Francisco for eale, netting them from three to five hundred dollars per ton. There is talk of a mill going up on the river, near these mines, in the spring.

In Winnemucca Dietrict, occupying the southerly face of a high, isolated mountain, ten milee east of Ceutral District, there ie about the same amount of population ae in the latter, the miners conducting affaire much after the same style in both. There is a five-etamp mill here, the capacity of which is eoon to he douhled, with a roasting furnace or a Paul Amalgamator added, the oree in thie section, a mixture of eulphides, chlorides and galena with often a sprinkling of free gold euperadded, rendering eome such couree of treatment neceesary.

Iu the Galena and Battle Mountain Districts, eituate in the eastern part of the county, mining ie prosperous; large quantitiee of argentiferous galena and copper ore, with a considerable amount of silver bullion, eilver-lead, bars, being shipped from that neighborhood continually. In the Pueblo District, lying in the extreme northweetern corner and also in various other parte of the county, mining for silver and copper ie being prosecuted, to a greater or less extent, and with results not in the main differing much from those above mentioned; a glance over the whole country ehowing thie pureuit to be not only moderately progressive but growing all the while more eelf-reliant and eelf-euetaining.

A LUCKY MINER.—We take this item from the Virginia *Enterprise* of February 8th: A miner who was at work in the drift on the 1,400-foot level of the Savage mine when pay ore was etruck got on the eurface before the men working in the drift were corralled, and using what money he himself had and what he could borrow, bought eufficient etock in the mine to clear him $10,000, when he sold out. He has not been back to the mine since.

SOME of the merchants of New York city are of the opinion that more than $3,000,000 worth of lace are annually emuggled into that port, and that the contraband diamonds and other precione stones which arrive there without detection defrsud the Cnstom House of $4,000,000 or $5,000,000 a year. Smuggling is eo lucrative a trade that scoree of families are eupported handsomely by ite proceeds.

THERE are eight pin factories in the United States, the annual production of which is 2,000,000 packs, each pack containing 3,360 pins—a total of $6,720,000,000 pine. About eixteen times thie qnantity is manufactured in England.

MECHANICAL PROGRESS.

Mechanical and Engineering Progress.

The past year has been especially distinguished for advances in mechanical and civil engineering. Among the inventions which deserve special mention, none perhaps rank higher in importance, simplicity, and novelty than the use of the "sand blast" for cutting hard substances. New applications of electricity to regulating large, and actuating small machines have been made. The inventive genius of the country has also been largely exercised in the problem of canal-boat propulsion, stimulated by the offer of a large reward by the New York Legislature. The increased use of artificial stone for various purposes of building and ornament, is also a notable event of the year.

In civil engineering many important works already commenced have been making improved progress, and new projects have been seriously proposed, the accomplishment of which would scarcely have been entertained a few years ago. The mode of attack upon the obstructions to navigation at Hell Gate, near New York, has been entirely changed since the successful operation of Von Schmidt in this harbor, and the most confident anticipations are entertained of complete success in the tunnel operations now in progress there.

The inauguration of the Mt. Cenis Tunnel, which took place in September last, forms an important era in engineering progress, and has brought about a more favorable consideration of the similar work now in progress in the Hoosac Mountains in Western Massachusetts.

The bridges over East river at New York, and the Miesissippi, at St. Louis, are justly regarded as among the most important engineering projects, now in process of completion. Both are making most satisfactory progress, and each presents novel and interesting features in civil engineering.

Our own State has already become widely and most favorably known for the novelty and boldness of its engineering projects, both completed and in contemplation; and the genius and success of California inventors is no less noted and marked, than are the efforts of her engineers in their peculiar and more conspicuous field.

Notwithstanding the wonderful progress of the few years last passed, the field of mechanical progress seems even more inviting than ever in wants and possibilities, while the activity of the year just closed gives good ground for the confident anticipation that the one upon which we have just entered will not fall behind any of its predecessors in important results.

A KNOT TYING MACHINE—Mr A. Perry, of Perth Amboy, New Jersey, has patented a device, which ties a square knot precisely like that made by hand. Those who have had any experience with self-binding mowing machines will at once understand the value of this invention, which, so far as we know, is the only one which accomplishes the feat. It will tie the stringe around the sheaves as they are made by the reaping machine, and thus enable the farmer to dispense with the expense of one man and relieve the team of his weight. The nearest approach previously made to accomplishing tying by machinery consisted, we believe, in twisting the ends of the string or wire together or tucking them under the hand. A reaping machine may now be made to deliver sheaves tied up, which will require as little attention as the mowing-machine—all the work being performed by the machine itself.—*Manufacturer and Builder.*

PHOSPHORUS BRONZE—A NEW METAL FOR DRILLING TOOLS.—A lengthened and exhaustive series of experiments with a new alloy called phosphorus bronze, which is formed by a combination of phosphorus with different proportions of tin and copper, have proved that it is admirably adapted to resisting the concussion and strain incident to heavy ordnance, and also to the manufacture of machinery subjected to excessive strain or violent shocks. Among the numerous purposes to which it may be applied is that of drilling tools. The alloy may also be tempered so as to resist the action of the file. It is claimed to possess elasticity, hardness, tenacity, and durability, far superior to that of the best steel.

Bridge Building.

In no branch of engineering has more progress been made, within the last fifty years, than in bridge building. Bridges are one of the necessities of civilization, and so important were they considered in the "middle ages" that a religous society was founded in the the south of Europe, called "The Brethren of the Bridge," the object of which was to promote intercommunication by constructing bridges over large streams, and establishing ferries where bridges were impracticable. The famous bridge at Avegnon, in France, which was 12 years in building, was constructed under the direction of this institution, about the year 1180. The bridge of Lyons which rested on 20 arches, was also built by them, and in fact nearly all the principal bridges of Europe for several hundred years.

The earliest bridge of note, mentioned in history, was that built by Queen Nitocris over the Euphrates at Babylon. Its length was about 3,500 feet. It was built upon piers—the arch being then unknown. From that time to the present, bridge building has been considered one of the most important arts, and successful constructors have ever been especially honored.

The most wonderful among modern bridges, already completed or now in progress, may be alluded to as follows: The bridge now in process of erection across the Mississippi at St. Louis, which is one of the wonders of the age, is to be a tubular, cast steel, arch bridge, supported by the abutment and two piers, the latter 515 feet apart, and 499 ft. each from its nearest abutment, making three spans of about 500 feet each. Its greatest span is the same as that of the Kullenberg bridge over the Leck, an arm of the Rhine, in Holland.

Telford's suspension bridge across the Mensi Straits has a span of 570 feet.

The Victoria tubular iron bridge of Montreal exceeds this greatly in length, being 5,600 feet (1¼ miles), but it rests upon twenty-four piers, and its spans are mainly only 275 feet.

The suspension bridge at Niagara spans 821 feet, and is 245 feet above the water.

The East River bridge will span 1,600 feet, at a hight midway of 130 feet.

The peculiarly isolated position of San Francisco, must at no very remote period, call imperatively for the construction of a bridge, which will rank among the most wonderful structures of the kind in the world. A bridge across the flats to Alameda, presents no engineering difficulties; but although such a structure will become a matter of necessity, at no very distant day it will come far short of meeting the wants of the future metropolis of the Pacific. The individual is or soon will be born who will be called upon to construct a track for the locomotive across the Golden Gate, and high above the masts of the tallest ship, to form a pathway for the immense commerce which will ere long be seeking this city from the immense region of country between here and Alaska.

NOVEL METHOD OF WARMING RAILWAY CARS.—The introduction of a new method for warming railway cars on some of the French and German lines, has been attended with gratifying success. A preparation of wood charcoal, nitrate of potash and starch is employed. At first the charcoal was burnt in perforated boxes two feet long, four and one-half inches wide, and two and three-fourths inches deep. It was soon found, however, that this combustion caused violent headaches, and the charcoal was, therefore, put into close iron boxes placed under the seats, a double top being employed to prevent the seats of the cars from becoming too warm. The prepared charcoal is placed in the boxes in pieces four inches long, three inches wide, and two inches thick. On the line between Aix-la-Chapelle and Berlin, eight pieces of charcoal were used for heating a compartment. This quantity sufficiently warmed the car during sixteen hours, and at the end of the journey the fuel was still red hot. This prepared charcoal costs thirty-two shillings per hundred, and the expense of heating one compartment is said to be much less than that required by any of the ordinary methods employed, being less than a penny an hour.

HEAVY HYDRAULIC MACHINERY.—At the Empire Foundry, in Marysville, they are manufacturing some hydraulic machinery that will stand a pressure of 504 feet fall. The *Appeal* remarks that this is the heaviest pressure for which machinery was ever made.

SCIENTIFIC PROGRESS.

Facts with Regard to Storms.

A vast amount of information is constantly being gathered and collated by the U. S. Signal Service, out of which is being gradually built up the true science of that class of meteorological phenomena. Among the general observations thus far noted, may be mentioned the following:—

Storms are accompanied with a depression of the barometer near the central line of the storm, and a rise of the barometer in the front and rear.

This central line of minimum pressure is generally of a great length from north to south, and moves side foremost toward the east.

This line is sometimes nearly straight, but generally curved, and most frequently with its convex side toward the east.

The velocity of this line is such that it travels from the Mississippi to the Connecticut river in about twenty-four hours, and from the Connecticut to St. John, Newfoundland, in nearly the same time, or about thirty-six miles an hour.

When the barometer falls suddenly in the western part of New England, it rises at the same time in the valley of the Mississippi, and also at St. John, Newfoundland.

In great storms the wind for several hundred miles on both sides of the line of minimum pressure blows toward that line directly or obliquely.

The force of the wind is in proportion to the suddenness and greatness of the depression of the barometer.

In all great and sudden depressions of the barometer there is much rain or snow; and in all sudden great rains or snows there is a great depression of the barometer near the center of the storm, and rise beyond its borders.

Many storms are of great and unknown length from north to south, reaching beyond our observers on the Gulf of Mexico and on the northern lakes, while their east and west diameter is comparatively small. The storms therefore *move side foremost.*

Most storms commence in the "far west," beyond our most western observers, but some commence in the United States.

When a storm commences in the United States the line of minimum pressure does not come from the "far west," but commences with the storm, and travels with it toward the eastward.

There is generally a lull of wind at the line of minimum pressure, and sometimes a calm.

When this line of minimum pressure passes an observer toward the east, the wind generally soon changes to the west, and the barometer begins to rise.

There is generally but little wind near the line of maximum pressure, and on each side of that line the winds are irregular, but tend outward from that line.

The fluctuations of the barometer are generally greater in the northern than in the southern parts of the United States.

The fluctuations of the barometer are generally greater in the eastern than in the western part of the United States.

In the northern parts of the United States the wind generally in great storms sets in from the north of east and terminates from the north of west.

In the southern parts of the United States the wind generally sets in from the south of east and terminates from the south of west.

During the passage of storms the wind generally changes from the eastward to the westward by the south, especially in the southern parts of the United States.

The northern part of the storm generally travels more rapidly toward the east than the southern part.

During the high barometer of the day preceding the storm it is generally clear and mild in temperature, especially if very cold.

The temperature generally falls suddenly on the passage of the center of great storms, so that sometimes, when a storm is in the middle of the United States, the lowest temperature of the month will be in the west on the same day that the highest temperature is in the east.

The first of the principles upon which the Signal Corps proceeds is that the invariable course of air currents is such as will equalize the atmospheric pressure upon the earth's surface, and that wherever inequalities exist, the winds are set in motion, the air thus finding its level, just as water or any other visible fluid does.

A Volcano in Miniature.

Dr. F. V. Hochstetter furnishes an interesting account of a phenomenon occurring during one of the phases of a manufacturing operation, which is, he says, a complete duplicate, upon a miniature scale, of a volcanic eruption, and which serves at the same time to confirm the modern views concerning the process of an eruption; according to which the lava is not simply in a molten condition, but is reduced to the state of liquidity by the action of the superheated water-vapor under great pressure.

The phenomenon referred to occurs in the operation of separating the sulphur from the residual products obtained in the manufacture of soda by Leblanc's process. The sulphur obtained from these residues, in order to free it from the gypsum, or sulphate of lime mixed with it, is melted in a suitable apparatus, with steam under a pressure of from 2 to 3 atmospheres. The gypsum remains suspended in the water, and the fused sulphur is from time to time run off into wooden troughs, the temperature of the fluid mass being about 251·6°F. Almost instantly after the pouring a crust of solid sulphur is formed on the surface of the mass. Dotted over this surface, however, orifices are left, from which the liquid beneath is forced up. At intervals a jet of sulphur bubbles out, and cooling, forms around the orifice a slight prominence; the repeated eruptions accumulate material about it, until a miniature volcanic cone is formed, with its crater well defined.

The cause of this curious phenomenon is found in the fact that the sulphur, in its fused condition in the steam-chamber, takes up and retains a certain quantity of water, which, as the sulphur solidifies, is given out gradually in the form of steam, accumulating pressure beneath the crust, and forces, at regular intervals, an outlet at the vents, carrying with it in its passage the molten sulphur to form the solid cone. —*Neues Jahrbuch fur Mineralogie.*

Hight and Velocity of Meteors.

A table showing the hight of sixteen shooting stars doubly observed in England, during the meteoric shower of August, 1870, independently of the careful observations recorded at the Greenwich Observatory, appears in the last report of the British Association of Science. A comparison of the observations made at Greenwich on that occasion with those recorded in other stations enables the paths of thirteen meteors, ten of which are new to the former list, to be determined; the hights and velocities of the meteors thus identified are presented in this report. The result shows that the average hight of sixteen meteors, referred to in the last report, was seventy-two miles at first appearance, and forty-eight miles at disappearance; of thirteen meteors given in the present list, seventy-two miles at first appearance, and fifty-four at disappearance; of twenty meteors observed in August, 1863, eighty-two miles at first appearance, and fifty-eight at disappearance. Thus it appears that the present average hights are somewhat less than those observed in 1863; but they agree more closely with the general average hight at first appearance, viz.: seventy miles, and that at disappearance, viz.: fifty-four miles. The average velocity of the Perseids relative to the earth, observed in 1863, was thirty-four miles per second, and that of the three Perseids to the present list was thirty-seven miles per second; while the velocity obtained from the cosmical theory was thirty-eight miles per second.

A NEW EXPERIMENT IN GAS.—A patent gas company has just been formed in England, with a capital of $250,000 in $5 shares, which proposes to distil gas at a low temperature instead of a high one, as on the present system. By this means it is possible to use iron retorts instead of retorts of clay, at a great saving of expense, while the gas produced from the same coal is 30 per cent. more in quantity than the gas produced by previous methods, and the remaining products are also more valuable. There is said to be little or no sulphur in this new and cheaper gas.

Such is the account of this invention which has been privately making way, the latest facts coming out regarding it being that a French company has bought the privilege of using the patent in France for $500,000, and that works are being erected for lighting the town of Barnet, England, with gas at an earlier date, which will supply an experiment on the largest scale.

MINING SUMMARY.

THE following information is condensed mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

MT. BULLION.—Monitor *Miner*, Feh. 10: This tunnel, upon which work has for some time suspended, has heen cleaned out, and work will he resumed so soon as the air will permit.

THE furnace for chloridizing ores at the Monitor mill, after several unsuccessful trials, has again started up and is a perfect success.

RICH ORE is said to have heen already struck in the Acacia tunnel up Scandinavian cañon.

GLOBE MINE.—Alpine *Chronicle*, Feh. 10: Fifty-four ft. were run last month, hy one shift, and last week some good ore, resembling that of the Tarshish, was struck. The hoisting works will he started up and work resumed on the shaft so soon as funds now on the way arrive.

EXOHEQUER.—Last week another body of good ore was struck.

RUBY SILVER has at several times heen found in the different mines upon the Tarshish lode and yesterday we were shown some from the deepest point and one farthest west of any reached therein.

AMADOR COUNTY.

ENOOURAGING. — Amador *Ledger*, Feh. 17: From preparations being made to commence work in the spring on a numher of partially prospected quartz ledges, we may expect not only an increase of business hut the employment of large additional capital. From our mines throughout the county ws hear the most encouraging accounts. Our developed quartz lodes never looked more promising, or yielded fairer returns on capital invested, and everything hids fair to stamp 1872 as a prosperous yesr to the quartz interests of the county.

STATE OF MAINE MINE.—This mine is near the Mokelumne river, ahout four miles southeast of Jackson. The main shaft is down 50 ft. with a contract for sinking 100 ft. further. The company intend to erect a suhstantial mill and machinery necessary for working ths mine, to he driven hy water power. The ledge in the shaft is full 3 ft. and increases in width, the deeper it is sunk upon; the quartz taken out in sinking has been thoroughly tested hy arasta and mill process, and the entire rock hetween the walls without grading, has averaged $16 per ton. The mill will he erected near the main shaft.

MARKLEE MINE.—This mine is about 4 miles northeast of Volcano. At 300 ft. the ledge was 4 ft. in thickness, with the rock well charged with gold and sulphurets. The shaft is down 400 ft. at which depth the ledge has increased to 10 ft., and the entire body of rock will yield over $15 per ton by mill processs.

AMADOR CITY.—Cor. same: The Keystone is pounding away, the rock heing as rich as ever. Last mouth their "clean up" amounted to over $60,000.

THE Original Amador Mill has not, as yet, started up, but the carpenters are busy, and the whole work is fast approaching completion.

CALAVERAS COUNTY.

GARNET GRAVEL CLAIM.—Calaveras *Citizen*, Feb. 10: Garnet claim in this place is a perfect success. They are working 18 men and cleaned up 45 oz. of gold in 11 days run. They netted $250 ovsr expenses.

ANGELS.—Cor. same: The Angels M. Co. are developing their lead by taking rock from the 500-ft. level. Thsy are also taking pay rock from the winze in the 400-ft level. The main shaft is 617 ft. deep. The employés number 60 in all.

The Stickles mine, which is supplied with steam hoisting works, will have their shaft timhered next week. This shaft is 225 ft. desp, and they contemplate sinking it down to the 300. ft lsvel immediatsly. This mine employs about 20 men.

The California M. Co. are tunneling the hill sonth of Angel's creek. This tunnel extends 150 ft. into the hill, with flattering prospects of "striking the lead," which is thought to he a continuation of the one in the Stickles mine.

Mattison is taking out rich rock from the street, directly in front of his shop.

Other Cos. are prospecting with good success.

GOOD ROOK—Calaveras *Chronicle*, Feh. 17: MINE BONDED.—Dr. Hepburn recently made an assay of some quartz from he mine of Sheriff Thoru, near San Andreas. The rock showed very rich, yielding at the rate of $133 per ton. A shaft has been sunk on the lead 150 ft., developing a well defined ledge 5 ft. in width. The prospects that the mine is a permanent and valuable one are very flattering. We learn that it has heen honded to some parties for 60 days, for $80,000. In the meantime a level will he run from the hottom of the shaft which will prohahly result in still more favorable developments.

EL DORADO COUNTY.

DIAMOND SPRINGS.—Placerville *Republican*, Feh. 15: A few days since we saw some specimens of quartz taken out of a ledge in Diamond Springs dist. The richest specimen was nearly one half gold, and the poorest would go ahout $50 to the ton.

GEORGETOWN.—Cor. same: At Greenwood, Nagle and others have taken out over half a million from one claim. They mine the entire hill from summit to hase, it all heing equally rich. Whiteside, Stone, Watson, and others, have reaped an equally golden harvest. Capt. Blaisdell, and 2 other Cos. from San José, are opening some claims on the ridge, and have some very flattering prospects. The only serious drawhack is the scaroity of water, for prospecting purposes.

There is but one ditch hringing water on this divide, and that carries hut a limited snpply.

The quartz minsrs are husy opening np new ledges, and working their claims.

The owners of the St. Lawrence mine have lately put up a mill on their mine at an expense of over $50,000. The mine has heen fully developed; they have a very deep shaft sunk on thsir ledge. Its width is from 4 to 6 ft, aud every pound of quartz contains gold.

The Eureka mine has a very good mill upon it.

GREEN VALLEY.—Placerville *Democrat*, Feh. 17: The claim of Lutz, Chambers & Co., was robhed on Friday of last week. They had been ground-sluicing for ahont 3 months and had intended cleaning hedrock in a few days. The Co. put their loss at from $800 to $1,000. No clue.

LOGTOWN.—The Pocahontas mill closed, hut it will remain idle only a short time. The new shaft is to a depth of 340 ft. The drift north from this shaft is now 250 ft. and verging on a chimney of good ore.

INYO COUNTY.

STRIKE.—Inyo *Independent*, Feh. 10: A magnificent hody of ore has heen struck on a cross lode in the Omega tunnel, 150 ft. below the level of the tunnel, and 450 ft. from the surface. This cross lode is about 20 ft. in width, mostly hard ore running near $200 per ton. The indications are very favorahle for a big strike in the main tunnel.

MARIPOSA COUNTY.

FRANCIS MINE.—Mariposa *Gazette*, Feh. 16: The Co. intend erecting a 60-stamp mill during the season. The prospects of the mine are very encouraging.

IN LUCK.—A Frenchman picked up a piece of gold at Mormon Bar, on Sunday last, which weighed 68 ozs.

NEVADA COUNTY.

THE GOLD YIELD.—Grass Valley *Republican*, Feb. 16: From the best sources of information we can obtain, the yield of gold in Nevada county for the past 2 years has been $5,000,000 per annum.

BRICK.—We saw a brick on the 10th inst. at A. Delano's banking honse worth $6,500, the result of a recent clean up at the Empire mine.

SLUICES ROBBED.—The gravel claims of P. Donovan, at Allison Ranch, or rather the sluice hoxes in his claims, were cleaned up and the boxes demolished on Wednesday night, the 14th inst.

LOCATION. — McCook, Sanford & Co. have located 2,100 ft. on a quartz ledge on Independence Hill, near Deadman's Flat.

BLOOMFIELD.—Nevada *Transcript*, Feh. 13: The North Bloomfield G. M. Co. is carrying on extensive operations. The ditch from Big Cañon Creek is running to its full capacity, 3,000 inches of water. The Co. employ 35 men and is running night and day.

Brockmeyer & Hanner have just commenced washing in their claims at Colorado Hill. They have good prospects.

LOCATION.—The Sligo M. Co. has located 1,700 ft. on the Wasson ledge, commencing at the northwest end of the New England Co.'s claim, in Nevada township.

NEVADA QUARTZ MINE.—The incline is down 125 ft. and is 12 to 14 ft. between the walls of the ledge. The rock is rich in sulphurets and gold.

PROVIDENCE MINE.—National *Gazette*, Feh. 17: This mine is progressing finely. A contract for sinking the incline 80 ft., has heen let and sinking is going on night and day. The incline is down ahout 140 ft., and with the additional 80 that is heing sunk will make the depth 220 ft. The ledge is ahout 3 ft. in width and looks splendidly. Machinery for hoisting works are on the ground, and the works are being erected rapidly.

BUNKER HILL MINE.—A ledge of 15 ft. in width has shown itsslf, and the further they sink the wider the ledge hecomes. On Thursday the mill started up again. Ahout 50 msn are employed in mine and mill.

HOME CO.'S MINE—The Home Co.'s mine, at the mouth of Woods Ravine, lying idle for some time, will start up on the first of March.

TREMONT MINE.—The Tremont is on Deer Cresk, ahout a mile and a half from Nevada City. There are 3 tunnels run on the ledge, the lower one being about 6 ft. ahove high water mark of Deer Creek. This tuunel is heing opened hy contract, and will he completed in ahout two weeks.

PLACER COUNTY.

RIOH STRIKE.—Auhurn *Herald*, Feh. 17: On Monday, T. P. Harrison opened a quartz ledge some 2 miles west of here, which is astonishingly rich in free coarse gold. The ledge is on a high, hold, rocky ridge—the first ridge north of the old Union quartz mill. On Tuesday Mr. Harrison showed us 4 or 5 pounds of the quartz, which was full of coarse, hright, pure gold, amounting to fully $8 or $10 to the ℔. He had out then about one ton, all showing very rich in free gold.

GOOD.—J. Barron has taken out during the past month from the old Barron & Co.'s claims, $421 in gold. This was done by one man, from rock near the surfacs and only a hand mortsr to crush the rock in. The Co. have 1,000 ft. of the ledge, which is from 2 to 3 ft. thick, with slate formation on the east and granite on the west, and is well and clearly defined.

RIOH CLEAN UP—The Bellevue mine has commencsd crushing ore from the dump, at the St. Patrick mill. The first 3 day's run, 15-stamp mill, cleaned up 800 ozs. of amalgam, worth $6 per oz., or $4,800 in gold. There were not to exceed 60 tons of ore crushed, which would bring the yield up to $80 per ton. The Co. have on their dump pile some 500 tons of ore, which it is claimed, will not on an average yield less than 60 per ton, or $30,000 for the lot.

EOLIPSE MINE.—The ownsrs of this mine are doing good work and getting good pay. The Co. have out some 90 tons of quartz, from the 90 ft. levsl, which will yield well. Mr. Patterson has leased the old St. Lawrence mill, and has commenced hauling this rock to it to he crushed, intending to save the sulphurets, which are abundant and rich.

PETER WALTER MINE.—This mine has opened into an extremely rich body of ore on the east drift of the bottom level.

DUTOH FLAT.—Cor. same: All the mining Cos. commenced washing ahout one week ago, and some have cleand up, with very favorable results.

The Summit Co., on Plug Ugly Hill, cleaned up hetween $4,000 and $5,000, the result of 25 days' washing.

Columhus Co., on Grass Hill, also had a very good clean up—hetween $2,000 and $3,000—after a run of 24 days.

The Wahkeegan Hydraulic Co. had a clean np hut I cannot say with what success.

Palentag Co. cleaned up from $1,000 to $1,200, and have a good prospect to do hetter next rnn.

The True Blue Co., on Elmore hill, near Alta, have had 2 clesn ups this season, with good results.

The D. F. B. G. Co. are hard at work laying the pipes from the Yuha ditch to their diggings.

PLUMAS COUNTY.

RUMOR.—*Quincy National*, Feh. 10: We are informed that the Crescent mills property has passed into the hands of an English Co., and that an agent is expected soon, to commence work on the mine.

SIERRA COUNTY.

CHANGE. — Downieville *Messenger*, Feh. 10: Wm. Manson has been elected Sup't. of the Highland & Masonic M. Co., at Alleghany.

TRINITY COUNTY.

DOUGLAS CITY.—Cor. Weaverville *Journal*, Feh. 10: Marsh & Green, at Point Bar, cleaned up $171.50 for 12 days' run, two men working.

Marcus Bennett made a partial clean up in his claim on Red Point, above Point Bar, and took out 11 ounces for 10 days' run, no hed-rock heing cleaned. Parties who have visited this claim say the bed-rock is literally covered with gold dust.

Nevada.

ELKO COUNTY.

LUCIN.—Cor. Elko *Independent*, Feh. 17: During the past 2 weeks a new impetus has been given to mining operations in this dist. Several Cos. who had suspended operations have again resumed, and a numher of new Cos. have commenced work with flattering prospects. Work ou the Lucy Emma mine was resumed a few days since, and it is yielding very rich ore. From the Hamhurg mine good paying ore is being hoisted. The shaft is down about 40 ft. hut at that depth it shows well. The Overland is heing prospected in a thorough manner with every indication of soon developing a rich hody of ore. The Big Emma, after changing hands several times, has fallen into the possession of Mr. Banfield, and he is prosscuting work upon the same with energy.

Yesterday the keys of the Tecoma mine were delivered to the original owners, the Independent Co.

EUREKA DISTRICT.

EUREKA CON.—Eureka *Sentinel*, Feh. 11: The hullion flows freely from 4 furnaces, the 5th one remaining idle as a reserve; 20 tons of hullion per day is the average yield.

ELY DISTRICT.

BULLION.—Ely *Record*, Feh. 11: W. F. has shipped since Feb. 8th hullion valued at $60,098.92.

BOWERY MILL.—The grading is all done and the rock work finished in fiue style. The machinery has all arrived and work has commenced. Mr. Heyck the huilder, thinks that the mill will he ready to run hy the 1st of March.

MOCKING BIRD.—This claim is on the side of the mountain about 1,000 ft. east of the Silver Peak shaft. The ledge is large and well defined on the surface, and can be traced for several hundred feet.

Emperor is the name of a recent location on the west side of the Meadow Valley road, about midway between the Bowery and Alps mines. The shaft is down 35 ft. showing walls of a fair character, and ledge matter containing oxides of lead, and traces of silver.

PAGE AND PANAOA.—The whim is completed at the main shaft. Work has heen commenced—timhering the shaft in a suhstantial manner from top to bottom. As soon as the shsft and works are timhered throughout, the main shaft will he sunk 100 ft. deeper, and cross drifts run from the 200-ft. level to the lsdges. The ledge in the shsft at the 152-ft. level is 5 ft. wide, and shows hunches of good ore. The south drift, at a point 140 ft. south of the main shaft, cuts a ledge that is 11 ft. wide and well defined, with psrfect walls, and carrying good ore.

PEA VINE.—This claim is on the Bowery ledge, just west of the Lehigh mine. The ledge was struck in this claim last fall. A shaft was sunk 40 ft., showing all the way down a well defined vein over 18 inches wide that will assay $215 to the ton. The ledge has heen opensd at 3 or 4 points for a distance of 300 ft. in length, showing it to he genuine.

VANDALIA.—A large ledge of fair ore was struck in the cross cut on the 9th inst. The claim is northwest of the Silver Peak and on the eastern slope of Bowery Point.

HAHN AND HUNT CO.—The Supt. has gone below to make arrangements for putting up the necessary buildings and improvements to work the mine to advantage. A full force of men will bs placed at work on the 1st of March. The ledge is ahout 3 ft. wide, of solid ore of a high grade. Present developments show over 600 tons of fine ore, with every indication of an immense mass clear through the mine.

VULTURE.—This is a recent location ahout 400 ft. northwest from the Bowery. At a depth of 5 ft. a body of fine ore was struck, which promises well.

HUMBOLDT.

UNIONVILLE.—Cor. Humboldt *Register*, Feb. 10: The Arizoua Cons. is heing well developed and looks hetter every day. A few days since, a vein 5½ ft. in thickness was found, and proved to be of rich black sulphuret ore, 3½ ft. of which contains good milling ore, and considerable of the remainder is high grade shipping ore. There is a drift at present heing run north from the shaft, at a point 120 ft. down, which also shows a rich vein of 5 ft. in thickness and equals anythiug ever taken out of this mine. The incline which is down 160 ft. also shows very promising. The Eclipse mine is not doing much work, in consequence of the late snow storm. In the course of 2 or 3 weeks they will again commence operations, and hy Aug. next, they will have their mill built. For sometime past they have been driving ahead the wrong way in search of the ledge, and finally struck out in a northerly direc ti on

and struck on a rich vein of black sulphuret ore, about 3 or 4 ft. in thickness. The Inskeep and Henniag are looking well, and have a vein which varies from 2½ to 5 ft. in thickness. The ore assays about $70 per ton. Operations on these mines still continue.

It is rumored that J. C. Fall & Co. are about to erect a $40,000 quartz mill at Star City.

REESE RIVER.

Prospecting Party. — Roose River *Reveille*, Feb. 15: Nick Barovich and Ben Troxel start in a few days on a prospecting tour to the country in the vicinity of Silver Peak.

Will Start Up.—The Manhattan mill will resume operations to-morrow.

WASHOE.

Belcher Bullion.—Virgina *Enterprise*, Feb. 15: We yesterday saw at the Bank of California 13 bars 1,231 lbs and worth $49,473.29.

Sutro Tunnel.—On the 11th inst. the Tunnel was in 2,726 ft. Ground hard—no water at the face of the tunnel. Shaft No. 1 down 93 ft.; ground good. No. 2 down 150 ft. in favorable ground—some water. No. 3 down 90 ft., ground hard and dry. No. 4 down 92 ft., and the ground is hard and very wet. On the 12th a great body of water was tapped in shaft No. 4.

Crown Point.—Last week the amount of ore extracted and shipped to mills was 655 tons, valued at $32,143.60.

Late accounts from the Savage are to the effect that the new development is not looking as well as at first.

Vivian Mill.—The damages to the dam and race of the Vivian mill, on Carson river, by the winter floods, are being repaired, and the mill will be able to start into operation again at an early date.

The Yellow Jacket mill, Carson river, is being thoroughly overhauled and will start up the first of next month as good as new.

The majority of our reduction works are in full blast with plenty of ore and an abundance of water.

Belcher.—During the last month, 8,000 tons of ore were sent to mill, valued at $410,000. The mine continues looking and yielding splendidly.

Started Up.—Gold Hill *News*, Feb. 14: The first of the 2 powerful hoisting engines at the Crown Point works, having been put in working position, was started on Tuesday. It works splendidly. The other one will also be put in position as soon as possible.

Items.—The stopes and north wiuze at the 1,100-ft. level of the Belcher are looking and yielding splendidly, car samples assaying about $80 per ton; pulp assays average $68. The average assays from the drift and east cross-cut at the 1,200-ft. level of the Crown Point are from $50 to $260 per ton and from the winze at the 900-ft. level, $30. The Chollar Potosi is yielding about 150 tons of ore per day, and $50 per ton is about the average assay of car samples. The Hale and Norcross yields about 125 tons per day.

WHITE PINE.

Eberhardt.—White Pine *News*, Feb. 10: There is a shift of men engaged cleaning out the Keystone tunnel.

Ward Beecher.—The winze to connect with the Lady's chamber shows a fine body of ore.

Noonday.—Breasting out with a force of 5 men.

East Shenoyoan.—Working a force of 10 men, in the southeast drift, Exchange Incline, and Regent drift. The Exchange Incline and Regent drift are now connected. There is a rumor that 400 ft. of the Co's. ground was jumped a few days ago.

Asbury Tunnel.—Work in the tunnel and side drifts go ahead as usual. The indications for a strike of mineral are more favorable than when last reported.

Shafer.—The shaft is down 197 ft., and shows ledge matter from bottom to top.

Edoar.—Arrangements will be made for extensive operations.

Copper Glance.—A force of 2 men is employed sinking the main north shaft.

Silver Wave.—The new shaft is down 35 ft., and shows a fine body of fair milling ore. Work in the different shafts progressing as usual.

San Juan del Rio.—There is a fine body of ore in sight. The Sup't. will commence shipping ore to mill soon.

North Aurora.—The south drift from the Lady's chamber has improved in body and grade since we last visited the mine.

South Aurora.—Drifting back to the spar seam to the Mitchell shaft. A contract is let to drift east from the main tunnel.

Gen. Lee.—The drift from the spar scam is going ahead as usual and showing a body of ore 3 ft. in width.

Outside Districts — Robinson. — The shaft on the Osborne is down 60 ft. The level from the bottom of the shaft is in 70 ft., showing a fine body of oxide of copper. The Hays, Brooks, Emma, and Silver Star, show copper, silver glance, and milling ore. The Old English and other prominent mines are looking well.

Arizona.

Mines and Mining.—Prescott *Miner*, Feb. 3: For the present, A. Rush has suspended operations at Poople's Valley. The Vulture, Tiger, Lorena, Del Pasco, Benjamin and other Companies are working away.

Pinal Mines.—Tucson *Citizen*, Feb. 3: Work on the Silver Queen is going on; ledge seven ft. wide and solid mineral.

Idaho.

Bullion.—Silver City *Avalanche*, Feb. 10: W. F. & Co. shipped from here this week 6 bars valued at $15,066.53.

South Mountain—Cor. same: E. C. Hardy, of Boise City, is about to bond, or has bonded the extension of the Mono. Ben. Cook has resumed work on the Bay State, which shows a solid mass of very rich galena 5 ft. in thickness, traced a distance of 100 ft. E. B. Johnson has made arrangements to begin work on the Mammoth next week. The May Queen shaft is down 26 ft. and the ore looks fine. Hastings & Co. are running a tunnel to tap the Hastings ledge 25 ft. below the surface. They are in 30 ft. and expect to tap the ledge in 5 ft. more. The Polar Star has increased from the thickness of a knife blade to 3 ft. and that at a depth of 10 ft. with very rich ore. The Co. have started a tuunel in the gulch to tap the vein 30 ft. below the surface.

Montana.

Clancy Creek.—Helena *Gazette*, Feb. 5: Out of the El Dorado, the Co. are taking 7 tons of galena every 24 honrs, and will soon have their mine in shape to take out double that amount. On account of bad weather the Minnesota mine has closed, but will start up again as soon as the weather moderates. Halford & Co., Dr. Brook & Co., and Parker & Wood are at work running tunnels to their respective lodes.

There are several parties running tunnels, and all think they have a "dead thing" on a good lode.

Beartown.—Deer Lodge *Independent*, Feb. 10: Some 30 men are working and taking out money. Abont 10 Cos. are at work on the lower gulch taking out pay dirt.

Prospectors.—A party of prospectors are going out the coming week to prospect the tributary of Mill Creek, heading in the direction of French gulch.

Utah.

Camp Floyd.—The Queen of the West, Sparrow Hawk, Silver Cloud and a number of others have a large amonnt of valuable ore in their shafts. There are some 250 men at work in the Dist. for good wages. The mill being erected by the Sparrow Hawk Co. will be completed within the next 6 weeks.

Little Cottonwood.—Work continues in several of the mines and some miners are trying to develop their claims, notwithstanding the inclemency of the weather, and are making rich discoveries. A. Jacobson brought into Alta yesterday, a very rich and large specimen, weighing 140 lbs., taken from the "Matilda," near the Davenport.

Tintic.—More recent mining discoveries are reported in this Dist., assaying very favorable and showing large deposits.

A party just in from West Tintic, where they have been sinking on the Noon lode, are quite elated. They claim to have a strong, clearly defined vein of good milling quartz, 6 ft. in width.

Columbia Dist.—Gold Eagle is lying idle, but the Co. intend to commence work next week with 2 shifts.

Chimney Corner, on Montezuma Hill, is proving itself one of the best mines in the Dist. Holmes & Gillham have run their tunnel 50 ft., following their ledge from the surface, and now from the face of the tunnel, or incline, more properly (for it has pitched to the south about 4 ft. in running the 50) it is about 45 ft., vertically. The ledge is 3¼ or 4 ft. wide and is pitching to the south very rapidly. The ore is very soft and porous, being carbonates of rich character, with the exception of 3 or 4 inches of galena which lies next to the hanging wall. The hanging wall is smooth and true, not varying 3 inches in the whole length of the tunnel.

The Washington is being worked and prospects finely at a depth of 25 ft., showing the width of the whole shaft. The ore in this mine is improving as depth is attained.

Domiago, on the same hill and east of the Washington, is down 12 ft. on an incline and looks very promising.

Liberals, still further to the east, are in on their tunnel 20 ft., showing good ore but the ledge is still broken.

Prospectors are begining to come in.

S. F. Stock Exchange Board.

San Francisco, February 22, 1872.

There was no session of the Stock Board today, it being the anniversary of Washington's Birthday. The sales at the Board for the past few weeks have been larger than ever before since its organization. The sales for the week ending Jan. 24, were $4,540,200; week ending Jan. 31, $4,208,600; week ending Feb. 8, $8,045,000; week endiug Feb. 15, $7,682,000, making a total of $24,467,300. The *Bulletin* says that the total amount of sales for 1870 was only $51,186,000 and in 1871, $127,888,000. The magnitnde of these sales is apparent by the latter figures and the amount of sales this year may approximate $175,000,000. On Friday the sales were moderate and prices weak for most kinds of stock. On Satarday they were a trifle higher.

The Page & Panaca S. M. Co. have elected the following Trustees: H. Mayer (President) S. Steinhart, N. C. Fassett, A. H. Rutherford, Geo. D. Roberts and H. Schwartz. L. Kaplan is Secretary.

The Superintendent of the Daney mine writes that the drifts coutain seams of fair ore. During the past week 500 tons of ore were taken from the Belcher, averaging by assay $55 per ton; bullioa shipped, $120,655.

The Justice M. Co. have elected as trustees: G. W. Beaver (President) R. F. Morrou, I. N. Thorne, T. H. Williams. G. W. Wegener was continned as Secretary.

The Eureka mine cleaned up last week 310 onnces of amalgam from 180 tons of ore. The bullion shipment from the Raymond & Ely was $26,464, and from the Piermont mine $8,000. Some 996 tons of ore were taken from the Savage mine; 970 tons from the Hale Norcross, and 150 tons from the North Star. Stocks were rather active again on Tuesday, but prices were weak. About 740 tons of ore from the Crown Point last week yielded $41,000. The clean up of the Golden Chariot mill on the 16th, amounted to about $6,000. On the 17th, $2,500 were sent down from the Original Hidden Treasure mine, and on the 19th, $2,200 from the Buckeye.

Comparative Prices—Extremes. Advance and Decline.—S. F. Stock and Ex. Board.

	Feb. 15.	*Highest.*	*Lowest.*	Feb. 21.	*Adv.*	*Dec*
Alpha	$27½	38	26	35	7½	—
Amador	—	—	—	—	—	—
Belcher	630	630	620	620	—	10
Buckeye	4½	4½	3½	4½	1	—
Chollar-Potosi	66	68	60	68	12	—
Caledonia	10	10¾	8½	9	—	1
Cons. Virginia	42	46	40	44	2	—
Crown Point	—	—	—	—	—	—
Daney	2½	2⅝	2	2½	⅛	—
Eureka Cons	25½	27	24½	25½	—	—
Eureka	18½	18½	16	16½	—	2
Exchequer	15	18¾	15	—	—	—
Gould & Curry	217½	220	185	227½	10	—
Golden Chariot	12¾	12½	11½	11¾	—	⅜
Hale & Norcross	255	260	230	245	—	10
Imperial	86	120	80	115	29	—
Ida Elmore	12½	12½	12½	—	—	—
Kentnck	242½	250	230	—	—	—
Mammoth	65c	70c	60c	70c	5c	—
Meadow Valley	17	19	16½	19	2	—
Mahogany	11	11	9½	—	—	—
Ophir	105	107½	92	107½	2½	—
Orig. Hid. Treas.	8	8½	7¾	8	—	—
Overman	60	64	55	63½	3½	—
Pioche	11	12¾	11	12¼	1¼	—
Raymond & Ely	139	141	130	141	2	—
Savage	239	252½	170	250	20	—
Sierra Nevada	23	28½	21	27	4	—
Succor	6	7½	5	7	1	—
Wash. & Oreole	5	6¼	4¾	6¼	1¼	—
Yellow Jacket	74	77	70	76½	2½	—
St. Patrick	24	24	23	—	—	—
Seg. Belcher	68	68	57½	58½	—	9½

Latest Prices—Bid and Asked.

	Bid.	Asked.		Bid.	Asked.
Alpha Cons	34	34¾	Ida Elmore	9½	10
Amador	—	280	Imperial	110	112
Belcher	620	620	Kentnck	232½	235
Obollar-Potosi	62½	65	Meadow Valley	17¾	18
Crown Point	—	740	Ophir	100	101
Caney	2½	2½	Orig. Hid. Treas	—	—
Eureka Cons	25½	25½	Overman	60¼	61
Eureka	16½	17	Savage	237	239
Golden Chariot	11½	12	Raymond & Ely	134	135
Gould & Curry	213	217	Sierra Nevada	26	26
Hale & Norcross	245	245	Yellow Jacket	74½	75

Sodium for Blasting.—The application of sodium for the purpose of blasting is made as follows: Two glass bulbs 50 cubic centimeters capacity are blown with a neck of glass between them; one bnlb is filled with sodium and the other with water, and between the two is fused a soluble salt. The length of time required to dissolve the salt can be ascertainod by experiment, and the connecting tube be made so as not to have the charge fired prematurely. The bulbs, with the sodium below, are let down into the drill hole, the water gradually dissolves up the salt, and thus comes into contact with the metal, and the explosion follows.

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the Scientific Press and other San Francisco journals.]

ASSESSMENTS.

Name, Location, Amount and Date of Assessment.	Day Delinquent.	Day of Sale.
Alhambra Hill M. Co., Nev., Dec. 9, 50c.	Jan. 13	Feb. 27*
Buckeye G. & S. M. Co., Nev., Jan. 9, $1.	Feb. 13	Mar 14
Caledonia S. M. Co., Nev., Feb. 1, $4.	Mar. 8	Mar. 29
Daney G. & S. M. Co., Nev., Feb. 1, 05c.	Mar. 4	Mar. 25
Emerald Hill M. Co., U.T., Jan 11, 25c.	Feb. 19	Mar. 14
Empire M. & M. Co., Nev., Jan. 5, $10.	Feb. 8	Feb. 26
Golden Age & Empire M.Co. Feb. 9, $2.50.	Mar. 12	Apr. 3
Gould & Curry, Nev., Jan 30, $15.	Mar. 4	April 26
Golden Chariot, L. T., Jan. 31—$2 50,	Mar. 9,	Mar. 30
Ida Elmore, Idaho. Dec. 30 $1.00.	Jan. 31	March 4
Imperial S. M. Co., Nev., Jan. 5, $10.	Feb. 8,	Feb. 26
Kentuck, Nev., Jan. 20, $10.	Feb 24	Mar. 13.
Kincaid Flat M. Co., Cal., Feb. 14, $3.	Mar. 18	April 8*
Lemon M. & M. Co., Nev., Jan. 0, 50c.	Feb. 10	March 2
Mahogany G. & S. M. Co. I. T. Jan. 26, $1.50	Mar. 6	Mar. 23
Mina Rica M. Co., Cal., Jan. 16, 20c.	Feb. 19	March 11*
Nevada L. and M. Co., Nev., Jan. 9. 4c.	Feb. 13	Mar. 4*
Nonesuch S.M.Co. White Pine, Feb.1, 20c.	Mar. 5	Mar. 25
Overman, Nev., Feb. 22. $4.	Feb. 22	Mar. 11.
Phœnix, Nev., Jan. 18, 75c.	Feb. 22	Mar. 13.
Piermont M. & M. Co., N., Jan. 20. 80c.	Mar. 1,	Mar. 23*
Quail Hill M. & W. Co., Cal. Feb. 15, $5.	Mar. 26	April 16*
San Buenaventura Co. Cal. Jan. 19, $1	Feb. 29	Mar. 29
Silver Wave, Nev., Jan. 30, $1.	Feb. 26	Mar. 19.*
South Chariot M. Co., I. T., Feb. 8, $1.	Mar. 9	April 1
St. Patrick M. Co. Placer co. Cal. Feb. 8, $4.	Mar. 13	Apr. 2
S. Gulch Gr. M. Co., Cal., Feb 7, $1.50.	Mar 13	April 3*
Succor, M. M. Co., G. H., Jan. 3, $1.50.	Feb 6	Feb. 27
Tecumseh, Cal., Jan. 23, $4.	Feb. 27	Mar. 16.*
Tallulah M. Co., Nev., Jan. 30, $1.	Mar. 5	Mar. 26
Union O. M. Co., Cal., Jan. 4, $1,00.	Feb. 5	Feb. 26*
Wm. Penn, Nev. Jan. 16, 50c.	Feb. 10	Mar. 11.*
Washington & Creole M. Co. Feb. 16, 50c.	Mar. 15	Apr. 11

MEETINGS TO BE HELD.

Central S. M. Co.	Annual Meeting Feb. 28
Chapman M. & M. Co.	Annual Meeting Mar. 11
Daney G. & S. M. Co.	Annual Meeting Mar. 4
Golden Chariot M. C.	Annual Meeting Mar. 4
Marcellind S. M. C.	Annual Meeting Mar. 4
Redington Quicksilver Co.	Annual Meeting Feb. 26
San Francisco T. & M. Co.	Annual Meeting Feb. 5

LATEST DIVIDENDS—(Within Three Months).

Belcher, $15.	Payable Feb. 5
Chollar Potosi, $1.	Payable Feb. 10
Crown Point, $15.	Payable Feb. 12
Eastport, Ooose Bay, Coal M. Co. 1 per ct.	Payable Feb. 12
Eureka Gold M. Co., $1.	Payable Jan. 6
Keystone M. Co,. $3.	Payable Feb. 10
Meadow Valley, $1.50.	Payable Dec. 15
North Star G. M. Co., $3.	Feb. 10
Raymond & Ely, $5.	Payable Dec. 18
Yule Gravel M. Co., 50c.	Payable Dec. 5

—*Advertised in this journal.

Leather Market Report.

[Corrected weekly by Dolliver & Bro., No. 109 Post st.]

San Francisco, Thursday, February 22, 1872.

Sole Leather.—The demand is still equal to the supply, and prices still continue firm.

City Tanned Leather, ₱ lb.	26@29
Santa Cruz Leather, ₱ lb.	26@29
Country Leather, ₱ lb.	25@28

The market is well supplied with French stocks, and prices have a downward tendency. Heavy California skins are firm, with an upward tendency.

Jodot, 8 Kil., per doz	$80 00@
Jodot, 11 to 19 Kil., per doz	76 00@ 95 00
Jodot, second choice, 11 to 15 Kil. ₱ doz.	60 00@ 80 00
Lemoine, 16 to 19 Kil., ₱ doz	85 00@
Levin, 12 and 13 Kil., per doz	68 00@ 70 00
Cornellian, 16 Kil., per doz	70 00@
Cornellian, 12 to 14 Kil., per doz	60 00@ 68 00
Ogeran Calf, ₱ doz	54 00@
Simon, 18 Kil., ₱ doz	65 00
Simon, 20 Kil. ₱ doz.	68 00
Simon, 24 Kil. ₱ doz.	72 00
Robert Calf, 7 and 8 Kil.	35 00@ 40 00
French Kips, ₱ lb.	1 10@ 1 30
California Kip, ₱ doz	65 00 to 80 00
French Sheep, all colors, ₱ doz.	15 00
Eastern Calf for Backs, ₱ lb.	1 15@ 1 25
Sheep Roans for Topping, all colors, ₱ doz.	8 00@ 13 00
Sheep Roans for Linings, ₱ doz.	5 00@ 10 50
California Russett Sheep Linings	1 75@ 5 50
Best Jodot Calf Boot Legs, ₱ pair.	5 25
Good French Calf Boot Legs, ₱ pair.	4 50@ 5 00
French Calf Boot Legs, ₱ pair.	4 00
Harness Leather, ₱ lb.	30@ 37½
Fair Bridle Leather, ₱ doz.	48 00@ 72 00
Skirting Leather, ₱ lb.	34@ 37½
Welt Leather, ₱ doz.	30 00@ 50 00
Buff Leather, ₱ foot.	17@ 21
Wax Side Leather, ₱ foot.	18@ 20

Nothing New—Telegraph in 1817.

The old adage that "there is nothing new under the sun," is again verified in the case of the electric telegraph. In an old work, entitled "Arthur Yonng's Travels," published in 1793, accurs the following accounnt of what was clearly an approximation to our present system of telegraphic communication:

"In the evening to Mons. Lomand's, a very ingenious and inventive mechanic. In electricity he has made a remarkable discovery. You write two or three words on a paper; he takes it with him into a room, and turns a machine enclosed in a cylindrical case, on the top of which is an electrometer, a small fine pith ball. A wire conects with a similar cylinder and electrometer in a distant apartment, and his wife, by remarking the corresponding motions of the ball, writes down the words they indicate, from which it appears he has formed an alphabet of motions. As the length of the wire makes no difference in the effect, a correspondence might be carried on at any distance; within and without a besieged town, for instance, or for a purpose more worthy and a thousand times more harmless, between two lovers prevented from any better connection. Whatever the use may be, the invention is beautiful.

There are eight pin factories in the United States, the annnal production of which is 2,000,000 packs, each pack containing 3,360 pins—a total of $6,720,000,000 pins. About sixteen times this qnantity is manufactured in England.

The Hunt & Douglas Process for the Extraction of Copper from its Ores.—No. 1.

This new process, for which Letters Patent have been granted in the United States, Great Britain, Canada, Newfoundland and Chili (besides an exclusive privilege for Bolivia) may be understood from the specifications of the British Patent, here given, to which are appended notes and explanations:

Specification.

For the extraction of copper from its ores by this process it should ho in the state of an oxyd or some compound thereof, as oxychlorid or carhonate. These oxydized forms of copper are decomposed under proper conditions by protochlorid of iron with the production of dichlorid of copper, which is soluble in certain saline solutions, and in some cases a portion of protochlorid of copper, together with insoluhle peroxyd of iron, and more or less insoluble oxychlorid or hasic persalt of iron, which may he rendered soluble by the action of sulphurous acid.

The naturally or artificially oxydized ores are to he digested with a watery solution of neutral protochlorid of iron, with or without the addition of an earthy or alkaline chlorid, as common salt. The neutral protochlorid of iron may be conveniently prepared by douhle decomposition of protosulphate of iron with an equivalent of chlorid of calcium or chlorid of sodium. In preparing the solution, hereinafter designated as the bath, we may proceed as follows:

One hundred and twenty (120) pounds of salt, or one hundred and twelve (112) pounds of dry chlorid of calcium, or its equivalent of hydrated chlorid, are to he dissolved with two hundred and eighty (280) pounds of protosulphate of iron (green copperas,) in one hundred (100) imperial gallons of water. In place of the ahove salts we may substitute an amount of protochlorid of iron prepared by any other method, containing fifty-six (56) pounds of metallic iron. To the bath prepared in either way, two hundred (200) pounds of sea salt are then added, when the solution is ready for use, and will be found capable of chloridizing and dissolving about ninety (90) pounds of copper. The power of hrine to dissolve the dichlorid of copper formed increases greatly with the strength and temperature. The proportions above given are convenient, but in the case of poor ores, a solution of one-half the strength may be used with advantage.

In the treatment of copper ores by this process, they may be divided into two classes, non-sulphurretted and sulphuretted ores.

The first class or non-sulphuretted oxydised ores, inclndes [the native oxyds of copper, the carhonates and the oxychlorid. To prepare these for treatment they ehonld be finely pulverized. and the carbonates may with advantage be gently calcined be-before or after grinding, in order to expel carhonic acid. The red oxyd, if alone or greatly predominating, ehould also be gently calcined after grinding to convert it into protoxyd; but if it he mixed with a considerable proportion of protoxydized ore this is not necessary.

The pnlverized oxydized ores thus prepared are to be digested in the above bath, with frequent agitation. Heat is not necessary, but it accelerates the solution of the oxyd of copper, which in practice should not be more than sufficient to yield eixty or seventy pounds of copper to the above bath of one hundred gallons. When the solution is complete and the liquid drawn off, the insoluble residne should be lixiviated with a small volume of hot etrong brine. The liquid is then digested with metallic iron, hy which the copper ie throw down as cement copper, two parts of iron yielding three parts of matallic copper.

The bath thus freed from copper oontains a large amount of regeuerated protochlorid of iron, and can be used at once to treat a fresh portion of oxydized ore. A small loss of chlorine, which separates as oxychlorid of iron, has, however, to be snpplied by adding to the bath, from time to time, protochlorid of iron or the salts required to prodnce it. This need not, however, exceed for each repetition, one-eighth of the original quantity, and by careful exclusion of the air the quantity to be added each time may be reduced to much less. The strength of the bath in protochlorid of iron should be determined from time to time by appropriate tests.

In localities where it may be desirable to economize the protochlorid of iron a modification of the process may be adopted, which consists in treating with snlphurous acid the iron-compounds precipitated hy the oxyd of copper. To this end sulphurous acid from the roasting of sulphuretted ores, or from any other source, may he made to pass over or through the bath after or during the process of dissolving the oxyd of copper. In this case the protosalts of iron are constantly regenerated, and serve to chloridize fresh portions of oxyd of copper. A small amount of protochlorid of iron, with the aid of sulphurons acid, may, in this modification, be used to convert a large quantity of copper into dichlorid, the excess of which is precipitated, and may be washed out with hot strong brine. As this deposits a large quantity in cooling, the same brine may be employed indefinitely for dissolvinig dichlorid by heating and cooling it each time.

The solid dichlorid is rapidly reduced hy contact with metallic iron, especially when wet with brine, and yields metallic copper and protochlorid of iron, one part of iron giving two of copper. To prevent any precipitation of oxychlorid of copper from the dichlorid solution hy the air, it is well in all cases to have a small portion of protosalt of iron present. A little free sulphurous acid will also prevent such precipitation; but any excess of this gas should be expelled or allowed to escape from the solution before adding metallic iron.

In the case of sulphnretted ores, the first step in the application of onr process has for its object to convert the metal into an oxyd soluble in the hath already described. This conversion is effected hy calcination in the air, by which means all copper, iron and sulphur are oxydized. [Pyritous ores, holding much iron and sulphur, may be roasted in kilns, then ground and recalcined, but native sulphurets rich in copper, or regnlus, should be ground before calcination, which is hest done in a muffle furnace.] In either case a low red heat snffices, and what is called a dead roast is to be avoided, not only because it involves a waste of time and fuel, but because the high temperatnre renders a portion of the oxyd of copper insoluhle in the protochlorid of iron bath. The roasting need bo continued only until the complete oxydation of the sulphuret of copper, and its conversion into a mixture of oxyd with a variable proportion of sulphate of copper. This product may he treated directly with the bath, without addition, as directed for non-sulphuretted ores, but the excess of sulphates thus introdnced renders the bath impnre, and much more metallic iron is requircd for the eubsequent precipitation than when the whole of the copper is in the form of oxyd.

We therefore prefer to proceed as follows: We determine in the roasted ore the amount of copper present as snlphate, which will vary little for any given ore roasted under constant conditions, and we add thereto an equivalent of lime, which gives rise to insoluble sulphate of lime and oxyd of copper. In practice it is well to leave nndecomposed a small amount of snlphate of copper, which, in a eubsequent stage of the procese, will give with metallic iron the eulphate of iron required to replace the small loss already mentioned as occurring when sulphurous acid is not used. To an ore, for instance, with eight per cent. of copper, which after roasting contains three per cent. of copper as oxyd, and five per cent. as eulphate, we may add lime enough to decompose four-fifths of the latter at the rate of 28.0 parts of pure lime for 31.7 parts of copper, or about an equal weight of ordinary non-magnesian lime; heing four ponnds of finely ground lime for each one hundred pounds of the ahove roasted ore. An equivalent quantity of carbonate of lime, or other alkaline or earthy base, may be nsed instead of quick-lime, hut with less advantage. The roasted ore and lime may be added to the bath together, or better, the ore is to he added first. The subsequent part of the process is to be conducted as already described for the ores of the firet class.

[To be continued.]

THE recent Swedish and German expeditions to the Arotio region, and their confirmation of Dr. Kane's discovery of the open polar sea, have inclined many British geographers to favor a scheme of exploration by way of Smith's Sound, and some endeavors are being made to induce the Admirality to organize a new expiditiou. The excellent influence of such enterprises upon the naval service, is urged as a powerful argument in their favor.

California Manufactures.

We have received a pamphlet possessing merit, entitled "An Essay on the Manufacturing Interests of California, the Causes that impede and those that would aid in their development." By W. G. Morris, U. S. Marshal, and H. C. Bennet; "and puhlished hy permission of the Mechanics' Institute. If we premise the figures and tahular statements contained therein to he correct, which douhtless they are in the main, it presents a very favorahle showing of the mechanical and manufacturing interests of California.

It gives the number of indnstrial establishments in the State in 1870 as 6,515; hut estimates that of this number fully three-fourths are boot and shoemakers, tailors, hlacksmiths, bakers, carpenters and other hranches of industry usually found in most town and villages. After deducting these and a few other minor industries, the real manufactures of the State are summed up as follows:

List of Manufactures.

Four agricultural implement makers; 1 hagging weaving mill; 6 billiard tahle makers; 5 hoiler makers; 8 boot aud shoe factories; 8 box makers; 13 corn hroom makers; 33 hrick makers; 2 brush makers; 2 candle makers; 21 Carriage and wagon makers; 3 cement pipe makers; 4 chemical works; 75 cigar makers; 2 cordage makers; 1 file cutter; 150 flour mills; 2 glass works; 2 gold heaters; 6 harness factories; 12 hatters; 1 hydraulic cement maker; 6 jewelers and silver plate makers; 1 lead pipe and shot factory; 3 smelting works; 1 linseed oil works; 60 machine shops and iron foundries; 2 metallurgical works; 3 pail and tuh factories; 2 paper mills; 1 piano forte maker; 20 planing mills; 1 powder works; 1 rolling mill; 10 salt makers; 1 saw maker; 22 sash, door and hlind makers; 16 shingle mills; 300 saw mills; 10 ship builders; 10 soap makers; 3 soap root curlers; 1 starch maker; 8 straw hat makers; 1 stone (artificial for building) maker; 2 sugar refineries; 40 tanneries; 50 tinsmiths; 6 trunk makers: 3 type foundries; 3 wire workers; 6 woolen mills.—Total 954.

There are certain industries quite peculiar to this State, among them are the asphaltum mining, petroleum collecting, making horax and sulpher, mining chromic and other ores of iron, and curling soap-root as a substitute for horse-hair. The latter is quite a new industry and employs a capital of nearly $50,000, with 60 men, and machinery and engine of 40-horse power. The value of the product is nearly $100,000 annually, and is steadily increasing, hecause this material is the best substitute for hair ever discovered, and grows in unlimited quantities in all the foothill districts in the State.

The numher of persons employed in manufactures, according to the Federal Census returns, is 36,626 men, 1,253 women and 850 hoys. These figures, if subjected to similar analysis, show that less than 5,000 men, not more than 300 women and only ahout 400 hoys are employed in manufacturing in the whole State. Of the boys employed, 90 per cent. are engaged in the printing husiness.

The capital invested in manufactures, according to the Census, amounted to $76,947,310. If from this amount he taken the capital invested in miniug enterprises and other branches of industry not properly classed as manufactures, the amount employed does not exceed $20,000,000. Estimating the capital employed in each of the above 954 establishments at $20,000, which is far ahove the actual figures, the amount would not reach $20,000,000.

The total population of California is given for 1870 as 560,223. Imports of manufactured goods by sea are set down at $26,504,500. Imports by Central Pacific Railway $5,300,000; total of imports $71,063,688. Exports for the same year, merchandise hy sea $17,840,160. By railway, $2,750,000. Treasure hy sea and railway $32,983,140. Total of exports $53,581,300. If there is no material error in the above estimates and figures, there would seem to he a balance against us of $17,482,388. The pamphlet goes on to show in its way, the causes that operate against the manufacturing interests; the costs to the people of California in maintaining a metallic currency; the effect of savings hanks on the manufacturing interests, how capital control these interests, etc., making a very readable, interesting, and we presume reliahle work.

The Ponsard Furnace.

This furnace, so called after its inventor, and said to he applicable to puddling, steel-making, or any of the other uses to which the Siemens furnace can he applied, has of late been attracting considerable attention in Paris, where, for some months during the siege, an experimental furnace of this construction, was employed in the manufacture of crncible cast steel direct from the ore. The crucibles disposed in two rows along the sides of the furnace are charged from above and outside the furnace, eo as to enable one charge after another to be placed into the crucihle as the preceeding one sinks down in it, and, to some extent, therefore, making the smelting operations continuous. No reliahle details of this experimental working have as yet come to hand, hnt from the description it appears that the furnace is a regenerative one, in certain respects analogous to the Siemens' furnace, thau which it is, however claimed to be at the same time less costly as well as more simple in its action and construction. From the very imperfect description as yet received, it appears that the fuel employed is converted into gas in a generator, from which the gas is drawn by an uptake into the furnace proper. The air necessary for the comhustion of the gases enters the furnace after having heen previously heated in the regenerator, and the hot gaseous products of oombustion escape by the uptake after having first traversed the regenerator, which is composed of a cubical chamber divided into vertical channels, one set of which is devoted to the passage of the hot gases, whilst the other set is being traversed by the atmospheric air which supplies the furnace. Each of these are furnished with partitions to retard the movements of the gas or air circulating through it, and these partitions are constructed of perforated brick, arranged in lozenged fashion, so as to establish oommunication between them, and also increase the heating surface, by which arrangement the apparatus acquires great heating powers in a comparatively small space. The flame can he rendered at will either oxidizing or reducing, and the temperature can he varied by merely regulating the respective currents of air and gas.—*Journal of the Iron and Steel Institute.*

The Raymond & Ely 30-Stamp Mill.

The Ely *Record* gives a description of the new mill of the Raymond & Ely Co. The stone walls upon which the building rests are very substantial, and are put up in a tasteful manner. The arrangement of the mill is the hest of any we ever visited, as the foreman can stand at the main entrance and at one glance view the entire works, excepting the retort room, which stands in the rear. The machinery was manufactured at the iron works of Booth & Co., and is amongst the best of their superior class of work. The machinery weighs 188 tons, or 376,000 pounds. Work was commenced on the building Nov. 16th, 1871, hy J. B White, superintendent of construction.

The building is large and commodious; the engine room is 36x40; the battery room is 56x46; the pan room ie 56x56; the retort room is 56x46 and well ventilated, and is furnished with eix 12-inch retorts. The two boilers are each 16 feet long and 56 inches in diameter, with steam and mud drums of the best pattern attached. The governor ie one of Pickering's hest. The engine is 125-horse power, and can be run at 150-horse power if needed; it has 18-inch bore, with 42-inch stroke. The fly-wheel weighe eight tons. The main driving pulley is seven feet in diameter, and 26-inch face. The platform for receiving ore is 100x60 feet, and floored with 3-inch plank. The ore passes from the platform into one of Blake's largest rock-breakers, which does its work well, reducing the ore to a small size; from this it is thrown into the drying furnace or kiln, which is 60x12 feet, and is constructed in good style and of sufficient capacity to dry all the ore that ie needed for crushing. From the furnace or dry kiln the ore descends to the battery floor, four feet helow, where it is thrown into the batteries, which contain 30 stamps of the heaviest kind ever used in the State. The pulp is taken to 16 large Varney pans, each of one ton capacity. The pans discharge into eight 8-foot settlers, and the settlers stand in the center of the pans, being very conveniently arranged; the car track runs from the battery to the pans, settlers and retort room.

The blacksmith shop is situated between the two mille, so as to be handy for working for either one. The dam for tailing pit is six feet high and 21 feet wide; the pit covers three acres of ground. The mill started up on the 5th inst. at 6 P. M., crnshing ore from the Lightner shaft of the Raymond & Ely mine; there are 500 tons of ore at the mill and plenty at the mine. Quicksilver, amounting to 14 tons, is on hand for use. The mill, as well as all the works of the company, is under the superintendence of Col. C. W. Lightner, general superintendent. Thomas McMasters, superintendent of mills; J. McDermott, engineer; F. E. Seargent, assayer, and a reliable set of men, are now doing splendid work at the new mill.

Useful Information.

A Word About the Moon.

Every one is familiar with tho singular phenomenon known as the "new moon carrying the old moon in her arms," when, iu addition to the slendor orescent, the whole diso ia more or less distinctly visihle a few days after the new moon ; the samo appearance, or "the old moon nursing the new," presents itself in like manner in the waning moon, when she rises a few honrs before the sun ; hut we fear there aro few who shako off dull sleep to see it. This is what is called the *lumiere cendree*, or ashlight of the moon. Its appearance usod to ho taken as an indication that the moon was phosphorescent, or possessed some light of her own, indopendent of that she receives from the sun. Now, however, it is satisfactorily provod to arise from the sunlight reflected from the earth upon the dark moon ; for it must ho romembered that the earth is to the moon what the moon is to tho oarth, a reflector of the sun's light ; and when it is new moon to the earth it is full earth to the moon, and *rice versa*, and thus tho opaque moon becomes illnminated hy earth-light—to use a torm analogous to moonlight ; hnt on ao counut of the great size of the earth compared to the moon, this light is 14 times as bright as our moonlight, and thus occasional hrillancy of this "reflection of a reflection" is accounted for.

Science Perfecting Swimming.

Fredric Barnett, of Paris, has invented and patented a very novel yet simple apparatus for swimmers. The invention conconsists in snpplying to man by art the apparatus which has been given to the frog by nature. For the hands he has a large membranous fin which ie held to its place hy loops passing over the fingers and a strap around the wrist. The snrface prcsented to tho water hy these fins is so large as to add greatly to the effectivenese of the strokes of the arm, hut not so large as to exhaust the muscular power. Their effect is to very much reduce the effort required to swim without them. But the greatest ingenuity is displayed in the form and fitness of the fins for the legs, which are attached to the ankles, and are so formed that they act upon the water, hoth in the movement of hringing the legs together and throwing them hack. They act eo finely in treading water, as swimmors call it, that one can really walk, if not on the water, at least in it. The difference hetween swimming with this apparatus and without it, is very much like the difference between rowing a boat with a handle and the hlade of an oar. The old swimmer has no trouble in using the fins at first trial, and is surprised to find with what strength he can swim without exhaustion. He easily swims twice as fast with the apparatus as without it, and he can eustain himself for hours upon the water, or swim miles with it.

A Simple Alarm Clock.—Take a common weight clock and have a emall hole in each of the boarde that eupport the worke inside, in any convenient place near the hammer. Having attached a small wire or string to the wire that makes the olock strike in regulating, pass it through the holes and nnder the time weight, through another hole in the case to the outside, where, having secured it, you have an alarm clock that was never intended as snch. The time weight in descending will press on the etring and make the hammer strike until the whole weight runs down. To set the alarm the time weight must be gaged in winding, as it descende abont one-half inch in three-quartere of an hour. This is a hoy'e invention. It will wake a person without frightening him, which eome other alarms will not do.—*Scientific American.*

Keeping Fish Fresh with Suoar.—A method adopted in Portugal for preserving fish consists in removing the viscera and sprinkling eugar over the interior, keeping the fish in a horizontal poeition, so that the sugar may penetrate as much as possible. It is said that fish prepared in this way can be kept completely fresh for a long time, the savor heing as perfect as if recently caught. Salmon thus treated hefore salting and smoking possess a much more agreeable taste; a tablespoonful of sugar being eufficient for a five-pound fish.

How many of our lady readers ever dreamed that we send to Great Britain annually, fifteen million dollars in gold for the single article of spool cotton?

Good Health.

Medicinal Properties of Petroleum.

In nearly every drug store is found a celebrated remedy recommended hy English physicians, originating in Asia and pretended to be mannfactured in England, known as British or Rock Oil, which is proscribed as a liuiment for rheumatism, neuralgia, etc., which is nothing more or less than pnre petroleum and, it is no douht often nsed with very henefioial effect.

As a further example of the uses of petroleum for sanitary purposes, wo may cite the following very interesting and valuahle facts: Dr. Gelcich, dnring the recent epidomie rage of small-pox in Los Angeles, had many patients afflicted with that disease, and moreover had to officiate as County Coroner, in performing tho duties of which he was often called upon to enter houses and have bodies removed for burial. In fumigating snch places he found the most effective way was to place two or three onnces of the oil in a frying-pan, set it on fire and put it in the middle of the rooms. As a precantionary measure for himself he washed his hands in petroleum when it hecame nccessary to handle the hodies; he also recommended to every family to place a small quantity in a saucer in the corner of every room, which neutralized the miasma, purified the atmosphere and effectually prevented the spread of the infection. He believes that to this method is to he attrihuted the success that attended his practice during the eleven months eontinnance of that terrible epidemio.

Antiseptic Properties of Petroteum.

The antiseptic properties of petroleum are well described hy Dr. J. W. Twoler, Professor of Chemistry, etc., in Hobart College and Geneva Medical College, in his analysis of it made eome time since. He firet deecribee what putrefaction ie and etates, "that it is the decomposition, decay or natural destrnction of dead or organic matter. That whioh promotee putrefaction is air, moisture, warmth, oryptogamic plants and infusory insects. Dead organie snhstance, deprived of air and moisture and kept in a vacuum, resists putrefaction for au indefinite time. Chemicals may act in varions ways in checking and preventing putrefaction; they may in the first place exclnde air and moisture meohanically, as it were, like oils, resins, paints, tars, gums etc.

Now certain chemicals act in a two-fold manner—they may either abstract water from the organic matter and form new compounds, or they may extract the moisture hy the oxygen of the air. Such antiseptics are alcohol, common salt, saltpetre, etc. Othere again, act in a threefold manner; they abstract the water, exclnde the air and destroy animal and vegetable life.

The substance that will heet perform all thie work ie petrolenm. If for instance, a log of green wood be immersed in petroleum, the water and air in the pores of the wood are displaced hy the petroleum. Petroleum thus excludes air and moisture from organic snhstanees. It also destroys living vegetables and animals. Petrolenm containe no oxygen—which is a necessary element of decomposition. Out of all substances this hydrocarhon appears to he the most powerful antiseptic known; and I have no heeitation in recommending it for the purpose set forth."

As an Antidote for the Bites of Poisonous Insects, Reptites, Etc.

Petroleum is, also, a specific for the oure of the bite of venemous insecte, euch as hees, spidere, etc., and the hite of reptiles. A farmer in Illinoie had a large hee-gum near his house; one day some children playing near it annoyed the bees, which suddenly attacked the intruders and etung some of them in a terrible manner; the mother of the children immediately washed with petrolenm the parte etung and instant relief was ohtained. The same writer asserts that petroleum is an antidote for the hite of the rattlesnake and reptiles of kindred nature.

Offensive Breath.—For this purpose, almost the only snhstance that ehould he admitted at the toilette is the concentrated solution of chloride of soda. From six to ten drops of it in a wineglass full of pure spring water, taken immediately after the operations of the morning are completed. In some cases the oder arising from carious teeth is combined with that of the stomach. If the mouth be well rinsed with a teaspoonful of the solution of the chloride in a tumbler of water, the had odor of the teeth will be removed.

New Incorporations.

The following have filed certificates with the County Clerk, San Francisco.

Pacific Quicksilver M. Co.—Jan 31. Objects—To engage in and carry on the business of miuing and reducing quicksilver. Location of miue and works, San Luis Obispo county. Capital stock $5,000,000. Trustees: Chauncy B. Land, John C. Fall, A. E. Head, A. D. Allen and R. E. Brewster.

Pacific Borax Co.—Jan. 31. Object—To manufacture borax, salts and alkalies in Esmeralda county, Nevada. Capital stock $2,850,000, divided into 28,500 shares. Trustees: Justinian Caire, George W. Osborn, Michael Kane, Joseph Mosheimer and Henry N. Wyman.

Adams' Hill Cons. M. Co.—Feh. 2. Object—To mine in Eureka mining dist., Nevada. Capital stock $5,000, 000, into 50,000 shares. Trustees: J. B. Haggin, G. T. Lawton, H. A. Fox, O. F. Griffin and J. W. Gashwiler.

North Pacific Commercial Co.—Feh. 2d. Objects—To engage in business of fishing in the Pacific Ocean and in the inland waters of Washington Territory and British Columbia; to make oil, preserve fish and to transact a general commercial business. Capital stock, $100,-000, in 4,000 shares. Trustees: O. P. Sutton. Geo. Bragg and A. H. Todd.

San Jose Cons. M. Co.— Feb. 5. Object—To mine in Ely mining district. Capital stock $,3000,000, in 30,000 shares. Trustees: L. S. Robertson, Edmoud. L. Gould, C. D. Fitzhugh C. E.Hoffman and C. M. Thurman.

Starlight Gold and Silver M. Co filed a certificate of the increase of its capital stock to $2,500,000 shares.

Spring Mountain Co.—Feb. 8. Object—to mine in Ely District, Lincoln county, Nevada. Capital stock $2,000,000, with shares at the par value of $100. Trustees: C. H. Hallett, J. T. Pomeroy, A. G. Prince, G. E. Rogers and J. M. Buffington.

Leaming Petroleum Co.—Feh. 10. Object—To mine for petroleum, naphtha, asphaltum, and the oils thereof, and all other kinds of mineral and subterranean oils and snhstauces, in San Fernando District, Los Angeles county. Capital stock $1,000,000. Trustees: George W. Beaver, Joseph W. Stow, John Shirley, A. Georgiani and A. W. Von Schmidt.

Pea Vine Silver Mining Co.—Feb. 12. Object—To mine in the Ely Mining District. Capital stock, $3,000,000 in 30,000 shares. Trustees: J. B. E. Cavallier, C. P. Hall, C. N. Fox, Phillip S. Fay and G. Reiter.

Benjamin Gold and Silver M. Co.—Feb. 13. Object—To carry on the mining business in Arizona. Capital stock, $2,000,000, divided into 20,000 shares, at $100 each. Trustees: George D. Roberts, G. W. Curtis, James A. Andersou, J. W. Gashwiler, Samuel P. Middleton, George S. Kittridge, aud William Sears.

Inoomar Silver M. Co.—Feb. 13. Capital stock $4,000,000, with 40,000 shares at $100 each. Object—to carry on mining business in Ely District, Nevada. Trustees: J. D. Fry, F. C. Fassett, G. D. Roberts, George Reiter, and L. A. Booth.

Hoffman Silver M. Co. — Capital stock, $3,000,000, with 30,000 shares at $100 each, to carry on the silver mining business in Ely Mining District, Nevada. Trustees: J. D. Fry, J. W. Gashwiler, C. E. Hoffman, L. D. Fitzhugh and G. D. Roberts.

Orient Silver M. Co.—Capital stock, $1,-000,000, divided into 10,000 shares, valuation $100 each. Trustees: S. A. Raymond, James A. Pritchard, James Dods, Andrew Kohler, Wm. Hazelhurst.

Lyons and Wheeler Mining Co.—Capital stock, $5,000,000, divided into $50,000 shares of $100 valuation each. Trustees: Henry Lyons, I. Friedlander, A. C. Peachy, W. D. Wheeler and Frank Soulé.

Excelsior Gravel M. Co.—Object: To carry on gravel mining in Plumas county. Capital stock $500,000, with 20,000 shares of the par value of $25 each. Trustees: Warren R. Payne, Wm. H. Ladd, Ferdinand Vassault, John W. Bost and John Harding.

The following certificates of incorporation have been filed in the Secretary of State's office, Sacramento.

Calaveras Gravel Co.—Object—To operate in the Brushville district, Calaveras county; principal office, Stockton. Capital stock $200,-000. Trustees: Samuel Miller, Samuel Eldridge, John Bennett, Minord Thrasher and Edward Cannavan.

San Francisco Consolidated Mining Co.—Capital, $3,000,000; principal office, San Francicco.

Shannon Quartz M. Co.—Capital $80,000, principal place of business, Auburn.

Ella Mining Co.—Capital $120,000, principal place of business, Sacramento.

New Gold Fields.—The reports of gold discoveries on the north shore of Lake Superior are confirmed from various eources, though it appears probable that eome of the stories in relation to the richness of the deposits have been exaggerated—for instance, of gold-bearing quartz worth $6,000 per ton of Lake Shebandoweu, which is reached hy about forty-eight miles of travel over a splendid Government road from the shores of Lake Superior. Well defined veins of gold-hearing quartz, much of which is decomposed, have been found and traced for several miles. These veins contain, in addition to free gold, galena, very pnre silver glance, and iron pyrites. The sand in the streams of this region has heen found to contain gold, but whether in paying quantities has not yet heen ascertained. The silver mining in the region of Thnnder Bay continues immensely productive. At Silver Islet the quantity of silver daily dug ont is ouly limited by the force the operators are ahle to employ, and the supply appears to he inexhaustihle. Other mines in that region are yielding finely. The lands in which silver or gold have heen found extend back from the lako from fifty to one hundred miles One man has purchased 40,000 acres from the Canadian Government at one dollar au acre. The total population in the neighborhood of the mines is ahout 800; hut in the spring there will doubtless he an immense rush of fortune-seekers to these remarkable gold and silver fields. Tho country is wild and hroken, with hut little timber or soil capahle of cultivation.

Alvarado Foundry.

The Alvarado Foundry, says the Alameda County *Advocate*, is located on the Alameda Creek, at a point called Union City, about half a mile helow the town of Alvarado. The site was selected for its shipping facilities, the landing being an excellent one and the creek, to this point, navigable for steamers and schooners, while the Central Pacific Railroad is within easy reaching distance on the land side.

The proprietors of the establishment are Messrs. Tay, Brooks & Backus of 614, 616 and 618 Battery street, San Francisco, gentlemen of ample means and much experience in their line. They are very sanguine of the complete success of their enterprise; all the buildings and machinery are therefore of the most permanent and substantial kind. The two main buildings are 76x101 feet each; one of them, which ie used for a pattern shop and for mounting and fitting np stovee and other articles manufactured, heing two and a half stories high. There is also a building 45x95 feet used as a boiler room, and to separate and clean the castinge in.

A numher of other smaller huildings on different parts of the Company'e grounds used for various purposes show that a very extensive bnsiness is intended. At the north end of the casting house there is a water tank at a hight of forty-eight feet, supported hy a very snbstantial frame, which holds 6,500 gallons, from which by meane of hose all the buildings can be flooded giving great facilities for extinguishing fire.

The capacity of the foundry is now ahout ten tons of castings per day, bnt, as we are informed, it will at early day be much increased. The molding floor is, however, now larger than any molding floor in San Francisco, and prohably larger than any other in the State. The engine is a beautiful one of thirty horse-power, the boiler heing efficient to supply this engine and at least another of equal power.

The work done here will be the casting and finishing for the market, of French Ranges, etoves, hollow ware, cauldrons, grates, fenders, and all articles usually termed "honsehold furnishing goods." Stoves of original and elegant patterne will be made a specialty, and a distinguishing feature of the foundry. Any kind of work can also he done there promptly to order, for the machinist, farmer and miner. Any piece of casting can be duplicated there in a very short time.

Under the directions of the proprietors, Mr. Cyrus Packard, carpenter and builder, "broke ground" on the 21st of Septemher, 1871, and on the 20th of Jannary, 1872, the firet cast or "heat" was made, under the supervision of J. J. McDonald, Master Molder. Since then eeveral heats have heen taken, and several shipments of castings made to the city store and elsewhere; one quite large order having gone to Mexico.

Capt. J. W. Bryan, a very affable gentleman, with a clear business head, is the Superintendent of the establishment, and business connected with it. He is at present intimately connected with the proprietors, and will in a short time become a co-proprietor. The Captain's hrother, Mr. Joseph Bryan, is the resident manager and representive of the proprietors.

We in common with the whole community here most heartily wish this enterprise great euccess.

The Ophir mills on the Mariposa Estate commenced running last week on rock from the Josophine and Linda mines.

Scientific Press.

W. B. EWER.....SENIOR EDITOR.

DEWEY & CO., Publishers.

A. T. DEWEY, W. B. EWER, GEO. H. STRONG, JNO. L. BOONE.

Office, No. 338 Montgomery St., S. E. Corner of California St., diagonally across from Wells, Fargo & Co.'s.

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English and Colonial subscriptions, post paid, per year, £1 3s.; 6 months, 12s. Advertisements, per line, first insertion, 1s.; subsequent insertions, each, 8d. Large advertisements at special rates.

San Francisco:

Saturday Morning, Feb. 24, 1872.

Gold and Legal Tender Rates.

SAN FRANCISCO, Wednesday, February 21, 1872.—Legal Tenders buying 91; selling, 91½. Gold in New York to-day, 110⅛.

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TO INVENTORS.—A cheap machine or apparatus is wanted by which the juice of melons or other saccharine juices, can be concentrated to the condition of syrup or sugar, under common atmospheric pressure, at a heat of not to exceed 180° F. We don't want the expensive vacuum pan, in use in all refineries and sugar factories, but a reasonably cheap apparatus that any farmer can afford to buy. We say 180° because we wish to concentrate without danger of burning the syrup.

THE FIRST STEEL BOILERS.—We inadvertently stated, last week, that the steel boilers now in use at the Almaden Quicksilver mines were from the "San Francisco Boiler Works" of this city; when the fact is well known that they were built at the Vulcan Fonndry, and were the first steel boilers ever made on this coast.

PERPETUAL MOTION—The *Scientific American* has published a series of articles on perpetual motion, in which it has illustrated by a cut, "every principle tried since the search began." The object has been to show inventors the folly of pursuing the search further. There were thirty illustrations.

A NEW ALLOY FOR JEWELRY.—We hear from Germany of the invention of a new alloy for making imitation jewelry. It consists of copper, 58-86 parts, zinc, 39-24 parts, and lead, 1-90 parts. We cannot vouch for its success, but it is so simple that any of our readers can try it for himself.

A NEW INVENTION.—We are beginning to imitate and perhaps equal the Japanese, in the manufacture of useful domestic utensils from paper. An exchange says:—In Pearl street, New York, there is a mill which makes from paper, milk pans, cups, bread pans, wash bowls, etc., which is said to be superior to wood or metal. The paper after being pulped is pressed to shape, dried, enameled, and subjected to a heat that would destroy some utensils of the kind. The material is light and easily handled, and does not rust, shrink or easily break.

Earnest Talk to Miners.

[For the PRESS—BY OUR MINER—No. 3.]

THE MINING INTEREST.

The True Position of the Miner.

Having in previous articles called attention to the importance of the mining interest of the Pacific Coast; shown how the Federal and State Legislatures neglect this interest, and exposed the plans of landgrabbers to obtain control of the mineral lands—we propose in the present article to say a few words to the miners about themselves. "Naught extenuating nor setting down aught in malice."

Those who respect themselves, command respect from others, is a truism of just as much force among those who delve in the dark, damp drifts of the deepest mines, as it is among those "who wear purple and fine linen and fare sumptuously every day."

The miners of California should fill a more prominent position in the body politic than they at present occupy. Their numbers, the value of their products and the nature of their employment entitle them to such a position. The reason why they fail to reach it, is their disregard of their own interests. When they shall awake and understand the strength of organization and unity of action, the importance of their interest will obtain proper recognition. Then the term "honest miner," will no longer be one of derision implying an inferiority on the part of those who work the mines and produce wealth, as compared with those who by gambling in mining stocks, concentrate this wealth in few hands to react on its producers, by becoming an instrument for their oppression.

Tho world admires courage and perseverance. It especially honors the soldier, who, amid the mad, brutal turmoil of battle risks life or limb in the work of destruction; yet, what is such courage when compared with that of the patient miner, who daily and hourly runs far greater risks in the more commendable aud useful work of productions. What greater monuments of individual perseverance can be found on the wide world's surface, than is presented by the miles of tunnel cut through rock-ribbed mountains; shafts cut through the stubborn rock or treacherous sands, from the summits of the foothills, down, down below the level of the ocean, and the hundreds of miles of ditches and flumes which traverse almost every mountain and cañon from the snowy Sierras to the sea? These are the monuments erected by the miners of California to the memory of the thousands who have perished "unhonored and unsung" during the progress of the work of producing the thousand million dollars worth of gold which sets in motion the machinery of the world's commerce and manufactures, decorates beauty in the palaces of the great and provides necessaries and comforts for the lowly dwellers in the homes of the poor.

The world is too just and generous not to honor the sturdy class capable of producing snch grand results. The absence of recognition of the merits of the miners of California is due to their neglect of their own interests; a fact which we are endeavoring to impress on their minds. It affords us much pleasure to observe that our efforts in this direction are producing the desired results.

The miners of Grass Valley, the most important quartz mining district in the world, satisfied that the use of a certain description of blasting powder was injurious to their health, have held several meetings to decide on the best means to prevent the use of this deleterious substance. They have made no tumultous demonstrations, used no threats, and say they desire no "strike." Like sensible men who "knowing their rights dare to defend them," they propose to explain the cause of their complaint to the owners of the mines, and to respectfully, but firmly demand that the materials, which they think shortens their lives, shall not be used in the mines.

Public opinion—the soverign power in our Republic—will always be on the side of the working class which adopts this manner to obtain redress of a grievance.

The owners of the mines must prove that the complaints of the miners are unfounded, or discontinue the use of the objectionable material, or the responsibility of the consequences will rest on them. We sincerely hope that the miners concerned will avoid every act that may bring them into discredit. They may depend upon our hearty support so long as they only resort to lawful means to abate what they claim is a serious injury to their interest.

REMARKS.—We are happy to be able to inform "Our Miner" and also the miners of Grass Valley, that a California inventor, Dr. A. Blatchley of this city, has already come to the relief of blasters troubled with the obnoxious fumes from various kinds of powder, with a very simple invention, which is said to almost instantly and perfectly lay the noxious vapors. We think the manufacturers of such powder stand in their own light by not testing its efficacy, and if successful, purchase the right for the benefit of their consumers. The patent was procured through the SCIENTIFIC PRESS Patent Agency, and is described in our issue of August 5th, 1871.—[EDITORS.

Wastage of the Precious Metals—No. 2.

BY ALMARIN B. PAUL.

[Written for the PRESS.]

The following paragraphs from the numerous letters I have been in receipt of, speak for themselves. I extract under the heads of States and Territories.

California.

"I have a mine and mill, amalgamating pans, etc., roasting furnaces for sulphurets, and other necessary appliances for working by the chlorine process—assaying apparatus, etc., and know how to use them. Now what next would you say, that with all these things it would be strange not to know what I am about, for I know that I save an average of not over one half the gold."

"They returned me by sampled assays from my ore $80 per ton, and I cauot get more than $10 per ton by mill working."

"We have worked our ores in arastras and have failed, we cannot save only about 40 per cent., and we have no base metal to contend with—the trouble is the gold is so fine and what is coarse is coated with something so it will not adhere to the mercury, althongh to look at it, it appears very bright. I save about $20 a ton and can get about as good a show out of the tailings as out of the ledge before working and I have worked in quartz ten years."

"The first lot of ore went $18; the second, $6.25; sulphnret tailings assaying $60 per ton—we quit.

"We have on hand from 300 to 400 tons of chlorination tailing's which assay from $15 per ton upwards."

"The general principle that has caused you to experiment. That is the Wastage of the Precious Metals is acknowledged by every practical miner.

"Mr. J. told me he had ore valued at $30 by assay and could get but from $10 to $15 out of it. There is no proportion between assays and yields. The rock I sent you was returned to me at $30 valuo and all I could make it pay was $7."

Colorado.

The following from the *Herald*, Central City, Colorado, and G. W. Baker's pamphlet of same city, is quite to the point. Such declarations of facts are credible to the journal and author and a benefit to the whole people. "It is only necessary to realize the fact, then comes a remedy." In answer to what the *Register* is pleased to term the *Herald* proclamation, we received the following statement for publication. The owner's name, and that of the mill, will be furnished at this office if required, also full and complete documentary proof of the details herein stated. The ore taken to the mill was such as is usually milled from the lode in question, and was in amount 140 tons. The mill is the ordinary stamp mill of Gilpin county, battery amalgamation and amalgamated copperplates in good working order, and managed as is usual, in like milling establishments; the treatment by milling and the plates returned 80⅓ ounces, a little over 4 ounces per cord. The owner of the ore required blankets to be used after the plates, and in this way stopped 10½ tons tailings — very nearly 10 per cent. The blanketings were sampled, assayed and sold. The assayer valued their contents at 5 ounces in gold and 11 ounces in silver, per ton. After the blankets, the flow was again settled and roughly buddled, securing 45 tons of second tailings. These were sampled and assayed, yielding a value of 3 oz. in gold and 9 oz. in silver per ton. A little over 40 per cent. of the whole mass of ore was thus re-worked. Now for the figures, estimating gold at $20 per oz. and silver at $1.30 per oz.:

Yield by stamp mill, 80⅗ oz. @ $20	$1,610 00
Value of blanket tailings 13⅗ tons 5 oz. G.—67⅗ oz., at $20	1,350 00
13⅗ tons, 9 oz. S.—148⅗ oz. @ $1 30	193 00
45 tons tailings 3⅗ oz.—157⅗ @ $20	3,150 00
45 tons tailings, 9 oz. silver—405 @ $1 30	546 00
Total value of ore	$6,849 00
Average value per ton, nearly	$49 00
Saved by mill process	11 00
Loss by milling process	$37 25

NOT QUITE 24 PER CENT. of the valne of the ore was obtained by the milling process.

The blanketing and stoppage of the tailings was not a part of the milling process, so called, and if the owner of the ore had not attended to this himself, the milling would have brought him in debt. A part of the same ore was taken to another mill previously, where the owner did not supervise the running and save the tailings, all of which went their way down the stream. That lot brought the owner of the ore in debt to the mill man.

Again Mr. Baker says:

Assays of 45 samples of tailings went	$27.58
" " 23 " " blanket washings	$59.23
" " 38 " " dressed "	$42.00

So much for the assay of tailings; while the average per ton of 120,000 tons of ore as worked is estimated at eleven dollars and fifty cents per ton, seventy per cent. of the 120,000 tons went into tailings; hence, 84,000 tons of tailings. These being worth $20 per ton, (a concession of $7.86 from average assay,) we have $1,680,000 representing the loss by milling; an amount greater than the gross yield of bullion shipped, by $300,000. In other words, the methods used in Gilpin county treat ores worth $3,000,000 to obtain $1,378,000, and waste $1,500,000.

From the various methods of calculation we have taken, all undeeignedly reaching about the same result; from the great number of instances where a great waste can be proved by figures, the data given; from the constant repetition of the fact, that the mills do not get 50 per cent. of the metal; and the evil results of a bad system, or systems, are apparent to every one, and a subject of chronic complaint. Seeing this, it became a duty to arouse attention, and if possible, point out defects. In doing this, or after it is done, it is very naturally aeked, "well, what course ought to be adopted; what kind of machinery, or upon what system or programme shall we work our ores?"

Nevada.

My observations in these articles show the percentage of the better class of mills, still I have the following add:

"We have had repeated assays by experienced men with the following average results: Gold $54, silver $20—$74; and on account of fineness of gold cannot get to exceed $24 per ton."

"We have ores which contain from $60 to $90 in gold and $5 to $25 in silver, and get from 20 to 50 per cent."

"There is a great quantity of gold in some of these mines that cannot be saved by pan amalgamation."

(To be continued.)

A Hint to California Engineers.

EDS. PRESS:—From reading the article in the SCIENTIFIC PRESS of Jan. 17th, about the successful and increasing use of asbestos for packing, I am desirous of seeing its application to engines on this coast tested. The material is abundant in various parts of this coast, aud could probably be furnished in San Francisco cheaper than in any other large city in the world. Who will be the pioneer in preparing for use and giving it a thorough trial here, and report the same in your columns? Please insert this and oblige a friend of

PROGRESS.

Travis and Wagner's Portable Mill.

Onr illnstration represents a portablo mill in a convenient form, for grinding either qnartz or grain. There are two hurr stones, the upper ono of which is stationary and the lower ono arranged so that it may be raised or lowered by means of a convenient screw so as to meot the upper stono and grind eithsr coarse or fine. As the stones wear away the screw raises the lower one as far as required, and when its length will no longer admit, a set of screws are loosened abovo and the upper stone is lowered to meot the lower one. The stone is raised by a perpendicular lift by means of a lever attached to a screw.

It can bo regulated at will so as to admit of grinding quartz, gmin, spices, etc., fino or coarso. The solf-fceding apparatus is arranged so that every revolntion of the stono shakes the feeding shoo twice. The oil bush holds sufficient oil so that it will luhricate the shaft for throe months without renewal. Tho hopper may be rogulated to feed fast or slow as requirod.

Differont sizes of this mill are made and will he fonnd convenient either around a qnartz mill or npon a farm. Those intended for grinding quartz are made with vsry hard stones so as to ensnre durahility. The mills are manufactured hy Travis & Wagner, who may be addressed at No. 41 First street, in this City.

Travis and Wagner's Portabls Mill.

California Academy of Sciences.

The California Academy of Sciences held their regular meeting on the 19th inst., President Heuston in the chair. Oliver Eldridge, Mayor William Alvord, Samuel M. Wilson, F. W. Van Rsynegom, Ralph C. Harrison, George E. Page and A. T. Chamhers were slected to membership. Rudolph Gottgetrsn, Professor of the Polytschnic Institute, Munich, Bavaria, was elected a corresponding memhsr.

Questions for Discussion.

Dr. A. Kellogg of the Committee on Questions for Discussion suhmitted the following questions:

First—Do ærolities fall chiefly in the path of the ecliptic or magnetic path—that is, 22 degrees 30 minutes on either side of the poles of the earth, and what is their origin?

Second—Have the remains of tropical production in Arctic climes any bearing upon the geological phenomenon of the procession of the equinoxes.

Third—Is ths restless desire from age to age for more facts characteristic of those who are unable to reason from principles to causes, and would any amount of chaotic facts be sufficient for snch persons?

Dr. Gibbons proposed the following: Can the climate of California be altered sensibly by changes of the earth's surface, hy cultivation and otherwise?

On motion of Dr. Hewston the selection of a question was deferred until the next meeting.

Donations.

A number of donations to the cabinet were reccived, among them the first piece of cast steel manufactured on this coast and a mat or sack of a species of pepper-wort root from the Sandwich Islands. Dr. Stont presented two works on California by a German author and commented upon them, saying that the author greatly deprecates the wholesale destruction of our magnificent forests. Dr. Stout as one of the special committee on puhlications and transactions of foreign ssociations, suhmitted a report showing a list of the contrihntions received from them and noticing especially the valnahle geological maps of Sweden. A rssolutiou was passed to send in return the geological maps of this State.

State Aid.

A motion that a committee of three he appointed to draft a bill soliciting State aid to enable the Academy to erect a snitahle building, was referred to the Trustees. A resolution providing that the Trustees be required to forward a petition to the Legislature, praying for a continuation of the State Gsological Survey as at present constituted was carriod unanimously.

Man's Place in Nature.

The minds of many men are confused on this question. One reason for this is, the fact that they start out on wrong principles. They go on the snpposition that man is simply a developed animal, whereas, in fact, he is a crsated human being. "In the image of God created he him." These secular philosophers, such as Owen, Darwin, Huxley, and others, fail to comprehend this grand fact; nor do they seem to understand where to draw the line hetween man and animals—bstwesn instinct and reason. Phrenology explains this whole matter. Man has a three-fold nature, and, for the sake of illustration, we may say the hrain is like a three-story house. The lower story, including the cellar and kitchen, where the eatables and drinkahles are supposed to he stored, answers to the animal propensities and the instincts. Here are located the organs of appetite, the sight, hearing, taste, smell,—indeed, all the senses, including the domestic affections, the procreative principle, common to reptile, animal and man.

The second story of this house, or hrain, is occupied with a class of faculties not possessed hy the animal, and here is where the line may he drawn betwsen instinct and reason, man having both, while the animal has hut one. Here in this second story is reason, causalty, comparison, invention, with other powers not possessed hy animals, but constituting necessary and ever-present powers of man.

Now, let us move up one story higher. What do we find here? Furniture and appurtenances totally above the reach or comprehension of any animal. We have Benevolence, which no animal ever possessed: we have Conscientiousness, a sense of justice on which integrity is based, never manifested by any animal; we have the faculty of Hope, which gives man a sense of immortality; we have faith, which gives him a spiritual sense or a prophetic forecast of the higher life, of that which is beyond the reach even of reasou; we have Veneration, which gives devotion, and inclines man to acknowledge his obligation to obey the superior or creative Power, and render homage to his Makor, and he snbmissive to do his will. Man prays! The lower animals recognize no superior, except aftor a trial of strength. These traits make man a different being from any of the animal kingdom—tho cronwing work of creation.

Fig. I.

And this is "man's place in nature." Bstween man and animal there is a marked separation with no connecting links. Examine the heads, ovsn the naked skulls of reptile, beast, bird, and man, and the whole thing is as simple as it is absolute. Then why puzzlo over the question of man's descent, or, rather, asosnt, from plant to beast, and from beast to hnman? Why not take these basic principles of Anatomy Phrenology and Psychology, and settle the qusstion on these? It will oomo to this at last. The threc-fold nature of man we have often discussed, and now propose to illustrate it, viz., the animal or instinctive, the intellectual or rsasoning, and the moral or spiritual natures. In Fig. 1 these three ranges of powers are indicated. In region No. 1, helow the first line, the organs in the base of the brain are shown. Thoss are common to man and the lowsr animals. This rsgion takes in the perceptive intellect, the passions, propsnsities, and such of the social organs as belong to animal life. That region may be called the animal hrain, located in the lower story of the head. Rising one step to region No. 2, we have the great reasoning or intellectual field, which the animal does not share with man. In region No. 3 we have the moral and spiritnal, whioh is entirely wanting in all the animal kingdom. These occupy equal proportions in the well-halanced head. In Fig. 2 we exhihit the skull of a human being, with the three regions indicated by dotted lines and marked by numhers. The moral and spiritual region is not quite so well developed in the skull, Fig. 2, as in the head, Fig. 1, but it answers all the purposes of illustration.

Fig. II.

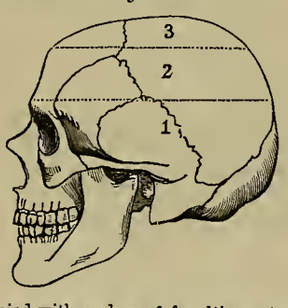

Fig. III.

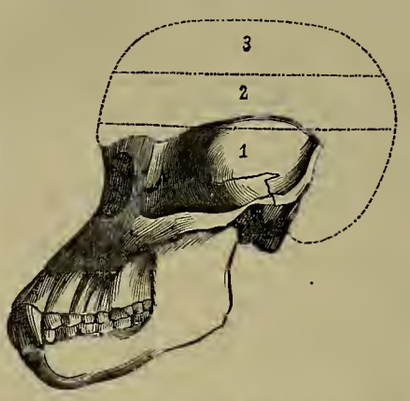

Fig. 3 is the gorilla's skull. Its shaded outline shows the immense jaws and face, and the small bulh constituting the cranium. The brain is not larger than that of an infant a week old. We draw the same three lines, showing the regions as we show them in the human head. Region No. 1, it will be seen, contains almost the entire hrain, showing that the gorilla has only the animal passions and instincts. We have drawn a dotted outline of a human head over the gorilla's, showing what the gorilla lacks in development upward. Although he is larger than man, bodily, he has a small hrain, and nearly all the brain he has is located in the animal or instinctive departmsnts. Region No. 2 is practically wanting. Region No. 3, as will he seen, is wholly wanting. If the head were developed according to the dotted outline, and the face were shortened off like that of a human being, and the prodigious jaws were more light and delicate, it would look like a human head, and with such a development would have the human faculties to guide, regulate, and control his immense physical force. But the gorilla is a heast, and only a beast, with a beast's hrain and face; and though the outline of the hody has some analogy to that of the human, the mental qualities which constitute human nature strictly speaking are, in him, entirely wanting. Those teeth are quite as savage and beastly as those of the bear, and the brain is shaped like that of a dog, with decidedly less of intelligence in the development of the brain, and far less of it in character. The advocates of the devclopmcnt theory make altogether too wide a leap from monkey to man. They pass many animals in that leap which in point of intelligence are quite in advance of the whole ape tribe.—*From the Annual for* 1871.

Notices of Recent Patents.

Among the patents recently ohtained throngh Dewey & Co.'s Scientifio Press American and Foreign Patent Agency, the following are worthy of mention:

New Material for Paper Stock.—S. D. Baldwin, Marysville, Cal. This patent claim is for the nse of *Scirpus Lacustris* (or common tnle) for the mannfacture of printing, wrapping and other gradss of paper. Mr. B. has for some considerahle time had experiments going on here and in the East, and has finally snceeded in estahlishing the fact that the native tnle, which grows so ahundant, in almost sndless tracts of cheap swamp lands in California, can be economically mannfactured into first-class papers. We sse no reason why it cannot be gathered, and with very little preparation pressed into bales for shipment to the priacipal papsr manufacturing conntries, there being supply sufficent for the world. Although no considerable quantity of paper has yet hssn made of this material, we have no douht of its valus, and hopo soon to learn of extensive arrangsmsnts hsing made at some convenient point in this State for prsparing the raw material for shipment abroad, and for nse at home. There seems to be no good reason why it shonld not stimulate a much neglectsd mannfacturing indnstry on this Coast, *i. e.*, paper making. We hope Mr. Baldwin will succeed in making this useful and abundant material more widely known and estahlish it as one of our State exports.

Raising Tailings.—Wilford A. Rogers, Folsom, Cal. This invention relates to a method for elevating tailings and dirt from placer diggings when the claim is situated lower than the surrounding ground, and it consists of a slightly declining slnice hox, into which the dirt is thrown and carried to the lower end hy a current of watsr. At this point the hox enters the lower end of another close hox which inclines sharply upward so that its outer end extends to the surface of the snrrounding ground. One or more nozzles enter this box at different points nsar the bottom and point in the dirsction of its outlet. A strong currsnt of water passes throngh these pipes and hy its momentum carries tailings up to the surface of the ground, the the action being similar to that of a Giffard injector.

A Photographing Invention.—The *Morning Call* mentions one of the important inventions for which patent claims have recently heen made through onr Scientifio Press agency, as follows:

"Mr. H. W. Vanghan, the well known photographer of this city, has just invsnted a little apparatus which, it strikes us, will be found espscially useful in taking the pictures of children, as it dispenses with the great black cloth with which the tube of the camera is covered, and the removal and replacement of which, while the picture is being taken, tends to impair the result, by distracting the attentention of the sitter. Instead of the cloth or brass cap which covers the tube of the camera, Mr. Vaughan employs a disk of brass or other metal, consisting of two ssmi-lunar portions, which open and close like the blades of a of pair scissors, and thus open or close the tube of the camera. They are worked noiselessly and instantaneously by the slight pressure of a little knob on the top of the instrument, and the plate is exposed and closed again without any manipulations that can be seen hy the sitter. By this means the operator waits until the child assumes a favorable expression, when he presses the spring, exposes the plate, and takes the picture without making any motion that attracts the attention or causes a motion of his sitter. Like all useful inventions, this is exceedingly simple, and may be attached to any photographic camera."

The Vulcan Iron Works.—We are pleased to learn that operations will be resumed at these works about the middle of next month, under a new and efficient organization, at which time the managers will he ready to receive and serve their old customers and friends.

Domestic Economy.

The Art of Folding Linen.

Though washing machines, wringers, and various new kinds of soaps have greatly lessened the labor of washing, nothing has yet come into general use which does away with the old-fashioned laborious system of ironing. There may be mangles and things of that sort, which lesson the labor, but they are not common. To be able to iron nicely is a great accomplishment, and every young lady should know something of it. The wheel of fortune is so constantly turning, that even the highest cannot tell how soon ehe may be glad of a little household skill in the matter. However neatly a garment may be ironed, the effect is spoiled if it is not also neatly folded. Teach the little girls this in their first attempts at ironing, and they will remember it all thcir lives. Let the hems of handkerchiefs, pillow cases, and the like, be brought together with mathematical nicety, and then the folds carefully pressed down.

The old town of Anjou was once most remarkable for its folding of linen. It seems a little thing to distiuguish a place, but one who had once witneesed a display of the grand old cabinets of its spacious mansions, would be likely to remember it ever afterwards.

It was a great pride of a housekeeper in such an establishment to throw open her great presses and reveal the curious contents. Here would be an immense sheet of heavy linen, shaped like a drinking trough. Around it would be four and twenty sheep fashioned from other linen articles, all with bowed heads as if drinking. At the head stood a tall shepherd folded from some other garment. Windmills, abbeys, towers and castles are very common, not to speak of the lesser articles as napkins and the like, which are folded into beautiful shapes of lilies roses and other flowers.—*Country Gentleman.*

To Make Gravy That Will Keep Several Days.—Lay in a stew-pan or suitable vessel half a ponnd of lean, juicy, fresh meat of the poorest pieces or trimmings; over this put half a pound of pickle pork, or a little less bacon of the side meat. Cut up two medium-sized onions and a few eprigs of parsley. Pour into the veesel a tumblerful of boiling water (not more than this;) cover the vessel, and let the meat stew, turning it once, until it is a rich brown color; then pour in boiling water enough, to jnst cover it; let it simmer an hour; remove the meat; thicken the gravy slightly with a paste made of brown flonr and water; let that simmer half an honr; add any essenee of ham or good gravy that may be saved for such purposes. Put in an earthen vessel well covered, and exclude from the air. Warm it before serving; season with any catsup liked. For making all brown gravies, fry the meat first, and pour over hot broth, gravy, or water; use the browned sugar or flour for coloring the thickening. Kidneys, livers, necks of poultry, the scraggy parts of the necks of animals, may be used for making the stock for gravy.—*Prairie Farmer.*

Sausage Seasoning.—"As hog-killing time" is now at hand perhaps the following directions for seasoning sausages, taken from a correepondent of the "*Rural New Yorker*, may not come amiss: Take fifty pounds of meat, pass it through a meat cutter, spread it out in any convenient vessel, then weigh out ten ounces of salt, four ounces of pepper, and five of sage, pulverized; sprinkle this over your meat and then mix it in a little; then pass it through your cutter, and all is right. Then put up as you choose; or, if you wish, you may use summer savory, or you may transpose the pepper and sage, acoording to quantity. I have used this formula twenty years, and wish no other. I suppose any novice will know that this preparation will answer for a greater or lesser quantity. If any one has a better recipe let them give it.

Bops.—One pint of milk, three eggs, one spoonful of bntter, four spoonfuls of flour, mix them well together and bake in plates, and in a quick oven. They ought to be buttered while hot, and put one above another, before sent in.

Stepping on Chairs.—Never step on a chair without first placing a newspaper on it. The tronble is slight and the eaving is great.

Syrup of Coffee.—This preparation is of great use to those who have long journeys to make. Take half a pound of the best gronnd coffee; put it into a saucepan, containing three pints of water, and boil it down to one pint. Cool the liquor, pnt it into another eaucepan, well scoured, and boil it again. As it boils, add white eugar enough to give it the consistency of syrup. Take it from the fire, and when it is cold put it into a bottle and seal. When traveling, if you wish for a cup of good coffee, you have only to put two teaspoonfuls of the syrup into an ordinary coffee-pot, and fill with boiling water. Add milk to taste, if you can get it.

Cooking Rabbits.—Many people admire rabbit roasted whole, except the head. This is best stuffed. While roasting bathe frequently with butter, dredge it with flour, and manage as with any other roast. The head and liver may be boiled. Split the head, take out the brains, mash them with the liver and add to the gravy. Wine aud jelly are liked by some people in the gravy. Keep the rabbit in weak salt and water at least twelve hours, if the weather will permit before cooking. We prefer rabbit stewed. It ie a daintier dish?

Mechanical Hints.

The Length of Sash-weights.—The following table, taken from *Leffel's Mechanical News*, will be found useful in the making of sash weights, which, of course, must balance accurately the weight of the sash. The first column of figures indicates the diameter of the round weight or the length of one side of the square weight, in inches and fractional parts of an inch. The other two columns are sufficiently explained in the head-lines. Windows of dwelling-houses and all classes of public buildings are now so generally made with box frames for the reception of weights and pulleys, that the manufacture of the weights is quite an important branch of industry. It is a very troublesome one in some cases, especially where a job of this kind is only occasionally called for, and the workman is obliged to make an intricate calculation for each new size of weight required.

Diameter.	Length of 1 lb. in inches.		Diameter.	Length of 1 lb. in inches.	
	Round iron.	Square iron.		Round iron.	Square iron.
⅛	19.67	16.38	2¾	.86	.68
⅜	12.63	9.83	2⅞	.78	.60
⅜	8.69	6.85	2⅞	.70	.55
⅞	6.41	6.02	2¾	.64	.50
1	4.44	3.84	2⅞	.69	.46
1⅛	3.87	3.03	3	.64	.42
1¼	3.13	2.46	3⅛	.60	.39.3
1⅜	2.58	2.03	3¼	.46	.36
1⅜	2.17	1.70	3⅜	.42	.33
1⅝	1.85	1.45	3⅜	.39	.31
1¾	1.59	1.25	3½	.37	.29
1⅞	1.39	1.09	3⅝	.34	.27
2	1.22	.96	3⅞	.32	.25
2⅛	1.08	.85	4	.30	.24
2¼	.96	.76			

To obtain the length of the weight, it ie only necessary to multiply the length of one pound in inches by the number of pounds which the weight is to balance.

Stone Cement.—Hydrated silica combines much easier with bases than common quartz-sand, (anhydrous silica). On this Professor Boettger has based the employment of infusorial earth, a white pulverulent mass, which occurs in various localities in Europe and in this country, in large masses, as the binding ingredient of an excellent cement for stone-work. He mixes eqnal parts of infusorial earth and oxide of lead (litharge) with one-half the quantity of hydrate of calcia (freshly slacked lime) and linseed-oil varnish to a homogeneous thick paste, and obtains a mass of extraordinarily great binding power, which after eome time assumes the hardness of common sandstone. This cement is applicable in all cases where iron is to be fastened in stone, where artistic stone work, such as fountains, vases, statuary, etc., is to be mended; in short, where small quantities of the binding material are required. For the more common uses of the mason and stone-cutter, this cement is, of course too dear to permit of extended application.

Large Casting.—An immense anvil block, weighing some sixty tons was recently cast at the Washington Navy Yard. This is said to be the largest iron casting ever made in the United States.

Joy ie one of the greatest panaceas of life. No joy is more healthful or better calculatcd to prolong life than that which is to be found in domestic happiness in the company of good and cheerful men, and in contemplating with delight the beauties of nature.

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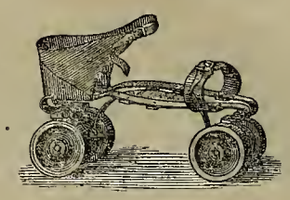

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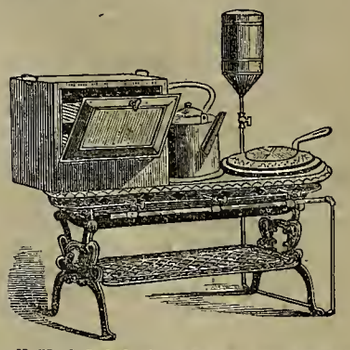

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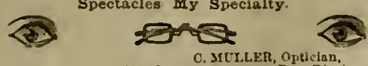

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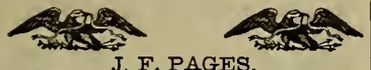

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Yours, respectfully, W. F. BOOTHY, Pres't Salem Water Works.

PHŒNIX MINE, Napa County, January 16th, 1872.

MESSRS. BERRY & PLACE, San Francisco—Gentlemen: The No. 8, Blake Steam Pump we bought of you last fall is doing good service. We are having a large amount of water to contend with during this stormy weather; but the pump throws it all out of the main shaft (160 feet deep) with perfect ease, and is only working from 60 to 80 strokes a minute. It is a complete pump and no mistake. We are well satisfied with its working, and if you wish to use the name of our company, as a reference, you are at liberty to do so. Very resp'tly, GEO. FELLOWS, Supt. Phœnix Quicksilver M. Co.

OFFICE STARR MILLS, VALLEJO, Cal., January 13th, 1872.

MESSRS. BERRY & PLACE, San Francisco—Gentlemen: We are pleased to state that the No. 3 Blake Pump purchased of you, has constantly supplied our three boilers for the past year, with water heat to above boiling point with one of Armstrong's Patent Heaters. It has given us no trouble nor expense, and has in fact fully come up to your recommendations.
Yours, Etc., STARR BROS. & CAMPBELL.

OFFICE S. J. WOOLEN CO., SAN JOSE, January 29th, 1872.

MESSRS. BERRY & PLACE, San Francisco—Gentlemen: We have used a No. 6 Blake Steam Pump now for about two years, both as a Tank Pump and as a Fire Pump in case of need: and it has given excellent satisfaction. *It suits us in every respect.*
Very respect fully, R. F. PECKHAM, Pres't San Jose Woolen Co.

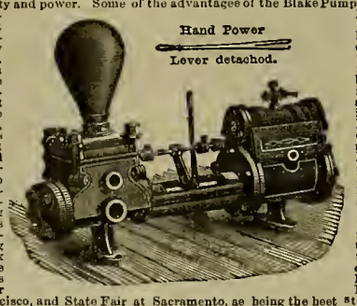
BELMONT, Cal., February 6th, 1872.

MESSRS. TREADWELL & CO.—Gentlemen: In reply to your inquiry concerning the large Blake Steam Pump, purchased of Berry & Place, by Mr. Ralston, I will say, that it gives ENTIRE *satisfaction*, even working as it now is, where no other Pump could; for it is *at present six feet under water*, yet it does its work PERFECTLY.
Yours, Etc., J. E. BUTLER, Supt. Water Works and Engineer at W. C. Ralston's.

BLAKE'S PATENT STEAM PUMP.

These Pumps have been tested, and found to be indisputably without an equal wherever tried. They have been sold in the Pacific States now for nearly three years, and we are willing every one in use may be referred to; every Pump will speak for itself. They are constructed in the most simple style, and built in the most thorough manner—especially calculated for simplicity, durability and power. Some of the advantages of the Blake Pump may be summed up as follows:

It is positive under any pressure. May be run slow or fast as may be desired. Will discharge more water than any others of the same dimensions. Has no leaky joints, the steam part being cast in one entire piece. The steam valve is perfectly balanced, is cushioned at each end, and slides with the greatest facility *having no cams, nor complex rotary arrangements to get out of order*. Will start at any point of the stroke, and will discharge all the water of condensation. The Pump has no crank or fly-wheel, thereby saving a considerable item of expense to the purchaser. Having *no dead points*, it therefore needs no watching, and is consequently ready to start without using a starting bar or any hand work whatever. The Blake Pump is extensively used on Railroads and Steamboats, in Hotels; for Mining and Fire purposes; in Breweries, Tanneries, Sugar Houses, Factories, Mills, Laundries, and as Boiler Feeders, wherever steam is employed. In fact, wherever water or other liquids are desired to be raised in large or small quantities, or against heavy or light pressure, it is the cheapest and best Pump that can be used. It is offered to the public as the most perfect independent steam Pump ever invented. Forty different sizes are made, capable of throwing from 1,000 to 200,000 gallons an hour, and adapted to any class of work that may be required. Every pump will be warranted to perform the work required of it by the purchaser, or it may be returned and the money will be cheerfully refunded. The Blake Pump was awarded a silver Medal at the last exhibition of Mechanics' Institute, San Francisco, and State Fair at Sacramento, as being the best Steam Pump on exhibition. The agents have recently imported several of the largest-sized Mining Pumps for water works, and deep mines, and will be pleased to refer parties to them; we claim for it, that it is the most simple and durable, and consequently the best Steam Pump ever built. For sale by TREADWELL & CO., Machinery Depot, old stand, corner of Market and Fremont streets, San Francisco, who will be pleased to send circulars to any address, or show its advantages to parties calling on them.



It has no Cams or Rotary Complex Valves. It has stood the test wherever tested.

IT IS SIMPLE, COMPACT, DURABLE, AND POWERFUL.

☞Manufactured by Geo. F. Blake & Co., Boston, who build and have on hand a larger variety of Steam Pumps than any other concern in the country, embracing *forty* different sizes, and capable of throwing from 1,000 to 200,000 gallons an hour, and adapted to every description of work required. ☞Send for circular and prices.

The largest stock in the country at the Machinery Warehouse of

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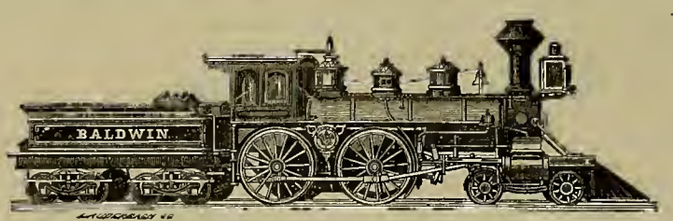
6v24-eowhp

BALDWIN LOCOMOTIVE WORKS.



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ALL WORK ACCURATELY FITTED TO GAUGES, AND THOROUGHLY INTERCHANGEABLE.

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OF PENNSYLVANIA.
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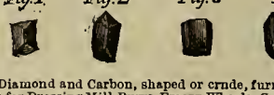
Would respectfully call the attention of the officers of Railway Companies, and Engineers having charge of New Bridge Constructions, to their new

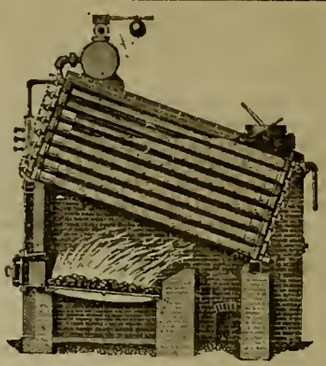
Album of Designs,

showing various styles of New Railroad Bridges, Viaducts, etc., which they have either constructed or are prepared to construct. A copy will be mailed on application to our address, No. 410 Walnut Street, Philadelphia. ap8-1y

DICKINSON'S
Patent Shaped Diamond Carbon-Points.



Diamond and Carbon, shaped or crude, furnished and set for Dressing Mill-Burrs, Emery-Wheels, Grindstones, Conglomerate, Drilling Rock, Sawing or Working Stone, Truing up Hardened Steel, and for other mechanical purposes. Also Glaziers' Diamonds. See Scientific American, July 24th, Nov. 20th and 27th, 1869; Engineering and Mining Journal, Jan. 17th, 1871; Journal of the Franklin Institute, Philadelphia, June, 1870. For Circulars descriptive, and Prices, send stamp to
1v24-6m J. DICKINSON, 64 Nassau St., N. Y.



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Engines, Pumps, Etc., Manufactured and on Hand.
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Twenty-eighth Street, corner Second Avenue,
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FLORAL GUIDE FOR 1872.
Over One Hundred Pages,
Printed in Two Colors, on superb Tinted Paper. FOUR HUNDRED ENGRAVINGS of Flowers, Plants and Vegetables, with Descriptions, and
TWO COLORED PLATES.
Directions and plans for making Walks, Lawns, Gardens, etc. The handsomest and best FLORAL GUIDE in the World. All for TEN CENTS, to those who think of buying Seeds. Not a quarter the cost. 200,000 sold of 1871. Address JAMES VICK,
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BLISS, KEENE & CO.'S Fluid Extract, the wonderful remedy for Cancer, Syphilis, Scrofula, Ulcers, Pulmonary Complaints, Salt Rheum, and all Chronic Blood Diseases, is prepared from the Genuine Cundurango Bark, from Loja, Ecuador, secured by the assistance of the authorities of that country. It is the most effective, prompt and certain alterative and blood purifier known. Sold by all Druggists, in pint bottles, having on them our name, trade mark and directions. Send for a circular. Office and Laboratory, No. 60 Cedar street, N. Y. 25v23-3m

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The California Powder Works
No. 314 CALIFORNIA STREET,
SAN FRANCISCO.
Manufacturers and have constantly on hand
SPORTING,
MINING,
And BLASTING
POWDER,
Of SUPERIOR QUALITY, FRESH FROM THE MILLS. It being constantly received and transported into the interior, is delivered to the consumer within a few days of the time of its manufacture, and is in every way superior to any other Powder in Market.
We have been awarded successively
Three Gold Medals
By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others.
We also call attention to our
HERCULES POWDER,
Which combines all the force of other strong explosive now in use, and the lifting force of the best BLASTING POWDER, thus making it vastly superior to any other compound now in use.
A circular containing a full description of this Powder can be obtained on application to our Office.
16v20-3m JOHN F. LOHSE, Secretary.

FRED. KRAJEWSKI,
MANUFACTURER OF TOOLS
—FOR—
Molding, Turning, Carving, Etc.
Mortise Chisels, Blind Chisels, Crotchet Chisels, and also all kinds of Screws for Stair Work and Sash Joints on hand and made to order.
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SHEET IRON PIPE.
THE
Risdon Iron and Locomotive Works
Corner Howard and Beale Streets,
Are prepared to make SHEET IRON AND ASPHALTUM PIPE, of any size and for any pressure, and contract to lay the same where wanted, guaranteeing a perfect working pipe with the least amount of material.
All kinds of CAR WHEELS, AXLES and RAILROAD WORK made to order. Standard sizes of Wheels constantly on hand. Wheels bored and pressed on, Axles turned, etc., at Reasonable Rates.
☞ All kinds of Machinery made and repaired.
24v22-3m JOSEPH MOORE, Superintendent.

Commissioner Drummond's Circular.

The Order to Prevent Settlement in the Foothills.

The lstter of Instructions of Commissioner Drummond, issued Dec. 2, 1871, and to which ws hrisfly alluded at ths time, is attracting much attention, and is evidently calculated to work a great injury to the mining counties, from ths fact of its tendency to discourags further agricultural settlement in the foothills, and thus interfere with an important source of prosperity which was just heginning to he opeued up in those couuties under the previous instructions of Commissioner Wilson. The purport of this letter, which has heen called "An Order to Prsvent Settlement in the Foothills," is a formal withdrawal from disposal, under the agricultural land laws, of all the lands in 83 townships in the foothills of Tuolumne, Calaveras, Amador, El Dorado, Sacramento, Placer and Nsvada counties, which townships ars especially dssignated as follows:—

Township 1 north, ranges 12, 13 and 14 east. Township 2 north, ranges 11, 12, 13, 14 and 15 sast. Township 3 north, ranges 10, 11, 12 and 13 east. Township 4 north, ranges 10, 11, 12 and 13 east. Township 5 north, ranges 10, 11 and 12 east. Township 6 north, ranges 10, 11, 12 and 13 east. Township 7 north, ranges 9, 10, 11 and 12 east. Township 8 north, ranges 9, 10, 11 and 12 east. Township 9 north, ranges 9, 10, 11 and 12 east. Township 10 north, ranges 8, 9, 10, 11 and 12 east. Township 11 north, ranges 6, 7, 8, 9, 10 and 11 east. Township 12 north, ranges 6, 7, 8, 9, 10 and 11 east. Township 13 north, ranges 6, 7, 8, 9, 10 and 11 sast. Township 14 north, ranges 7, 8, 9, 10, and 11 east. Township 15 north, ranges 7, 8, 9, 10 and 11 east. Township 16 north, ranges 7, 8, 9, 10, 11, 12, 15, 16 and 17 east. Township 17 north, ranges 16 and 17 east. Township 18 north, ranges 16 and 17 east; and township 19 north, ranges 19 and 17 east—all Mount Diahlo hass and meridian.

Ths effect of this order is to reqnirs all people who havs settled or who may hereafter settls in ths foothills to apply to ths Land Office, advertise for thirty days, and have a trial, with witnesses, to provs that ths land thsy may claim is more valuahle for agricultural than for mining. If the decision is in favor of ths settler, the fact is mads known at Washington, and if no contestant appears within a year or two hs will hs allowed to "provs up" his claim and get his patent. The cost of hoth trials and advertising is thrown upon the settlsr, and will amount to douhle the Government price of ths land.

This order is rsvsrsing the rulings of Commissiouer Wilson, who held that all the land above descrihed was agricultural, and threw the cost of proving to ths contrary on the miner, who, of courss, is the only one who can hs expected to havs the proof—his "diggings" or quartz vein constitnting the fact of its mineral character. By this decision ths farmer is in fact called upon to provs a negative.

Ths reason for this reversal of Mr. Wilson's instructions ars stated hy Mr. Drummond as follows:—

This course has heen forced upon the Department hy several circumstances; among which may he cited ths fact that ths majority of applications for mining titles from California ars for lands marked "agricultural" upon the official township plats; that in making thess returns of surveys, largs areas in ths heretofors reservsd mineral belt are marked on ths plats as "agricultural land," whils upon ths sams plats, and within ths tracts so rsturned as agricultural, ars aunotations of "quartz ledges," "mining ditches," hydraulic mines," "diggings," etc., thc plat thus contradicting itself, and leaving this offics in ths dark as to the true quality of ths laud,

In a case now pending hefore this office, of an application for patent for a quicksilver mins—one which has heen worked for years—it was found that the land was returned as "agricultural," and, falling with the limits of thegrant, was patented to the Western Pacific Railroad Company before said application was received.

The Commissioner fears if the rulings of Mr. Wilson were continued the minsral lands would he indiscriminately ahsorbed hy speculators. But it is evident that the land office at Washington does not fully understand this question of mixed mineral and agricultural lands, and it is unfortunate for the people—our agricultural settlers in the foothills especially—that the power held hy the General Government over those lands, is exercised without a full knowledge of all the facts.

Under these circumstauces it is to he hoped that Mr. Sargent, our newly elected Senator, who fully understands all the facts in the case, aud that ths prosperity of our mining counties depends largsly on the encouragment of agriculturs withiu their foothill limits, will take this matter in hand, and, if possihls, secure hy Legislation, what it seems impossihle to effect hy official routins. Thsrs is really no difficulty in the mattsr, if our officials will only go honestly and intelligsntly to work. Ths nsw order sesms to havs no better argument in its favor than that ths Commission fonnd some difficulty—which is simply misapprehended—in carrying out ths old rulings, which, whils properly administered, gavs satisfaction to hoth the agriculturist and the miner, and were contrihuting largely to the development of an important but hitherto neglected portion of the puhlic lands, and the consequent prosperity of ths counties in which they were located.

Review of J. S. Phillips' Mining Book in the London Mining Journal.

Practical Mining Literalure.

The want of sound scientific kuowledge has been much felt by the miners employed in developing the vast mineral resources of the western regions of the United States, aud for this want the work of Mr. J. S. Phillips, M. E., of San Francisco, will prove an excellent remedy. The book is written expressively for the miners in the districts mentioned, and in addressing them Mr. Phillips remarks that the greatest mistakes in American mining have been caused by lack of ordinary prudence in a comparatively new aud most difficult business. * * *

It is not pretended even to give an outline of the various sciences connected with mining, nor to convert miners into scientific men; but Mr. Phillips seeks to give them sufficient knowledge to enable them to help themselves in however unsettled a part of Western America they may be mining in; he would teach them something of geology to enable them to recognise a "trne fissure vein" when they see it, or if they have not already been in the field, he would teach them how to explore and where to explore, with the best chances of snccess. A vein having been discovered, the next thing is to ascertain whether it is worth working; the author, therefore, gives a section on assaying and descrimination—that being, indeed, the leading feature in the volume. * * *

The work has now been extended to embrace the whole field of mining, which he considers sufficiently hazardous at the best having too many blanks for a prize to sustain unnecessary errors arising from insnfficient preliminary examination, as most deplorably evinced by retrospectiug the legion of mills that have been erected on hundreds of ledges, but as enormously expensive assaying machines to prove their worthlessness. * * *

Metallurgy, which is treated of in the conclnding section, and embraces descriptions of roasting, milling, chlorinising, smelting, and chemical reduction. is dealt with in the same practical manner as the other subjects the book altogether being one exactly calculated to suit the views and meet the requirements of those for whom it has been written. It is not intended as a scientific work, but to facilitate practical operations upon seienttfic principle. This object the book is well calculated to obtain and its value is much enhanced by the principle which Mr. Phillips has adopted of including only those processes which can easily be carried out by practical men unused to the delicate manipulation necessary in the laboratory of the practised chemist. The work will undonbtedly obtain a large number of readers.

Invention of Suspension Bridges by the Chinese, 1,900 Years Ago.

The most remarkable evidence of the mechanical science and skill of the Chinese at this early period, is to be found in their suspended bridges, the invention of which is assigned to the Han dynasty. According to the concurrent testimony of all their historical and geographical writers, Sangleang, the commander of the army under Kaou-tsoo, the first of the Hans, undertook and completed the formation of roads through the mountaneous province of Shense, to the west of the capitol. Hitherto its lofty hills and deep valleys had rendered a communication difficult and circuitous. With a body of 100,000 laborers he cut passages over the mountains, throwing the removal soil into valleys, and where this was not sufficient to raise the road to the required hight, he constructed bridges, which rested on pillars or abutments. In another place he conceived and accomplished the daring project of suspending a bridge from oue mountain to another across a deep chasm. These bridges, which are called by the Chinese writers, very appropriately, flying bridges, and represented to be numerous at the present day, are sometimes so high that they cannot be traversed without alarm. One still existing in Shense, stretches 400 feet from mountain to mountain, over a chasm 500 feet. Most of these flying bridges are so wide that four hersemen can ride on them abreast, and balustrades are placed on each side to protect travelers. It is by no means improbable (as M. Pauthier suggests) that, as the missionaries to China made known the fact more than a century and a half ago, that the Chinese had suspended bridges, and that many of them were made of iron, the hint may have been taken from thence for similar constructions by European engineers.

British Patents for Pacific Coast Inventions.

Followiug is a list of inventions patented or protscted hy Provisional Specifications in Englaud hy Invsntors in ths Pacific States and Territories, from July 29, 1870, to December 1, 1871.*

Means for preventiug ths frauduleut uss of Bonds, Receipts, Checks, Tickcts, and other liks articles.—T. R. Hayes aud C. A. Peters, Sau Fraucisco, Cal. July 29, 1870.

Method of securing or lockiug Screw Bolts and Nuts.—Robinson Rutter, Vallejo, Cal. Nov. 9, 1870.

Axles and Axls Boxes for Whesled Vehicls. Ernest Von Jeinssn and James Monros McDonald, San Francisco, Cal. Dec. 2, 1870.

Sugar Manufacturing Apparatus.—Claus Sprsckles, San Francisco, Cal. March 3, 1871.

Luhricator.—N. Siebert, San Fraucisco, Cal. March 23, 1871.

Molding, Drainiug and Drying Sugar.—A. F. W. Partz, San Francisco, Cal. March 30, 1871.

Luhricator.—Joseph Moore, San Francisco, Cal. April 5, 1871.

Axles and Axle Boxes.—C. W. M. Smith, San Francisco, Cal. April 13, 1871.

Sewing Machines.—C. W. M. Smith, San Francisco, Cal. April 18, 1871.

Traction Engine.—A. Campbell and R. Clark, Sacramento, Cal. May 12, 1871.

Artificial Stone.—R. Skinner, San Francisco, Cal. July 10, 1871.

Steam Plow.—J. Lockhead and C. A. Mathiew, Sau Francisco, Cal. July 20, 1871.

Anchor for Plow.—A. Campbsll and R. Clark, Sacrameuto, Cal. Aug. 2, 1871.

Sswing Machius.—E. Moreau and W. B. Isaacs, San Francisco, Cal.

Screw Propeller.—H. Zahn, Sau Fraucisco, Cal. Aug. 8, 1871.

Whesl for Tractiou Eugine.—A. Camphell and R. Clark, Sacramento, Cal. Aug. 24, 1871.

Improvemeut in Churns.—E. Groat, Milo B. Pond and Wm. Cantelow, Napa, Cal. Sspt. 30, 1871.

An Improved Fastening for Boots aud Shoss. Ira J. Saunders, Davisville, Cal. Oct. 9, 1871.

*Compiled from reports received by DEWEY & Co., Patent Agents for all civilized countries, who will furnieh on application, any information specially deeired concerning the securing of patents and the rights of patentees in forsign countries.

Mineral Wealth of Bolivia—The Mines of Potosi.

It is seldom that we hear any mention made of the mines of Bolivia, yet their extent is great and the late discoveries within her borders are likely to regenerate the country and make her name widely known. Messrs. Hunt & Douglas, discoverers of the renowned process for working copper ores, have taken the tronble of procuring the exclnsive right to use it in Bolivia; and the silver deposits of the country are much more extensive than many suppose. The Panama *Star and Herald* says on this subject:

Some how or other it is only very recently that Bolivia has been distinguished from Peru, particularly among Europeans in general. Not long ago, as we all know here, the people made a revolution, drove out Malgarejo, and now have a new Government; not only that, but a new era of prosperity, we trust, is about to be opened np to her. Bolivia, though at some distance from the coast and pushed back as it were toward the interior by Peru, is still an important country, both for extent of territory, richness of soil, and many of the most valued products of the three kingdoms of Natnre. Her plains and mountains are drained by the Amazon and Parana. The mines of Potosi, which gave to Peru the repntation of fabnlous riches, are sitnated within her borders. Potosi, which at the beginning of the seventeenth century had a population of 150,000 souls, has now ceased to be what it was. Another discovery has just been made, not in the fertile regions of that Republic, but in the sandy deserts of Atacama, bordering on the Pacific. We allude to the rich silver mines of Caracoles. New discoveries in the same region are being daily made, each one of which surpasses the other in richness of ore. The quantity of silver extracted from these mines has proved rich beyound anything yet known, eclipsing by far the most famous mines of ancient and modern Peru.

The otherwise sterile region in which these great discoveries have been made naturally presents many obstacles to the full working of these mines and development of the region, the principal of which is the difficulty of transit to the coast, a distance of 120 miles over ravines, mountains and desert, all of which renders the introduction of food, mining utensils, etc., and especially water for more than one thousand persons, very costly and difficult operations. The scarcity of water and other inconveniences of the locality have had the effect of preventing any great increase of population as well as the working of the mines, many of which are at a stand still until a railroad can be constructed for communication with the coast. We have reason to believe that these obstacles will only be temporary, as a line of rails will shortly be laid down from Mexillones to Caracoles. The Bay of Mexillones forms by far the most capable and safe natural harbor on the west coast.

Several limited companies have been formed to work some of the Caracoles mines, and for those yet remaining in the hands of the original owners, there is a keen competition, both by native and European houses. We shall, hereafter, from time to time take occasion to inform our readers of the further development of this miners' Paradise in Bolivia.

Daily Weather Record,

BY THE U. S. ARMY SIGNAL SERVICE, FOR THE WEEK ENDING WEDNESDAY, FEBRUARY 21, 1872.

Place of Observation.	Date.	Hight of Barometer.	Thermometer.	Rel. Humidity.	Direction of Wind.	Vel. of Wind. Miles per Hour. Force of Wind, Scale 0 to 6. Approximately.	Amount of Lower Cloud.	Rainfall since last Report.	State of Weather.
San Fran'co.	Thu...15	30.11	53	93	Calm		4-4		Cloudy
	Fri ...16	30.12	56	93	Calm		4-4	.21	Threat'g
	Sat...17	30.10	59	94	Calm		4-4	.14	Threat'g
	Sun ..18	30.12	58	88	S. W.	1 Light	4-4		Cloudy
	Mon..19	30.15	59	86	W.	4 Gentle			Clear
	Tu....20	30.03	53	80	Calm		2-4		Fair
	Wed..21	29.92	53	80	W.	4 Gentle	1-4		Fair
San Diego.	Thu ..15								Clear
	Fri ..16								
	Sat...17								
	Sun ..18								
	Mon..19								
	Tu....20								
	Wed..21	30.04	55	86	N. E.	5 Gentle			
Virg'a, M. T.	Thu ..15								
	Fri ..16								
	Sat...17	29.64	21	74	Calm		3-4		Cloudy
	Sun ..18								
	Mon..19								
	Tu....20								
	Wed..21								
Corinne.	Thu ..15								
	Fri ..16								
	Sat...17								
	Sun ..18	30.06	38	80	N. E.	2 Light	3-4	.02	Cloudy
	Mon..19								
	Tu....20								
	Wed..21	30.24	30	79	N.	6 Fresh	1-4		Fair
Cheyenne.	Thu ..15								
	Fri ..16								
	Sat...17	29.82	35	52	W.	15 Brisk			Clear
	Sun ..18								
	Mon..19								
	Tu....20								Clear
	Wed..21	30.04	36	52	N.W.	17 Brisk			
Denver.	Thu ..15								
	Fri ..16								
	Sat...17	29.87	41	41	N.W.	9 Fresh	3-4		Cloudy
	Sun ..18								
	Mon..19								
	Tu....20								
	Wed..21	30.07	34	52	S.	6 Fresh			Clear
Omaha.	Thu ..15								
	Fri ..16								
	Sat...17	29.80	26	99	S.	2 Light	4-4		Threat'g
	Sun ..18								
	Mon..19								
	Tu....20								Cloudy
	Wed..21	29.96	32	79	S. W.	6 Fresh	2-4		
Davenport, I.	Thu ..15								
	Fri ..16								
	Sat...17	29.97	25	86	N. E.	1 Light	3-4		Fair
	Sun ..18								
	Mon..19								
	Tu....20								
	Wed..21	30.13	27	88	W.	1 Light	3-4		Cloudy

DELAYED.—Our monthly series for January were issued thie week.

THE VISALIA DELTA is one of the hest printed and well circulated interior journals puhlished in the rich agricultural and rapidly developing valley of Tulare. By E. M. Dewey, Visalia. lambp

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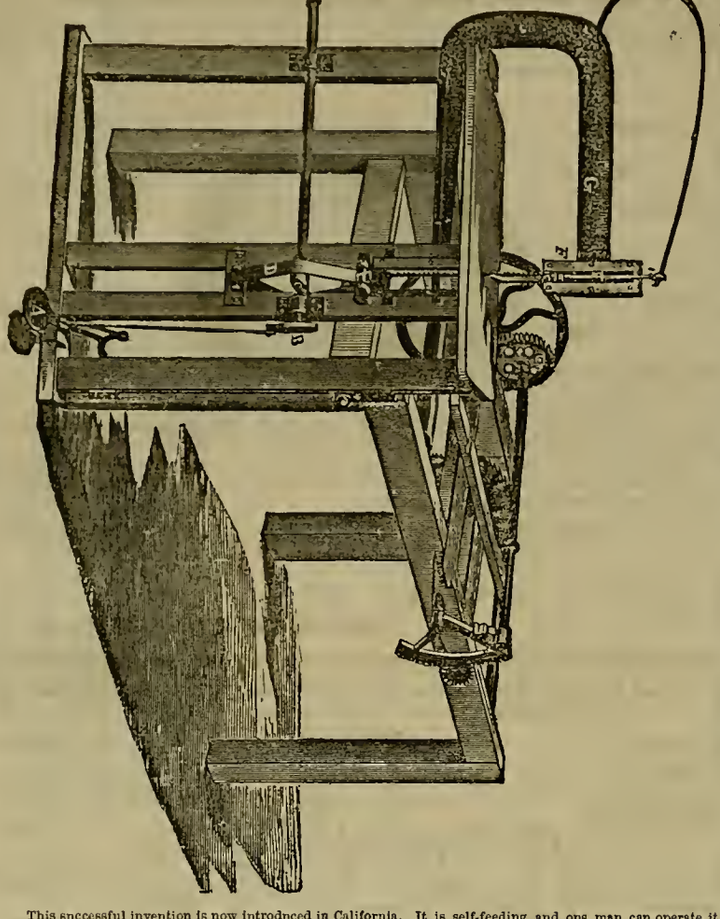

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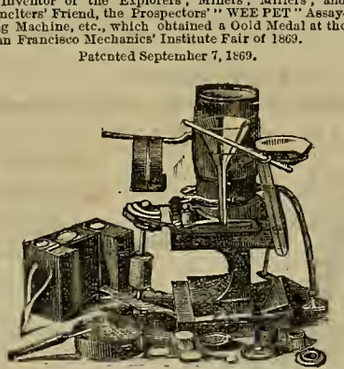

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Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the Scientific Press we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

Alhambra Hill Mining Company—Location

of works, Alhambra Hill, Pinto District, White Pine county, Nevada.

Notice—There are delinquent upon the following described stock, on account of Assessment (No. 1) levied on the Ninth day of December, 1871, the several amounts set opposite the names of the respectives shareholders as follows:

Names.	No of certificate.	No. shares.	Amount.
Andreas Fisher.....	not issued,	253	$126.50
R. Beverly Cole.....	" "	253	126.50
R. Mayrisch.....	" "	253	126.50
C. P. Schmidt	" "	253	126.50
R. Steinheimer.....	" "	253	126.50
J. Hansmeister.....	" "	253	126.50
D. H. Jackson.....	" "	506	253.00
L. Schumacher.....	" "	161	80.50
J. Napthaly.....	" "	161	80.50
D. B. Arrowsmith...	" "	161	80.50
John Shoenbar.....	" "	161	80.50
Thos. J. Reed.....	" "	80½	40.25

And in accordance with law, and an order of the Board of Trustees, made on the Ninth day of December, 1871, so many shares of each parcel of said stock as may be necessary, will be sold at public auction by Maurice Dore & Co., at No. 327 Mongomery street, on the Fifth day of February, 1872, at the hour of 12 o'clock M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

HENRY G. LANOLEY, Secretary.
Office—612 Clay street, San Francisco, Cal., jr20-4w

POSTPONEMENT.—The above sale is postponed to Tuesday, February 27th, 1872, at 12 o'clock M., to be held at the same place. By order of the Board of Trustees. HENRY G. LANOLEY, Secretary.
San Francisco, February 3, 1872. fc10-2w

Nevada Land and Mining Company—Location of Works, Spruce Mountain District, State of Nevada.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the 9th day of January, 1872, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Am't.
Thos. Kane.....unissued		500	$20 00

And in accordance with law, and an order of the Board of Trustees, made on the 9th day of January, 1872, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Company, Room 5, No. 302 Montgomery street, San Francisco, California, on the 4th day of March, 1872, at the hour of 2 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

WM. H. WATSON, Secretary.
Office, Room 5, No. 302 Montgomery street, San Francisco, California. fe17-3t

Kincaid Flat Mining Company—Location

of works, Tuolumne County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 14th day of February, 1872, an assessment of three dollars per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Sec'y, at his office, No. 220 Clay street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 15th day of March, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 8th day of April, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

By order of the Board of Trustees.
R. H. CORNELL, Secretary.
Office, 220 Clay street, San Francisco. fe24-td

Piermont Milling and Mining Company—

—Location of works, Pierpont Mining District, White Pine County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the Twenty-fifth (25th) day of January A. D. 1872, an assessment of eighty (80) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of said company. Any stock upon which said assessment shall remain unpaid on Friday, the first day of March, A. D. 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the Twenty-third day of March, A. D. 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. J. W. CLARK, Secretary.
Office, No. 418 California street, San Francisco, Cal. fl-4w

Quail Hill Mining and Water Company—

Location of works, Salt Springs Valley, Calaveras County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 15th day of February, 1872, an assessment of $5 dollars per share was levied upon the capital stock of said Company, payable immediately in United States gold coin, to the Secretary, at the office of the Company, No. 409 California street, up stairs, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 26th day of March, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 16th day of April, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. T. F. CRONISE, Secretary.
Office, 409 California street, San Francisco, Cal. fe24-td

Silver Wave Mining Company----Location

of works, White Pine Mining District, White Pine county, Nevada.

Assessment of Three ($3) dollars per share, levied December 19th, 1871, having been rescinded by vote of the Board of Trustees,

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 2 th day of January, A. D. 1872, an assessment of One Dollar per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company. Any stock upon which said assessment shall remain unpaid on Monday, the 26th day of Febuary, A. D. 1872, shall be deemed delinquent, and will be duly advertised for sale, at public auction, and unless payment shall be made before, will be sold on Tuesday, the 19th day of March A. D., 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. J.W. CLARK, Sec'y.
Office, 418 California St., San Francisco. jr27-4w.

South Gulch Gravel Mining Company.

Location of Works, Brushville Mining District, Calaveras County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 7th day of February, 1872, an assessment of one dollar and fifty cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary at the office of the Company, No. 409 California street, up stairs, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the thirteenth day of March, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the third day of April, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Boards of Trustees.

T. F. CRONISE, Secretary.
Office, 409 California street, San Francisco, Cal.

Tecumseh Gold, Silver and Copper Mining Company.—Location of works, Gopher District, Calaveras County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 23d day of January, 1872, an assessment of Four ($4.00) dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, F. J Herrmann, at the office of the company, No. 516 Kearny street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the 27th day of February, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the 16th day of March, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

F. J. HERRMANN, Secretary.
Office 516 Kearny street, San Francisco, Cal. jr2td.

Union Gold Mining Company—Location of

works, Howland Flat, Sierra County, State of California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the 4th day of January, 1872, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. of Certificate.	No. of Shares.	Am't.
Crosett, James F. Trustee..166		62	$ 62 00
Crosett, James F. Trustee..167		100	100 00
Frontin, Joseph, Trustee..234		100	100 00
Frontin, Joseph, Trustee..235		95	95 00
Gilheri, Mrs. E. W.....205		15	15 00
Gilbert, Mrs. E. W.....212		10	10 60
Hale, William F.....129		60	60 00
Mahoney, Denis..... 46		100	100 00
Mahoney, Denis..... 47		50	50 00
Mahoney, Denis..... 62		75	75 00
Mahoney, Denis..... 63		100	100 00
Stuart, W. A..... 90		7	7 00

And in accordance with law and an order of the Board of Trustees, made on the 4th day of January, 1872, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Company, Room No. 22, Merchants' Exchange, California street, San Francisco, California, on Monday, the 26th day of February, 1872, at the hour of 1 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale. ALFRED K. DURBROW, Secretary.

Office: Room No. 22, Merchants' Exchange, California street, San Francisco, California. fe10-

Wm. Penn Consolidated Mining Company

—Location of works, Storey and Lyon Counties, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 26th day of January, 1872, the assessment of 50 cents per share levied on the 16th day of January, was rescinded, and an assessment of $1.00 per share was levied, payable immediately, in U. S. gold coin, to the Secretary, at the office of the company, No. 338 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Thursday, the 29th day of February, 1872, shall be deemed delinquent, and be duly advertised for sale at public auction, and unless payment be made before, will be sold on Thursday, the 21st day of March, 1872, to pay the delinquent assessment thereon together with cost of advertising and expenses of sale. By order of the Board of Trustees.

feb3-4t HENRY TOOMY, Secretary.
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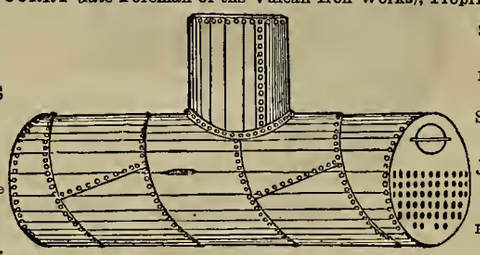

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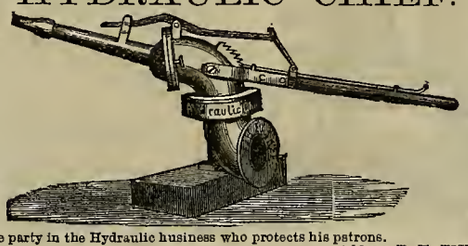

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4v24-1yslamr

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24v17-qy

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Office, 315 California street. A. J. SEVERANCE,
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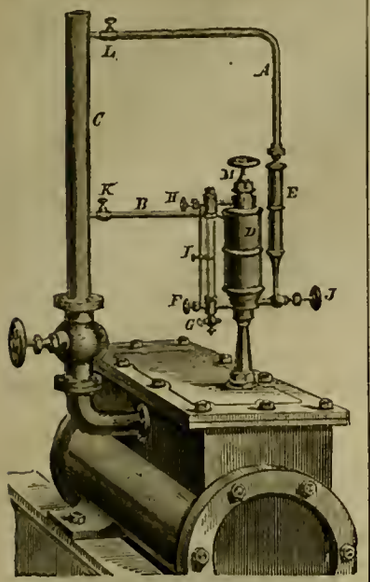

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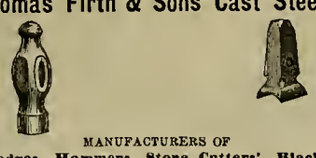

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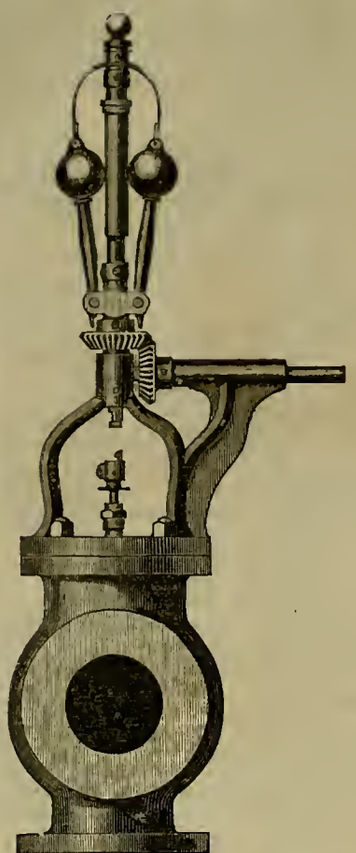

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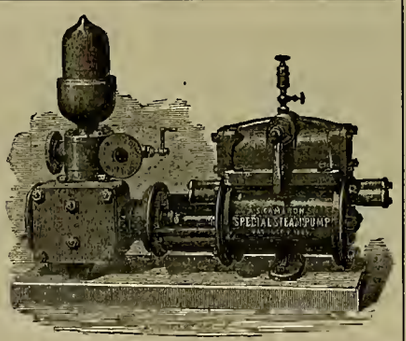

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3v24-3m

CENTRAL PACIFIC RAILROAD.

February 20, 1872.

San Francisco & Sacramento.

Leave going East.			Arrive from East.	
*4.00 P M	7.00 A M	San Francisco..	8.30 P M	*2.20 P M
4.35 P M	7.35 A M	Oakland	8.00 P M	1.50 P M
4.10 P M	7.50 A M	San Jose	8.30 P M	2.10 P M
5.35 P M	8.35 A M	Niles	7.05 P M	12.45 P M
8.25 P M	11.23 A M	Lathrop	4.43 P M	9.45 P M
8.48 P M	11.50 A M	Stockton	4.07 P M	9.07 P M
10.45 P M	1.45 P M	Sacramento	2.20 P M	7.15 A M
Arrive from West.			Leave going West.	

San Francisco & San Jose.

Leave going South			Arrive from South	
.....	3.00 P M	San Francisco..	10.40 A M	.....
.....	4.40 P M	Niles	8.35 A M	.....
.....	5.00 P M	San Jose	7.40 A M	.....
Arrive from North.			Leave going North	

Stockton, Lathrop & Merced.

Leave going South			Arrive from South	
.....	1.35 P M	Stockton	10.20 A M	.....
9.45 A M	8.25 P M	Lathrop	9.30 A M	*8.20 P M
11.35 A M	9.45 P M	Modesto	8.13 A M	6.45 P M
2.40 P M	12.15 A M	Merced	5.45 A M	3.30 P M
Arrive from North			Leave going North	

Sacramento, Colfax, Reno & Ogden.

Leave going East.			Arrive from East.	
	3.00 P M	Sacramento	2.00 P M	
	5.40 P M	Colfax	10.20 A M	
	1.00 A M	Reno	2.10 A M	
	9.10 A M	Winnemucca	4.15 P M	
	12.00 M	Battle Mountain	1.25 P M	
	4.40 P M	Elko	8.45 A M	
	6.20 A M	Ogden	5.20 P M	
Arrive from West.			Leave going West.	

Sacramento, Marysville & Red Bluff.

Leave going North			Arrive from North	
*8.45 A M	3.35 P M	Sacramento	1.05 P M	*4.45 P M
10.25 A M	3.25 P M	Junction	12.15 P M	3.25 P M
1.50 P M	5.15 P M	Marysville	10.20 A M	12.00 M
8.00 P M	8.35 P M	Tehama	6.30 A M	5.30 A M
.....	9.30 P M	Red Bluff	6.00 A M	.....
Arrive from South			Leave going South	

San Francisco, Vallejo & Calistoga.

Leave going North			Arrive from North	
*4.00 P M	7.30 A M	San Francisco..	8.00 P M	*12.15 P M
6.30 P M	9.30 A M	Vallejo	6.05 P M	10.30 P M
7.28 P M	10.40 A M	Napa	4.50 P M	9.30 P M
9.10 P M	1.00 P M	Calistoga	3.00 P M	8.00 A M
Arrive from South			Leave going South	

San Francisco, Vallejo & Knight's Landing.

Leave going East.			Arrive from East.	
*7.30 A M	*4.00 P M	San Francisco..	*12.15 P M	*8.00 P M
9.35 A M	6.35 P M	Vallejo	10.30 P M	6.05 P M
12.05 P M	10.10 P M	Davis	7.10 P M	3.3 P M
1.00 P M	11.45 P M	Knight's Land'g	5.30 A M	2.30 P M
Arrive from West.			Leave going West.	

San Francisco & Healdsburg.

Leave going North			Arrive from North.	
.....	*2.00 P M	San Francisco.	*11.00 A M	.....
*7.10 A M	4.35 P M	Donahue	8.45 A M	*5.35 P M
8.20 A M	5.00 P M	Petaluma	8.29 A M	5.30 P M
9.45 A M	6.00 P M	Santa Rosa	7.30 A M	3.30 P M
10.20 A M	6.45 P M	Healdsburg	6.45 A M	2.00 P M
Arrive from South			Leave going South	

Stockton, Milton & Oak Dale.

Leave going South			Arrive from South	
.....	*11.25 A M	Stockton	*4.25 P M	.....
.....	11.52 A M	C.P.R.R. Depot.	3.52 P M	.....
.....	12.42 P M	Peters	3.02 P M	.....
.....	1.32 P M	Milton	2.12 P M	.....
.....	1.44 P M	Oak Dale	2.00 P M	.....
Arrive from North			Leave going North	

CAL. P. R. R. CO.'S STEAMERS.

Leave going East.			Arrive from East.	
*4.00 P M	*4.00 P M	San Francisco.	*10.00 P M	*8.00 P M
6.00 P M	.....	Vallejo	.....	6.00 P M
7.00 P M	6.00 P M	Benicia	8.00 P M	5.00 P M
.....	2.00 A M	Stockton	2.00 P M	.....
2.00 A M	.....	Sacramento	.....	12.00 M.
Arrive from West.			Leave going West.	

☞ Explanation.

For trains running "from" San Francisco, take the left hand columns and read downwards.

For trains running "towards" San Francisco. take the right hand columns and read upwards.

OAKLAND BRANCH.—Leave San Francisco, 7 00, 8 10, 9 2., 10 10 and 11 20 a. m., 12 10, 1 50, 3 00, 4 00, 5 15, 6 30, 8 06 9.20 and *11 30 p. m. (9 20, 11 20 and 3 00 to Oakland only).

Leave Brooklyn, *5 30, 6 40, 7 50, 9 00 and 11 00 a. m., 1 30, 2 40, 4 55, 6 10, 7.40 and 10 10 p. m.

Leave Oakland, *5 40, 6 50, 8 00, 9 10, 10 00, and 11 10 a. m., 12 00, 1 40, 2 50, 3 50, 5 05, 6 20, 7.50 and 10 20 p. m.

Alameda Branch.—Leave San Francisco, 7 20, 9 00, and 11 15 a. m., 1 30, 4 00, 5 30, and 7 00 p. m. (7 20, 11 15, and 5 30 to Fruit Vale only).

Leave Haywards, *4 30, 7 00 and 10 45 a. m., and 3 30 p. m.

Leave Fruit Vale, *5 25, 7 35, 9 00 and 11 20 a. m., 1 30, 4 05 and 5 30 p. m.

—*Sundays excepted. †Sundays only.

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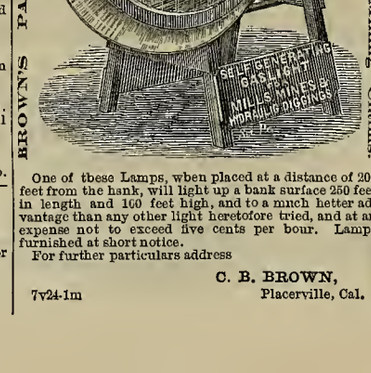

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SAN FRANCISCO, SATURDAY, MARCH 2, 1872.

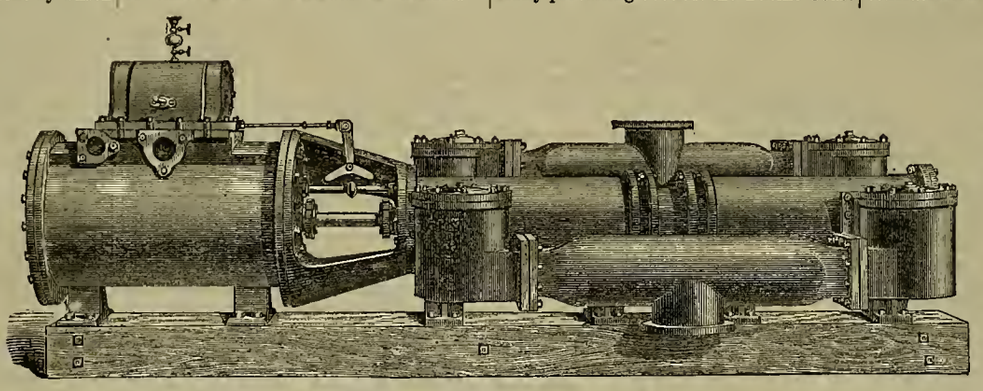
VOLUME XXIV. Number 9.

Selden's Double-Acting Plunger Pump.

By Our New York Editor.

Our readers will remember that a short timo since we gavo a description of the Soldon direct acting-stoam pump, illnstrated by sections, otc. We give below a cut of a Selden pump modified to snit the requirements of mining work. The steam end is the same as that described on page 81 of Vol. XXIII of tho Scientific Press. At tho right, tho pump is seen, consisting of two pump-barrels, with one long plunger, common to both, and secured to tho steam-piston with a steel rod, having, as nsnal, glands to pack that part of the plunger working throngh the barrel. The suction-pipo, which is common to both barrols, is seen bsneath the pump, and tho discharge pipe is scen above.

There is one important difference between this pump and those of the ordinary pattern, namely, an arrangement by which the steam and water pistons may be brought very near each other. Immediatcly abeve the piston-rod will be seen a smaller rod, on which is a projection or ronnded disk termed the "dog." This npper rod projects into the steam-cylinder, and also into the pump-cylinder, moving freely in and out of botb; of course, in itself it is motionless. The steam-piston on nearing the forward end of its stroke, strikes against the end of the rod which is in the cylinder, pushing it outward. The dog then impinges against the rocker immediately above it, communicating motion to the valve-rod, and so moving the slide-valve for the return stroke. As the latter reaches its end, the pnmp-plunger in its turn strikes against the end of the rod in the pump cylinder; the rocker is again moved, and the slide valves placed in position for the forward stroke.



SELDEN'S DOUBLE-ACTING PLUNGER PUMP.

It will be seen at once that the movement of the vslves is unaffected by the length of the stroke. And besides that, as long as the rocker, which is only ten inches from point to point, has space enough to work, it matters not how close the cylinders (pump and steam) be placed together. In fact, this distance need not be more than twenty-two inches for any length of stroke. Another point of advantage in this is the facility with which the motion can he reversed; a mere pressure of the finger on the end of the rocker being sufficient to alter its position, and so change that of the valves.

The dimensions of one of these pumps, recently manufactured by Mr. A. Carr, of No. 43 Cortland street, New York, are as follows: Length, 14 feet 6 inches. Diameter of steam cylinder, 24 inches. Diameter of water cylinder, 13¼ inches. Diameter of plunger, 12 inches; stroke, 36 inches; suction and discharge-pipes, 10 inches. Weight, 7¼ tons. It will be noticed from these data that the diameter of the plunger is one inch and a half less than that of the cylinders in which it works. In the ordinary piston pump, the foreign matter ruhbing and grinding hetween the interior of the cylinder and tho pisten, necessarily woars out the parts with which it comes in contact, and eventually causes them to rapidly deteriorate.

By using the plunger packod by a double gland in the centre, two poiuts are gained. The first is that the wear of sand and dirt upon the interior of the cylinder is prevented, the plunger not touching the cylinder by ¾ of an inch. The second point, of no less value, is that a simple stnffing box, accessible from the outside, takes the place of the troublesome packing of a piston, which is always hard to get at and invariably necessitates the stopping of work for a considerable length of time when a renewal is desired.

In regard to the performances of these pnmps the following facts communicated by Mr. Charles Hutchinson, will give a better idea of the valne of the pump than anything else. Mr. Hutchinson has used one of these pumps for some time past at his coal mine (the Hutchinson colliery,) at Kingston, Pa. The depth of the shaft being 175 feet, a column of water of that hight and ten inches in diameter, is raised by it; and rnnning only some ten strokes per minute, it discharges some seventeen gallons per stroke. This low speed is due to the small quantity of water in the mine; as, if necessary, a velocity of forty strokes per minute can be easily obtained, when, of course, a proportionate amount of water would be raised. We learn from the same gentleman that, when starting the pump, it was covered with water; and yet, as soon as the steam was turned on, (which was done above ground at the boilers,) it started and did its work with perfect facility; the valves also work so smoothly and easily on their seats that they made no noise whatever; a point of some interest when recalling the vast wear and tear and ineessant clatter genorally kept up by these parts.

The facility for repairs is a leading characteristio of this pump. Except the breaking down of the main steam eylinder there is no part of either steam or pump end that may not be supplied from an ordiuary machine shop. We are qnito sure that the whole pnmp conld be turned out from any foundry in the country, capable of making castings of the required size. In a word, all that was said in regard to the steam pump is true of this one. Owners of minss will not be slow to appreciate these advantagos, sspecially when they wish for pumps to be used in places where toels and shops are not of easy access. The groat reduction of weight is also a point that will be strongly in their favor, whero the pumps have to be transported on mules over mountain roads or long distances in the mountains on wagons.

The Iron Interest for 1872.

Wo notice that the proprietors of our foundries and machine shops are already rubbing off the accumnlated dust and rust of three oonsecutive years of comparative dull times, incident to the drouth so generally prevailing over all the Pacifie Coast and interior mining region, and are busy in the erection of new and improved machinery, necessary to meet the requirements and improvements of the times, in the rendering of the precious and other metals from their baser matrix. Nor can they be too soou in their preparations, for already orders are pouring in upon them from every side. In California, the old mining grounds of earlier days have been revisited, new placers and new lodes of gold bearing quartz have been unearthed, new assays of long neglected claims have been made, and found to yield, nnder the workings of improved machinery, sufficient to warrant tbe erection of works, where ten years or more ago, success would have boen at best doubtful.

Oregon and Washington Territory are coming down witb their orders for machinery far in excess of the Portland foundries to supply. Tho great interior, Nevada, Utab and Colorado, though sometimes looking to the East witb wishful eyes in hopes of obtaining a moiety of their wants supplied, perhaps at lower rates, still depend upon the San Francisco shops for the great bulk of their miuing macbinery; whilst Arizona is monthly increasing ber demands for additional facilities for tbe working of ber mines. Thus it will be seen that the outlook is one of a prosperous and bnsy future for our workers in iron, and all interests connected with coast or interior mining.

The Mining Commissioner's Report.

We are sorry to see that Mr. Raymond's endeavors to fnrther the circulation and distribution of his reports have not met with the snccess that they deserve. The report was rendered in March, 1871, and the usual number of copies for Congress, the departments, public offices, etc., were promptly ordered. The sterootype plates have been lying idle ever since and no copies were ordered for general distribntion. This, however, has not been the fault of the Mining Commissioner, for he has persistently endeavored to get Congress to take some action as to the nnmber to he printed, otc. A resolution anthorizing an extra edition of 10,000 copies was referred to the committee on printing, as is usual, and after much delay they have finally concluded to order 5,000 copies, a number ridiculously small, taking into consideration the magnitnde of the interests whicb tbe Commissioner represents. The Commissioner of Agricnlture has an almost nnlimited snpply of his reports, both monthly and annnal, and the appropriation for priuting pnrposes in that Department is large, while the Commissioner of mines has a paltry sum of $10,000 per annum with which to perfect his researches, travel, employ deputies, etc.; and he was compelled in 1870, in order to make his report satisfactory to himself to draw on his own private purse to defray necessary expenses. Last year's report, "American Mines and Mining," is very scarce, and but few copies are in circulation on this coast where they are most needed. What is the nse of printing an edition of a work like this, that Congressmen may have the pleasure of sending a number of copies to their constituents in the Eastern States, where they are of no practical value whatever. Tbe statistics, review of mining industry, description of processes, etc., are inestimably valuable to the people engaged in mining on the Pacific coast, and tbe appropriation shonld be large enongb to permit tbis information to be disseminated among those who need it.

The needs and prospects of the West demand a large edition of this work, and it shonld be as accessible as the Agricultural reports are. As it is, a New York firm, with a commendahle enterprise and a dne appreciation of the importance of the report, have printed an edition on their own responsihility and offer it for sale. The Commissiouer has uo interest in this edition either direct or indirect, and it will be placed ou sale as an ordinary work.

Dewey & Co., of the Scientific Press, have obtained the agency for its sale on this coast from the publishers, J. B. Ford & Co., and the books are now on the way. By this means, and witb no thanks to Congress, mining men may be able to get copies of this valuable report.

Causes of Depression of Placer Mining.

In the chapter on the condition of mining industry in California, in Mr. Raymond's last report, "Mines, Mills and Furnaces of the Pacific Coast," of which we have the advance sheets, Mr. W. A. Skidmore contributes some interesting facts concerning the placers of this State. He snms up the causes for the inactivity in past years in placer miuing as follows:

1st. The injudicious system of locations permitted under early mining laws and regulations, through the ignoranee of the miners of the character, extent, and depth of the ditrital deposits. These locations were generally made in claims of 100 feet frontage, running back to the center or backbone of the nearest ridge, regardless of the course of the deposit, such claims being too small to justify the expenditure by individual owners of the large sums necessary to construct tunnels for outlet and drainage of their ground.

2d. The filling and choking up with tailings, after a few seasons of washing, of the ravines, gulches, and rivers which served as outlet for the ground, thus preventing the maintenance of flumes of sufficient length and grade to disintegrate the hard cement found underlying the top dirt, and rendering imperative the construction of long tunnels to the nearest deep stream, requiring, in some cases, years of labor and the disbursment of large sums without immediate returns.

3. The ignorance of the people and of capitalists of the unbounded mineral resources of their own State; the sudden and unhealthy excitements following the discovery of gold in British Columbia, and silver in Nevada; and the efforts of a portion of the press in California, in the interest of land speculators, to "write up" agriculture at the expense of mining.

4th. The uncertain tenure of mining ground under local mining regulations, which differed in every district, and affords no adequate protection to the purchaser of mining ground unless he remained in actual possession.

Prospects for the Future.

In speaking of the future of this branch of mining Mr. Skidmore says:

Many causes have operated to confirm me in the opinion that the future is bright with promise. A more lively interest is felt by capitalist in the examination and development of these dormant resources, and the information disseminated through the medium of the State geological survey, and the various reports of the United States mining commissioners have not been without effect in turning the attention of the people to the vast stores of wealth at their very doors. One of the most encouraging features of future progress is the tendency of consolidation and cooperation on the part of owners of mining ground, who are availing themselvee of the recent act of Congress to acquire a a title in fee simple to the land by means of a United States patent. As an instance of the beneficial operation of this law, we may mention the fact that one company, the North Bloomfield Gravel Company, of Nevady County, are now applying for a patent to 1,500 acres of mining ground, lying between the Middle and the South Yuha river. Should this act be liberally construed hy the various land offices, and no expensive obstacles placed in the way of the miner seeking to acquire title (as was the case in the operation of the act for acquiring title to quartz ledges), much good will result to the State from the passage of thie law.

Important improvements have been made in the manner of using water in the hydraulic diggings. Instead of projectfive hundred to one thousand inchee of water through two or four pipes, the leading mines now run their water through one pipe by means of the recently invented hydraulic nozzles, and discharge it with immensely increased momentum and effect against the bank they desire to wash down, accomplishing greater results with less labor and expenee, and enabling one miner to regulate the discharge of a thoueand inches, in streame of six inches in diameter, by means of a lever, moving a nozzle which turns in any direction, with more ease and accuracy than three men could do it by the old process. So powerful is the force exerted by these large streams; under great pressure, that many cemented gravel banks which formerly required the use of powder blasts before washing, can now be cut down and removed by the action of water alone.

He then specifies a number of drills, hydraulic pipes and the mechanical appliances of mining and improvements in the manner of working, and says: As these improvents are adopted, the amount and profit of this branch of mining increases, and the steady operation of these causes, inclnding the facilities for the procurement of title to mining gronnd, will have a tendency to materially increase the gold product.

Underground Temperature.

Late observations, embodied in a report to the British Association, confirm the results of former investigations touching the rate of increase of temperatnre with increasing depth. The average appears to be about one degree of Fahrenheit to every fifty-four feet of depth; though in some localities the increase is much more, and in others much less rapid. In the Mont Ceuis tunnel, for example, at a point directly under the summit of the mountain, which is quite a mile overhead, the temperature was found to be 85.1 deg Fahr. The mean aunual temperature of the crest, as estimated from a comparison of observed temperatures at both higher and lower levels, is 27.3 deg. Fahr. Assuming this estimate to be correct, the iucrease of temperature downwards is at the rate of 1 deg. Fahr. in 93 feet, which, by applying a conjectural correction for the convexity of the surface, is reduced to about 1 deg. Fahr. in 81 feet, as the corresponding rate under a level surface; and this is about the rate at the Dunkinfield colliery in England, though much lower than the average elsewhere observed.

A more rapid increase than the average given above has been observed at Yakutsk, in Siberia, where, according to Middendorf, the temperature runs up at the rate of 1° Fahr. in 49 feet of descent. Dana mentions that Magnus found in the same locality a gain of 15° Fahr. in descending 408 feet, which is equal to 1° for 27 feet. It is stated on the authority of Geueral Helmerson, of the Mining College at St. Petersburg, that in sinking a well to the depth of 540 feet at Yakutsk, the soil was found to be frozen the entire distauce, and the probabilities were that the frost had reached a depth of 700 feet. One degree of increase in 52 feet of descent was the rate in this well.

It is found that the rise in temperature as the thermometer descends is not always regular, being more rapid at some depths than at others. Thus, in the examination of Shergin's shaft, in Siberia, between the depths of 150 and 200 feet, the temperature rose at the rate of 1° in 20 feet, while between 250 aud 300 feet the increase was at the rate of 1° in 96 feet. A similar, though less marked difference, has been observed in the Kentish Town well in England. Between the depths of 325 and 910 feet, the rate of advance in temperature is 1° in 56 feet, and from 910 to 1,100, 1° in 54 feet. The strata differ materially in the two spaces, in the upper space consisting mainly of chalk and marl, and in the lower space of sand and clay; whence it hae heen suggested that the irregularity of the rise in temperature was due to the varying character of the strata traversed.

Gold Mining on the Colorado.—The Deseret *News* has a correspondence at St. George, who writes, February 5th, as follows: Parties are just up from St. Thomas, on the Muddy, who report considerable excitement in that section ou account of the discoveries of placer gold diggings on the Colorado, above the mouth of the Virgin. The precious metal is found in the fine or flour state and it is reported that half an ounce is made a day to the hand. Several parties numbering in all near fifty men, have made au outfit here and at the Muddy and gone over with three months' outfit to work. The spot they have selected is above the mouth of Grand Wash, near the mouth of Diamond river, probably from 75 to 100 miles either from St. Thomas, St. George or Kanab. Parties have visited and prospected various places along the river, as well as the spot described and say that there is fine gold in the sands all along the river. The parties seem satisfied that they have a good thing and that the Colorado will be lined with mining camps ere another winter sets in.

The receipts of the Patent Office at Washington, last year, were $678,716, and the expenditures $562,104. The balance was paid into the Treasury, amounting to $116,624, making the balance to the credit of the office January 1st, 1872, $759,970. The number of applications for patents was 19,472; of patents granted, 13,333; and of patents expired, 2,654. The whole number granted to citizens of the United States was 12,511.

Winnemucca Silver Mines.

It may not be generally known, says the Humboldt *Register*, but it is nevertheless a fact that the mines in Winnemucca mountain, so far as they have been worked have turned out as good resnlts, if not a better showing than any of the mines in Humbold county or in the Eastern part of the State. Within the last three years there have been over a thousand tons of ore taken from the Wearmouth, French and Kunkle claims, the three principal locations in the district, and shipped to Rye Patch, Reno and San Francisco for reduction. The receipts of the millmen show that this ore gave an average yield of $150 per ton. Some thirty tons of first-class ore taken from the above claims, which are located on the "Pride of the Mountain Ledge," milled as high as $500 per ton. Also, some 250 tons shipped to Swansea went $143 and some cents per ton. Are there any other mines in Humboldt county that have as yet made a better showing? The ledge proper, from which this ore was taken is about 4 feet between casings at the bottom of the incline, 200 feet from the surface, showing a stratum of 40 inches wide solid mineral. From the ore already worked, it is a well-established fact, that the entire ledge between casings is a true fissure vein, and will work over $100 per ton all through. In order to satisfy the curious, we give the numher of the assays made by two experienced aud practical assayers: The general average of 16 assays of different lots of ore as made by J. A. Allgauer was $271.79 per ton. That of 20 assays made by the Cahill Bros., of Austin, Nev., was $235.45; the highest being $2,389.03 and the lowest $28.85. Where is there a ledge in this part of the State, that does, or can make a better exhibit than the "Pride of the Mountain." The Eureka ores are very base and low grade and some two hundred miles off the railroad; the South Mountain (Idaho) ores are about the same as the ores in the Eureka district, and located over two hundred miles north of the C. P. Railroad in a country where snow is four feet deep six months in a year.

It may look a little strange to those unacquainted with the circnmstances, that with such a showing the ledges are not worked. The reason is obvious. The ledges are owned hy men who are unable to erect proper reduction works, and they have learned by experience that ores paying less than $150 per ton, will not pay the expense of shipment and reduction, and leave any margin for the mine owners. If the ore could be reduced at or near the mines, even $50 ore could be made to pay a handsome profit.

Oakville Quicksilver Mine.—We visited, a few days since, the Oakville Quicksilver Mine, situated some fourteen miles above Napa City, and within one mile and a half of the Calistoga Railroad. The company have excavated 3,000 feet of tunnel, and drifts have been run, which denote a rich ledge of 1,500 feet, lying between sandstone and slate. There are about 1,000 tons of ore on the dump, and at least 10,000 tons are developed in the mine. A lare amount of pure cinnabar is now being discovered in the lower tunnels, and, in the opinion of experts, the leads will eoon open into chambere of the same ore. The price of this ore variee in value from $40 to $800 per ton. The Company lately started a ten-ton furnace, which works splendidly and is now turuing out some 400 pounds of quicksilver per day. It is the intention to erect a furnace of much greater capacity when the yield of qnicksilver will be proportionately increased.—*News Letter.*

Starch.—There seems to be among the imports into our State none so needless as that of starch. With soil that produces so bounteons a yield of the raw material, California should be exporting instead of importing it. Other States with less advantages ship starch to foreign ports while we import over $150,000 worth per annum. A late Indianapolis paper aunounces the shipment from that city of two thousand boxes of starch to Liverpool *via* New York. California could land it in Liverpool at an equal if not lower cost for freight than Indianapolis, and certainly our advantages for cheap manufacture will enable us to furnish it ready for shipment at a much cheaper rate. We wonder that some of our farmers have not ere this started a co-operative starch factory to dispose of their surplus produce.

Mechanics, write for your paper.

Nevada's Bullion Product in 1871.

The Virginia City (Nev.), *Enterprise*, says: When we predicted, more than a year ago, that the bullion product of Nevada for 1871 would exceed twenty millions of dollars, most of the journals of California treated the assumption as a pleasant piece of bombast. The complete figures are not before us, but from a carefully prepared statement by the General Agent of Wells' Fargo & Co., we are satisfied that the bullion product of Nevada amounted to not less than twenty-five millions of dollars during the year 1871. This equals the gold product of California, and henceforth we shall claim for this State the first rank as the gold and silver producing commonwealth of the Republic. Assuming the product to be twenty-five millions of dollars, and a simple calculation shows that $536 in gold and silver was extracted from the earth and put in circulation by every man, woman and child in the State. The amounts shipped by Wells, Fargo & Co. from six of the principal districts of the State during the year 1871, are as follows:

PLACE.	AMOUNT.
Virginia and Gold Hill	$11,053,328.28
Pioche	3,982,227.89
Eureka	2,173,105.50
Hamilton and Treasure Hill	1,339,420.33
Austin	965,536.17
Mineral Hill	701,014.00
Total	$20,214,632.17

It is well known that the product of the mines of Virginia and Gold Hill in 1871 was considerably in excess of $11,053,328. The yield, as shown by the books of the County Assessor, exceeded this amount by about two millions of dollars. The statement of the General Agent of Wells, Fargo & Co., was doubtless compiled from the shipments by that Company, and does not embrace a number of district from which very considerable amounts of bullion were taken in 1871. A large amount of base bullion has been shipped directly to the East for separation, from the eastern counties of the State. Much of this is not included in the statement referred to, as it was not shipped through Wells, Fargo & Co. It is therefore reasonable to assume that the gold and silver product of Nevada for 1871 was all of $25,000,000, and that for 1872 it will exceed this amount by $5,000,000.

Manzanita.—This scrubby bush (for it seldom attains the dignity of a tree) is well known to all old Californians, who are Californians enough to have visited the beautiful mountains of the State. The wood of the manzanita is hard and susceptible of a beautiful polish. In early days a man who did not carry a walking-cane made of manzanita was not exactly in the fashion. Such canes became too common however, to continue the rage in California; like "specimen jewelry," they were valued only as presents to he sent East. No one in these days hears of a great man being presented with a manzanita cane which has a gold head quartz setting. The pioneers of the mountains at an early day discovered that the manzanita made a most excellent firewood. It makes the hottest fire of any wood to be found in the State, or perhaps any to be found in the world. There is a drawback, however, to the qualities of the manzanita as fuel. It makes too hot a fire for the stove of the period, It burns out a etove too rapidly for economy. In an old-fashioned fire place the piled manzanita logs with brilliant flame, lively sparkle and glowing coals make all the comfort a fire can make, of a night when the thermometer is coquetting with zero. So the large manzanita bushes have been cut away from the hillsides near mining camps.

The Digger Indians have always used the berries of the manzanita as food. They contain a large percentage of grape sugar and are rich in gluten. Manzanita grows all over the mountain sides of California, on the Coast Range, and on the Sierras. It grows from low down in the foothills to an elevation of 3,000 feet. The production of these berries is therefore practically unlimited, as nature has arranged it. What can be done by cultivation?—*Grass Valley Union.*

Iron Ships.—In one ship-building establishment in Philadelphia there are five first-class iron steamships in process of construction, with an aggregate tonnage of 13,000 tone, which will require for their construction 16,000,000 pounds of iron, and the ships when completed will cost $2,500,000.

MECHANICAL PROGRESS.

Builder's Hardware.

A correspondent of the *Scientific American* calls attention to the poor quality of the large majority of the builder's hardware, now in use, such as nails, screws, hinges, latches, locks, window pulleys, hooks, etc. The correspondent assumes, which is an undoubted fact, that there is not a house carpenter in the country who has not had his patience tried by the poor quality and frequent failure of some of these articles.

Nails, as brittle as cast iron, are quite common articles; the iron of which some of them are made is so poorly welded that they often split by the first stroke of the hammer. Our American screws, in form and finish, are all that need be desired, and yet the material of which some of them are made is so poor that their heads snap in the act of screwing them into soft pine; the round headed ones are especially liable to this fault. The square corner under the head is unfavorable to strength, and a round corner or trumpet form would greatly improve their strength at this point; the slots in some of their heads are so shallow that they are useless until they are reslotted. Those brilliant mineral and porcelain knobs, which add such a pleasing finish to our doors, frequently jar off from their metal sockets for the want of a stronger and deeper dovetail to the sockets; and the sockets are continually getting loose upon the square shanks for want of a snug and proper fit to the screws that hold them on. The rivets that holds the cheeks to the window pulleys are often so slightly headed that the cheeks spread as soon as the weight is applied.

These are some of the defects which sometimes try the patience not only of builders and housekeepers, but of everybody who is able to raise a window or open a door. It would cost but little more to make these things of good material and strong and servicable at the points I have named, than it does in the present faulty manner.

This is a matter of considerable importance; and the correspondent above alluded to thinks if the manufacturers could appreciate it, as some others do, our hardware stores would soon cease to be encumbered with these demoralized articles.

Photographed Nerve Sections.

Dr. Duchenne, of Boulogne, has presented to the French Academy of Medicine an album containing copies of photographs of the appearances presented by sections of the great sympathetic nerve, the spinal ganglia, the spinal cord, and the medulla oblongatta greatly magnified. He fixed the photographs on stone by a process he termed photoautography, the details of which, however, he does not communicate. It is satisfactory to find him stating that the results confirm the substantial accuracy of the beautiful drawings made by Dr. Lockhart Clarke on the central part of the nervous system, and especially upon the medulla oblongata. In his latter experiments Dr. Duchenne has adopted Dr. Clarke's method of preparation with chromic acid and carmine. He states that certain micrographic details come out with wonderful clearness in the photographs, and that by this means some important additions may be made to our knowledge. He has ascertained that in the white substance of the medulla oblongata there are nerve tubules from thirty-three ten thousandths of a millimeter to three-hundredths of a milliter in diameter.—*Nature.*

WELDING COPPER.—To unite two pieces of copper by welding has puzzled many mechanics and metallurgists, but we read, in a cotemporary, of its recent successful achievement. A compound of 358 parts phosphate of soda and 124 parts boracic acid is prepared, and is used when the metal is at a dull red heat; the heat is then increased till the metal becomes of a cherry red color, and the latter is at once hammered. A hammer of wood is recommended for this purpose, as the metal is liable to soften at a high heat; and the hammer should be used cautiously. All scale and carbonaceous matter must be removed from the surface of the copper, as the success of the welding depends on the formation of an easily fusible phosphate of copper, which would be reduced to a phosphide by the presence of carbon.

Straw for Boiler Fuel.

We lately alluded to the possibility of adopting in California the plan recently introduced in some grain-growing sections of Europe, of employing the waste straw for steam boiler fuel, instead of continuing the wastful practice of burning it as refuse. In reference to this matter the New York *Artisan* says:

In no way does the rapid dissemination of information from one country to another bear better fruit than in the development of industries. In California the thrashed straw from vast fields of grain is of little worth, but the steam power required in thrashing is expensive, because of the cost of fuel. No one on the Pacific Coast appears to have thought of adopting the fire-box of the portable boiler to burning straw until experiments in far off Hungary were heard of. In that country, straw for fuel was found to cost but one seventh as much as wood in the furnace. In one experiment, it is stated, a sixteen horse-power engine thrashed four hundred and eighty bushels of grain in twelve hours, with a weight of straw equal to that of half a cord of oak. The story seems extravagant, and we mention it for what it is worth; but there can be no doubt that the quick, fierce blaze of the straw, properly fed to a furnace of suitable construction, might be made to produce a more effective generation of steam than the comparatively slow and sullen combustion of the wood. The plan, at all events, is thought, by Californians well qualified to judge, to be worthy of extended trial on the coast, and it cannot be denied that dry straw should make a better furnace-fire than the wet tan or the damp sawdust successfully used respectively in the furnaces of our Eastern tanneries and lumber establishments.

The Coloring of Veneers.

Some manufacturers of Germany, who had been supplied from Paris with veneer, colored throughout their mass, were necessitated by the late war to produce them themselves. Experiments made in this direction gave in the beginning colors fixed only on the outside, while the inside was untouched, until the veneers were soaked for twenty-four hours in a solution of caustic soda, containing ten per cent. of soda, and boiled therein for half an hour; after washing them with sufficient water, to remove the alkali, they may be dyed throughout their mass. This treatment with soda effects a general disintegration of the wood, whereby it becomes in the moist state elastic and leather-like, and ready to absorb the color; it must, then, after dyeing, be dried between sheets of paper, and subjected to pressure to retain its shape. Veneers treated in this way, and left for twenty-four hours in a hot decoction of log-wood (one part of log-wood to three of decoction), removing them after the lapse of that time, and, after drying them superficially, putting them into a hot solution of copperas (one part of copperas to thirty of water), will, after twenty-four hours, become beautifully and completely dyed black.

A solution of one part of picric acid in sixty of water, with the addition of so much ammonia as to become perceptible to the nose, dyes the veneers yellow, which color is not in the least affected by subsequent varnishing. Coralline dissolved in hot water, to which a little caustic soda and one-fifth of its volume of soluble glass has been added, produces rose colors of different shades, dependent on the amount of coralline taken. The only color which veneers will take up, without previous treatment of soda, is silver gray, produced by soaking them for a day in a solution of copperas (one of copperas to one hundred of water).—*Exchange.*

NEW MATERIAL FOR CRUCIBLES.—A new mineral has recently been discovered at Wocheina, in Krain, a province of Austria, which is reported as promising to become of much importance in the manufacture of cruciblos, etc., for assayers, steel-making, etc. This mineral is called Wocheuit, after the place where it is found. Its chief recommendation lies in its large percentage (50.82) of alumina. Richter has demonstrated that the resistance of crucibles to the effects of heat depends largely upon the amount of alumina contained in the fireclay. The new mineral is found to do best when mixed in about equal proportions with the best fireclay.

SCIENTIFIC PROGRESS.

TO DETECT THE PRESENCE OF ATMOSPHERIC AIR IN ILLUMINATING GAS.—It is well known that gas companies sometimes mix atmospheric air with their gas, which, while it measures more, adds nothing to the intensity of the light; moreover while pure illuminating gas as it exists in a gasometer is entirely inexplosive, a small admixture of air with it renders a gasometer almost as dangerous as a powder magazine. In fact a gasometer in England recently exploded, from being so mixed or adulterated, under circumstances, which, had the gas been pure, could not possibly have produced any such result.

In view of these facts, Mr. Lewis Thompson has devised a solution for the detection of air so mixed which he proposes as follows: A glass flask of about ½ litre capacity, with two tubes in the cork, is provided, and into this is poured 14 to 15 grammes of anhydrous sulphate of manganese previously dissolved in 15 grms. of hot water. To this is added 60 grms. of tartrate of soda dissolved in 90 grms. of hot water. When these are well mixed, 25 centilitres of a caustic potassa solution are introduced and the whole agitated to form a clear solution. This done the cork is quickly placed in the flask and one of the tubes pushed down till it dips below the surface of the solution. The gas may now be passed through this, when, if any air is present, the color of the solution deepens to that of strong porter or even to the blackness of ink, according to the quantity of air which is present.

It is claimed that this preparation will detect the presence of even an infinitessimal quantity of air. If so, it might be made useful as a detection where gas companies are desirous of increasing the bills of their customers, without any expense to themselves.

CHEMICAL CLIMATOLOGY. — Dr. Argus Smith, an English sanitarian and scientist, has recently submitted a paper of enquiry as to whether or not it may yet be found practicable to ascertain the salubrity of any district by means of an exact chemical determination of the nature of the atmosphere of the locality. The Doctor thinks it is safer to examine the condition of the air by a few chemical experiments than by waiting to see how many deaths take place in a thousand of the population. The state of purity of the atmosphere, he considers, is best determined by the amount of albuminoid ammonia which it includes, just as the drinking quality of a water is estimated in proportion to its freedom from that ingredient, with its usual association of germs and other sewage impurities. He selects the air of Valencia, Ireland, on the brink of the Atlantic ocean, as a good example of pure sea air, and gives it a standard number—100. Compared with this, and descending in the scale of salubrity, he instances as as follows:—Scotland, (inland) 1.29; Scotland, (sea coast), 3.11; England, (iuland), 3.15; Liverpool, 4.07; London, 6.03; Manchester, 6.21

PRESERVING BEET LEAVES FOR STOCK.—M. Mehay states, in a French Sugar Journal, that beet leaves may not only be preserved in good condition, as food for stock, for a period of six months or more; but that their food qualities are also actually improved by the process. The mode of preserving is as follows: A weak solution of hydrocloric acid in water is prepared of a density of from 3° to 4° Baumé. The leaves are then placed in baskets or by other suitable means plunged for a moment into this solution. About 1.5 per cent. of the weight in acid of the leaves to be cured is used in preparing the solution. This process is said to be well suited for all domestic animals, and especially for milch cows. Our beet sugar manufacturers should make a note of the above.

EFFECT OF PETROLEUM ON METALS.—A bronze composed of seven parts of copper, four of zinc and one of tin has been found to be so hard that it is very difficult to work, and is yet of considerable value for certain purposes when worked. So great is this value that various methods have been tried, and much ingenuity applied in efforts to devise a ready method of working the alloy. Quite recently, according to *Jour del' Eclairage au Gazette*, M. Bechstein has attained this desirable end *by soaking the alloy in petroleum.*

ILLUSTRATIONS OF POPULAR LECTURES.—One of the most encouraging evidences of the increased interest felt by the American public in the matter of Scientific Progress is the increasing demand for popular lectures upon various scientific subjects. The demand is also calling out the ingenuity of American scientists in devising ways and means for more instructive and striking modes of illustration. As a notable instance of progress in this direction reference has been made to some ingenious devices by which Prof. Morton of New York represents a total eclipse of the sun, showing the advance of the moon; the crescent sun; Baily's beads, and then at totality, the outburst of the "Corona" and the red prominences or "solar flames."

The formation of the sun flames was beautifully illustrated before the vertical lantern by means of a layer of water colored red by carmine, at the bottom of a tank of clear water. The "flames were produced by passing electricity through a fine coil of wire in the tank, by which, owing to the heating of the wire, currents were produced which bore up the red fluid.

In conclusion, to illustrate the value of the compound light of the sun, as compared with the monochromatic light of sodium, the entire building was illuminated alternately with the electric and with pure yellow light, the latter seeming to destroy every trace of color in all objects present.

It is doubtful whether an American audience has ever been favored with more elegantly illustrated lectures on science.

CALEFACTION.—M. Laborde has made some suggestive experiments on calefaction. He let a thin thread of water pass through the jet from the blowpipe, and he found on examination that the water which had thus passed through a heat capable of melting almost any metal, was but slightly warmed; in fact, the difference was but three degrees. If a jet is passed through an ordinary flame, the increase in temperature is considerably higher, probably owing to the incandescent particles carried away by the liquid from the smoke. A sheet of water presents similar evidence. If the jet from the blowpipe is directed against it, it is not pierced, nor is there any sensible heating effect. The finger can be brought to within a few millimeters of the flame, and yet there is no sensation to indicate the close proximity of an otherwise so patent source of heat. It is suggested that if, instead of the metallic curtain used in theaters in the case of fire, a sheet of running water were interposed, so as totally or partly to enclose or shut out the fiery element, that would be an improvement upon the systems at present adopted.

THE CHEMICAL INFLUENCE OF SOLAR LIGHT.—It has been observed that the intensity of the diffused light of the sky (not of that reflected by the clouds) is proportional, within certain limits, to that of the sun. When the altitude of the latter above the horizon does not reach 10°, the intensity of the chemical action of its light is practically nothing, while the action of that which is reflected from the sky is quite appreciable. Now, we know that the chemical intensity of the solar light increases constantly and regularly according as its altitude increases, and that it reaches its maximum when it has passed the meridan.

These phenomena are easily explained, if we recollect the higher the sun mounts in its apparent course, the less distance do its rays have to traverse in the absorbing atmosphere of our planet. As the sun sinks in the afternoon, we remark a corresponding decrease in the active power of its light and the relation pointed out exists without reference to variations in the state of the atmosphere.

THE IRON SHIP A MAGNET.—The following are a few important facts, as deduced by Mr. Stebbing from his experience of iron ships: 1. A compass may be very true on one or several points, and greatly disturbed on others. 2. The errors of one ship are no guide to the errors of another. 3. The errors are least toward the middle of the vessel. 4. Every iron ship is a magnet in itself; some have the north pole aft, and some the south. The magnetic axis is frequently determined diagonally through the ship. 5. There are in all ships two points, either opposite or nearly so, at which there is no error; there are two other points where the error is the greatest. An error will sometimes not alter three degrees in a range of five points, but may then change thirty degrees in the next five points.

Mining Summary.

The following information is condensed mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

AMADOR COUNTY.

Steam Hydraulicing.—Judge James D. Stevenson, of San Francisco, has in operation in a claim near Jackson, a new system of forcing water from a ditch against a hydraulic bank of some 30 to 40 ft. face. He uses a No. 8 Knowles steam pump, with a nozzle of about 1 inch diameter. An additional stream of water assists in working off the tailings. Most of the bank gives away readily to this power, but a larger pump is found to be necessary to pulverize the hardest portions of the deposit. We hope this method will have a thorough trial, and prove up the question whether water for hydraulic purposes, under favorable circumstances, can be economically obtained by use of steam power.

BUTTE COUNTY.

Mining.—Butte *Record*, Feb. 24: Water was turned into the Hendricks ditch last week, and we presume the Indiana Co. are prepared to continue mining without serious interruption. The Cherokee Co. have also turned water into their Butte Creek ditch, and are mining in the Vicinity of Diamondville. The Spring Valley Co. are sending huge quantities of dirt through their flumes, their large iron pipes working satisfactorily.

Inskip.—Cor. Chico *Review*, Feb. 24: The Bull Creek mines are rich beyond dispute, and there is a proposition to make up a Co. with a capital of $25,000 to bring about 600 inches of water into that dist.

CALAVERAS COUNTY.

Great Yield of Gold.—Calaveras *Chronicle*, Feb. 24: Brackett & Co., in Chili Gulch, last week cleared $500 over and above expenses, 12 men being employed. The gold-bearing lead of gravel is widening out as work progresses, and increasing in richness.

Prussian Hill Mine.—Rock is being taken from the Prussian Hill mine, near Railroad, at the rate of 10 tons per day—only one "shift" working. A large quantity of quartz is ready to be hauled to the mill and crushed as soon as the roads are passable.

Bartolo Mine.—The shaft in the Bartolo mine at West Point ie down 70 ft. The ledge is a narrow one at that depth, not averaging over 10 inches; but it is confidently believed that it will widen out as the shaft descends. The rock being taken out prospects finely.

Zacatara.—The lead ehows 3 ft. in width in the bottom of the shaft and it all carries gold. The stamps will be put in motion in a few days.

Lead Discovered.—A very rich quartz ledge has been recently discovered near West Point. It is eaid that the top rock pays $30 per cargo of 300 ibs.

Petticoat.—Good rock has been struck in the Petticoat mine at Railroad. The diecovery was made in the 350-ft. level. The lead is fully 5 ft. wide and 3 ft. of it is composed of rock that will pay well for crushiiig. The quartz is exceesively hard, rendering the runniug of the level elow work.

Contract Let.—W. V. Clark, Esq., proprietor of the mammoth hydraulic at Railroad Flat, has rccently let a contract for running a bedrock tunnel, 800 ft. in length, through which to run his sluices.

Railroad Flat.—Cor. same: The level in the Russian Hill mine is 42 ft. long, the chimney having au average width of 5 ft. of pay ore, which may be estimated at $20 per ton. In the 60 ft. level the chimney is 24 ft. long.

EL DORADO COUNTY.

Cor. El Dorado *Republican*, Feb. 22: Orr's Station is 4 miles north of Centerville, and about two miles south of the middle fork of the American river. There has been a good deal of proepecting done there within the past 7 or 8 months. The Ella quartz ledge in the Hoggs Diggings dist. is considered to be a good claim; it averagee $50 per ton of rock. There is another located by Mr. Anderson, who has, for some time been engaged in running a tunnel to it; last night they put in a blast, and eome of the wall rock thrown out by it seemed to be literally full of gold. The Hunt ledge, is considered about the best mining stock on this divide. In Pilot Hill dist. there are several good claims; among tho most prominent ie the Warner ledge, on the top of Pilot Hill. The Boulder Claim lies almost in the town of Centerville; several boulders have been taken from this claim containing several thousand dollars each.

MARIPOSA COUNTY.

Recommenced.—Mariposa *Gazette*, Feb. 23: The Benton Mills have resumed running. There is said to be about 400 tons of quartz ready for crushing. There is, as yet, no work being done in the Josephine or Pine Tree mines.

Schofield & Co. are putting up one of their concentrators at Bogan's mill on Bear creek. Rock is being taken out and the mill will again be in operation in the course of 2 or 3 weeks.

Hornitos.—Cor. same: Quartz mining is being carried on to a greater extent than ever before, and with reasonable success. The Washington mine and mill are in full hlast, and are getting out splendid ore, as is also the Quartz Mountain mill. The new Pool vein is the richest thing in the way of quartz that has ever been struck in this vicinity. Williams & Martinez have taken out several thousand dollars in the past month. Farrias & Co. the same. Martinez & Valencia (from the same ledge) took out between $7,000 and $8,000 last week, and more in sight. Jack Mossman took out 40 ozs. last Friday, and more in sight. Joy & Co. have fine prospects on the same vein, which is located nearly in the centre of our town.

NEVADA COUNTY.

Bar.—Grass Valley *Republican*, Feb. 23: A $6,000 bar was sent below from Delano's bank yesterday, from a recent clean up at the North Star mine.

Wood's Ravine.—More quartz mining and prospecting are being done near the mouth of Woods' Ravine at this time than for many years past. The Soggs miue employs between 40 and 50 men. The Providence, which is a continuation of the Soggs, is also being actively worked and the present incline is down about 150 feet. Steam hoisting machinery is soon to he erected, and the mine for the first time is to be developed below the water level of Deer Creek. The ledge is large, varying from 3 to 10 ft. in width. The Wyoming mine is yielding good returns. Preparations are also heing made for working 3 other quartz mines in the same vicinity of the spring.

To be Reopened.—The Grant quartz mine, near Forest Springs, idle for several years, is soon to be reopened.

Tunneling.—A Co. who are opening an extensive gravel claim about 2 miles from Grass Valley, recently let a contract for running a tunnel 1,500 ft. on their claim. Last week 6 men run 80 ft. of the tnnnel in slate rock, no blasting being required. The tunnel is excavated 7 ft. wide at the bottom, 5 ft. at the top, and ie 7 ft. high. The workmen, besides excavating the 80 ft., laid a substantial car track, and thoronghly timbered the tunnel, putting in 12 inch posts, with caps aud lagging to match.

Buckeye Mine.—Nevada *Transcript*, Feb. 24: The Buckeye mine is in Willow Valley. Some time since machinery was put upon the mine and an incline commenced. A day or two ago the ledge was struck, and the prospect is very encouraging. The ledge is 5 ft. wide, and the rock is filled with rich looking sulphurets. From Thursday noon, when the ledge was struck, up to yesterday moruing 6 tone of this rock were taken out.

Location.—Shurtleff & Co. have located 12 claims, 150 ft. square each, at Sutton's Ranch, near this city, for quartz mining purposes.

Good Rock.—Grass Valley *Union*, Feb. 23: Yesterday there was a strike into very fine quartz in the tenth level of the North Star; 3 or 4 kegs of ore were sent up yesterday afternoon and the value ie estimated at about $600.

PLACER COUNTY.

Ophir.—Cor. Placer *Herald*, Feb. 24: F. Jones, Supt. of the Bellevue mine, has opened another rich chimney of ore west of the west shaft. He has been stripping and taking down the ledge for the past 4 or 5 days, and it is etill improving in richness and extent. The St. Patrick mill has not yet rcsumed operations, but a supply of wood and coal is being procured, and the mill will be again pounding away in a few days on Bellevue ore. Mr. Patterson, Supt. of the Eclipse mine, has commenced crushing ore at the St. Lawrence mill, and judging from appearances, it is paying as well as anticipated.

Nevada.

ELY DISTRICT.

Bullion.—Ely *Record*, Feb. 18: W. F. & Co. ehipped to day hullion valned at $43,-155.41.

Alps Mine.—Since our last issue there hae been considerable talk about the strike in the Alps mine.

At the 142-ft. level there is a drift which runs east of the ledge 84 ft. from the main shaft. From this point a winze has been sunk 28 ft., giving a depth of 170 ft. from the surface. At this drift a level has been run 21 ft. east and 34 ft. west from the bottom of the winze. The drift shows a very fine body of ore, over 2 ft. wide, aud is as solid and well defined and handsome in appearance as any ledge we have seen in the dist. The west drift also shows a fine ledge throughout its entire length, and the face of both ends of the drift shows the ledge to be solid, wide and rich. The amount of ore now in sight proves this to be a valuable mine. So far every opening along the ledge shows good ore. The course of the ledge is very near due east and west, and pitches north at an angle of 75 deg. The foot-wall presents some breaks in the works, but not more than is found in any other good mine. The ledge is in a quartzite-formation.

Pacific Tunnel.—The tunnel starts east of the road, about 1,500 ft. east of the divide. It is well constructed, being 5 ft. wide and 7 ft. high. Several deposits of ore have heen passed through between the mouth of the tunnel and its present terminus, which is 650 ft. from the starting point. The course of the ledge is S. 30° W. John Cullan has a contract to run the same 40 ft. further, and is making 3 ft. a day. It will have to be run about 200 ft. further to cut the American Flag and Havana ledges. The Burke ledge will be struck iu less than 50 ft.

Newton Booth.—The strike made on the 16th in the lower level of this claim is more than usually encouraging, as it proves that a rich ledge runs across Panaca Flat, from the Lightner shaft to the Page and Panaca, and extends across the entire claim of the Newton Booth. The west drift from the lower level has been run across the ledge, showing the vein to he over 12 ft. wide, the ledge pitching slightly to the east.

EUREKA DISTRICT.

McGarry.—Eureka *Sentinel*, Feb. 20: Work on the Mexican mine is revealing a considerable body of rich ore. It increases in richness as it goes down.

HUMBOLDT.

Antimony.—Humboldt *Register*, Feb. 24: Capt. Cummins, agent for the Truckee Smeltiug Co., has located a ledge about 4 miles north of Rose Creek station on the C. P. R. R. which gives promise of being a valuable mine. Several tests of the ore show 85 per cent. antimony, with from $6 to $10 per tou in eilver. The ledge is said to be 2 ft. wide aud well defined. The Co. have let a contract to have 20 tons of the ore taken out when it it will he shipped to S. F. for reduction.

REESE RIVER.

Morgan & Mauncy--Recse River *Reveille*, Feb. 17: The Manhattan Co. have got the old incline cleaned out and repaired, and are at work opening the mine and taking out ore. The ledge at the bottom of the incline is nearly 2 ft. wide; it is solid and well defined.

Shut Down.—The Mettacom Mill hangs up its batteries to-day. The scarcity and extremely high price of wood and the bad state of the roads are the causes assigned.

Saybrook.—This mine employs 12 men. Ore is being extracted from the 110-ft. level in considerable quantities, a portion of which will work at a high rate.

Pacific Co.—The mines of this Co. are looking [quite as well as at any time in their history. Considerable bodies of ore have recently bcen explored in various portions of the mines, and eome of the rock is of very high grade.

Diana.—Good ore and lots of it is still being taken out.

WASHOE.

Kentuck.—Territorial *Enterprise*, Feb. 22: The Kentuck Co. are taking out 40 tons of ore per pay, which is being crushed at the Devil's Gate mill. A great part of the force engaged in tho mine is employed in retimhering the old drifts from which the timbers were burned at the time of the great fire in the mines, and in fixing up generally. The Supt. informs us that in a short time they will be taking out regularly 60 tons of oro per day.

Buckeye.—The Buckeye mine is looking well and ore is being raised from all the 3 levels. Two mills—the Hope and Sewell's—are running on ore from the mine. The breasts on all the levels are looking exceedingly well and there is in sight in the mine a 3-month's supply of ore.

WHITE PINE.

Bullion.—White Pine *News*, Feb. 24: W. F. & Co. shipped on the 20th, to London for Eherhardt & Aurora M. Co., 2 bare, 138 ibs., valued at $2,585.63. Also, 6 bars for Piermont M. & M. Co., to New York, 429 ibs., valued at $8,127.38.

Treasure Hill Mines—North Aurora. In the Risdale chamber of the North Aurora the usual force of men are employed breasting out. The size of the ore body increases as work is pushed ahead. Tho ore now extracted, mills about $45 to the ton. The hoisting is done by whip at prcsent. The Lady's chamber shows an immense amount of ore. As far as excavated the chamber is 132 ft. in length, 42 ft. wide and 55 ft. to the roof in the highest place. On the south end the south drift commences and runs 130 ft. through low-grade ore. From the end of the 130 ft. drift a breast is in 60 ft. ahead, showing a body of ore 35 ft. high and 25 ft. wide as far as opened, and the ore going down in the bottom of the breast.

Second South Ex. of Hidden Treasure. In the shaft on Nevada St., at the depth of 60 ft., a drift has been run 40 ft. nearly due east, in ore and ledge matter, and crossing the main north and south channel. Near the end of the drift a tunnel is being run in a southerly direction, for the purpose of tracing the ore into the Anchor and Edgar works. In the Anchor tunuel, helonging to this Co., the drift North from the bottom of the incline has reached a distance of 50 ft., stripping throughout the stratified spar wall, which dips east at an angle of about 35 degrees. In this part of the mine a vast body of good millable ore is exposed. Working 10 men.

Silver Plate.—An incline is down 75 ft., showing ore the whole distance. At the hottom of the incline a breast of ore is opened out 75 ft. wide and 5 ft. in thickness. Seveuty four tons of ore on the dumps. The owners think it will mill $100 to the ton. Working 6 men breasting out.

Ward Beecher.—A force of men is at work sinking a winze from the bottom of the Phillpotts chamher, through a body of low-grade ore to connect with the east drift of the Lady's chamber. Have struck the west side, and expect to connect in about two weeks. The tramway is running steadily on ore from the Co.'s mines.

East Sheboygan.—Working the usual force of men on the East Shehoygan, and hoisting to the dumps. Most of the force of men is employed in prospecting and making openings.

San Juan del Rio.—The usual force of men employed. A new character of ore was found in the shaft, at a depth of 24 ft., of a copper silver glance character, assaying $106 to the ton. It shows a good body, and has a good pitch.

South Aurora.—Sinking a shaft in the end of the east drift, from the main tunnel, and doing work as usual iu other parts of the mine.

Noonday.—In the same quality of ore as last reported, and breasting out with the same force of men.

Gen. Lee.—Drifting from the spar seam in a 3-ft. body of ore and piling on dump.

Pocotillo.—The ore has not chauged in grade since our last report.

Outside Dists.—Central Camp.—The Great Western shows good ore the whole length of the location. The International Con. M. Co. has 14 locations on the hill, among which are the Nutmeg-grater, McCaffry, Clayton and others. A force of men has been at work for several months to cut the ledges at a depth of 600 ft. from the croppings. After running a distance of 84 ft., a body of mineral was found. The formation is porphyry, quartzite and ehale. Assays going up into the hundreds have bccn made from the croppings.

Colorado.

Items.—Colorado *Union*, Feb. 15: Baily & Nott have ehipped on account of owners, since our last issue, 24 tons of smelting ore. Palmer & Nichols have shipped 2 silver bars valucd at $1,451.27.

The Hidden Treasure, Leavenworth Mt., is yielding very rich ore. The vein has been struck by cross cuts, in 3 different places, by lessees, and in every cross cut the mineral in the vein shows well. All the mines on Leavenworth being worked are yielding rich ore.

In the Eagle Bird, a neighbor of the Pelican, Maine, Silverplume, Snowdrift and other rich lodes, an adit, disclosing well defiued walls, has been driven on the vein, 450 ft. At 325 ft. from the mouth of the adit, an immense vein, coming in from the east at an angle of about 35° unites with the Eagle Bird and loses itself. This discovery is called the Casket. The Eagle Bird and the Casket are both yielding rich milling ore. The work of drifting east on the Casket aud west on the Eagle Bird, is goiug on with satisfactory, payiug results. The average mill yield of the ore taken from the Eagle Bird, is 206 oz. per ton. The highest assay obtained from ore taken from the mine, is 3,700 oz. per ton, or $4,900 coin value. Large quantities of 2d class ore are accumulating at the mine.

The character of the ore is argentiferous galena, interspersed with gray coppor, blende, and iron and copper pyrites. The mineral deposit has been constant, and gradually increasing in quantity and quality, as work has progressed. No stoping has been done, and yet the ore taken out has paid all expenses and left a handsome profit.

The Mammoth, Sherman Mt., is furnishing good ore in considerable quantities.

The Magnet, Griffith Mt., is a coustant producing vein and has improved in the quality and quantity of its oro yield from the surface in all its workings. Four and a half tons of ors bave just been brought down and crnshed, tho mill sample of whieb gave 370 ozs. per ton. The mino at present shows better than it over did before.

The Bryan, Republican Mt., is a neighbor of the Hise, and other valnablo lodes. The vein has been opened by stripping and cross cuts for about 500 ft. The vein has a very uniform mineral deposit in all the ground opened, aggregating in shafts, cross cuts and drifts, 118 ft. In one portion of the mine we noticed a solid mineral deposit of 10 inches in breadth. The ore is argentiferous galena carrying 100 ozs. in silver, and 60 per cent. lead. There is about 25 tons of choice ore out at the mine.

Matilda Fletcher Lode.—This lodo is on the west sido of Democrat Mt., is yielding $20 a day to tho man, and judging from present developments, the future yield will be constant and of far greater value as depth is gained.

The developmeuts consist of a shaft 60 ft. deep, and 2 adits driven on the vein, one 147 ft. and the other 32 ft. The voin has a breadth of from 5 to 6 ft. between walls. The mine was discovered in July, '71, since which time, 2 men working only a portion of the time, it has produced 7 tons that yielded by mill treatment 1,799 ozs. of silver, and about 15 tons, now at the mine, worth probably 4,500 ozs. or a total of 6,299 ozs. of silver. The vein is nncovered in several places down the hill from the discovery and it is the intention of the owners to open their mine by a drift from the lowest point of discovery on tho vein.

Kansas Lode.—Colorado *Herald*, Feb. 17: Nine claims are being worked on the Kansas, and the lode is producing more gold than at any time during the past 6 months. The following are tho different partios operating:

Wheeler & Sullivan have doue sinking on the First National claim, and have commeuced drifting. They are running 15 stamps of the New York mill on prize ore, for Buck & Co., and 40 stamps on their Kansas oro.

Richards & Co. are sinking through fine looking oro on the Ophir Co's. claim.

Ira Eastbrooks, who took the lease of the Mead claim off the hands of Wm. Lyon & Co., is drifting and stoping in this mine, which presents a better appearance than ever before.

Wolcott & Co. are drifting aud stoping on the Garrison claim, and taking out good pay.

D. L. Southworth is sinking on the next claim east, (Waterman's.)

Root is obtaining rich ore and plenty of it from his claim, near the Boston mill.

On the second claim east of Root's Andrews & Sullivan are raising large quantities of fine looking ore, which is being crushed at Lake's mill, on North Clear creek.

The (English) Kansas G. M. Co. are making money on their claims purchased some months since of J. F. Hardesty.

The claim between Root and Lake & Andrews is being worked with a windlass.

Middle Boulder.—The first 2 shipments of silver from A. D. Breed's new Reduction works, at Middle Boulder, were made within the past 5 days. The first of these embraced 400 lbs and the last 6,200 oz. of silver in bars, the product of ore from the Cariboo mine. The bullion has been forwarded to New York.

The Cariboo is said to be looking as well and yielding even better than at any former time in its history.

The Seaton and Adjacent Mines.—Four different parties, employing about 30 men, are workiug claims on the Seaton lode. About 25 tons of rich silver ore are taken weekly to the Boston & Col. Smelting works, being a larger amount than at any previous time. Lewis is retaining the richest portion of his ore at the mine. He is also driving a tunnel to intersect the vein, which is expected to prove up the lode to better advantage than all the work that has heretofore been done in sinking.

The Victor lode on the same monntain, is producing well, employs 12 meu, and last week contributed 4 or 5 tons of smelting ore, which was sent to Hill's Works.

The Queen lode is worked undor lease, by tho same parties who are working Updegraph's half of the Veto lode. Both of thoso mines are yielding valnable quartz.

Bepra & Lacoix are working one-half of the Veto lode and have 30 tons of fine ore out at the mouth of the shaft.

Gilson is taking ore to the Boston & Col. Smelting W., from the dump pile at tho Franklin lode.

Cariboo.—Martin & Co. put 12 additional men at work on the east half of the Cariboo lodo this week.

A quantity of 2d-class ore from the Seven-Thirty lode recently treated at the B. & C. smelting works, yielded $315 per ton in silver.

Tho shaft on the Elephant lode is 115 ft. deep and sinking continues, and just at this time through a pockot of pay.

Tho Champion (English) G. M. Co. that recently purchased 600 ft. in the Califoruia, togother with the Champion lode, (situated on the flat abovo the head of Prosser gulch) for £32,000, is fitting up tho engine on the former, preparatory to commencing active operations. Water will be pumped from the deep or Stalker shaft for the use of the engine on the next shaft above, where the mining operations for the present will be conducted.

There is every prospect that the Gregory lode will be worked again throughont its entire length within the next 3 months.

Corbett Bacon is working the Mazeppa lode in Russell dist., and sends his ore to Brastow's stamp mill, which was recently set in operation again.

The Mines.—Brastrow & Aldritch are sinking on the Gardnor lode. No paying ore yet obtained.

John Hogan is steadily working on the Golden Courier.

The Kansas is the heaviest gold producing lode in the mountains, and with its extension, keeps something like 120 stamps in motion, or about one-third of those now employed in the county.

Jack Mellor continues to raise large quantities of the hidden treasure from the Leavitt.

The Commonwealth Co's. mine on the the Prize, is again yielding fine looking oro.

Several claims are being worked on the Cincinnati lode on Casto Hill. Ore from the Stevens claim is crushed at the Stevens mill in Black Hawk.

Four claims are worked on the Jones on Prize Hill, the McDouigle, that of Captain Phillips, the Sullivan & Andrews and one other.

Dexter, Mitchell & Co. are successfully working the Alps mine.

Mr. Nichols, Fisher & Co. are keeping Cons. Gregory mill at work on their ore from the Kent Co. lode.

Mining is going on in the U. P. R. R., Fiske, and Gregory Second near Mountain City, and on some dozen lodes on Quartz Hill.

Gilpin Co.—The head of the Black Hawk tunnel has approached so near the Fiske lode that it has commenced draining it. The water in that mine and in the Bob Tail has visibly lowered during the past few days.

The Central G. M. Co. will commence operations on its tunnel about May 1. It is expected this work will drain the Gunnell lode below any excavation made upon it.

The Quartz Hill tunnel is being driveu steadily into the mountain and is about 600 ft. in length.

Work is being steadily prosecuted in the La Crosse tunnel, which has already peuetrated Quartz Hill for 980 ft. It is passing through a body of ore that contains about 2 ounces of gold to the cord.

Georgetown Items.—Feb. 14: On Jan. 28, 32 sacks of first-class ore were stolen from the Hercnles lode, Brown M. The weight of the ore was about one and a half tons. Assays of this grade vary from 700 to 900 ounces. This was supposed to be worth about $1,000 per ton.

Stewart, of the Stewart Reducing W'k's., lately burned, is at work when the weather will permit, removing the debris and cleaning up the pan-room, in which he estimates there were some $6,000 worth of amalgam and quicksilver. He is making every preparation for rebuilding, and contemplates the erection of a smelting furnace in connection with his other works.

Palmer & Nichols are running as steadily as the weather and their machinery will permit, and are doing excellent work.

Capt. Dean's claim on the Seaton lode, is yielding an excellent quality of ore.

We had an account to-day of the Golconda lode—a very promising silver-vein 4 miles east from the Caribon camp. It was discovered in the Oct. last. The main shaft, which is 30 ft. in depth, discloses a vein of mineral 7 ft. in width. The ore is mainly carbonates of copper, zinc-blende, galena, and assays at the rate of about 45 ozs. silver per ton.

Discovery.—We hear of the recent discovery of a gold lode of remarkable richness, ou the south side of the Left-Hand creek, in Ward Dist.

Ewer & Co., are working the Morrison and Chemung lodes, on the Bobtail Hill. The deepest shaft, 80 ft. in depth, is not being worked at present—operations confined to mining surface quartz; the crevice averaging 10 ft. in width, that is yielding from 8 to 10 ozs. per cord.

The Cash lode at the head of Virginia Cañon, at the depth of 75 ft., carries a very fair crevice of ore, in which is found occasionally very handsome specimens of native gold. Chis. Steinle, the owner, is pushing work in this, and as development progresses the ore improves in quality aud quantity.

Utah.

Star Dist.—Salt Lake *Tribune*, Feb. 17: We were yesterday shown about 100 lbs. of milling ore from the above named Dist. While we have seen much ore from the various mines in the Territory, we must confess that the lot from Star is equal to the best in appearance. From a letter accompanying the rock we make the following extracts:

"The ore is from the Hattie mine, discovered on the 4th inst. It is a rich mine and plenty of ore is in sight. We have been working it this week and have 6 tons of ore on the dump that we think will mill $500 per ton, while others estimate it at a $1,000. The ledge is 4½ wide at a depth of 4 ft. The Last Chance is looking well. This mine is looked upon as being one of the best in the Dist., the tunnel is in 18 ft. The Midas has sold for $40,000 and Old Hickory for $30,000; 1,000 ft. each. But little work had been done on them."

S. F. Stock Exchange Board.

San Francisco, February 29, 1872.

Stock Circles have been rather quiet during the week and prices weak and irregular. A resolution was passed on the 21st inst. permanently fixing the monthly salaries of the officers and employés of the Board as follows: B. H. Coit, Caller, $1,000; Franklin Lawton, Secretary, $400; B. F. Hillard, Assistant Secretary, $200; J. M. Blair, Janitor, $200. From the 15th to the 21st inst., inclusive, the sales of the Board amounted to $4,950,000. The sum of $8,000 was sent down from the Piermont mine on the 17th inst. and $5,700 from the Golden Chariot on the 18th. A new stock called the "Adams Hill" has been placed on the lists of the Board. There is to be no dividend this month by the Raymond & Ely, the time for declaring it having been changed. The last weekly reports from the Hale & Norcross and Savage mines show an ore production of 874 tons from the former, and 1,037 from the latter. The Crown Point Mine produced last week, $37,565. On February account $82,000 have been received from the Meadow Valley. On the 26th inst. the Raymond & Ely mine shipped $31,200.

Comparative Prices—Extremes. Advance and Decline.—S. F. Stock and Ex. Board.

	Feb. 29.	*Highest.*	*Lowest.*	Feb. 29.	*Adv.*	*Dec.*
Alpha	$36	36	29	29	—	6
Belcher	620	620	510	575	—	45
Buckeye	4⅛	4⅜	4¼	4⅜	¼	—
Chollar-Potosi	68½	68½	52	59	—	9½
Caledonia	10	10¾	9	10¼	¼	—
Cons. Virginia	42	44	44	33	—	11
Crown Point	—	705	675	705	—	—
Daney	2½	2⅝	1	2⅜	⅛	—
Eureka Cons.	26½	26¾	24¾	25½	—	—
Eureka	16	16	15	—	—	—
Exchequer	—	15	15	—	15	—
Gould & Curry	227½	227½	160	180	—	47½
Golden Chariot	12	12½	12	—	—	—
Hale & Norcross	250	257½	247½	240	—	10
Imperial	107½	90	10¾	90	—	17½
Ida Elmore	—	11¾	11	—	—	—
Kentuck	—	235	220	240	—	—
Mammoth	—	—	—	—	—	—
Meadow Valley	19	20½	17½	19	—	—
Mahogany	9½	9½	9	—	—	—
Ophir	105	105	36	49	—	6
Orig. Hid. Treas.	8½	8¾	8	—	—	—
Overman	60	60	45	50	—	10
Piche	12	15½	11	15½	3½	—
Raymond & Ely	142	142	130	134	—	8
Savage	250	250	205	215	—	35
Sierra Nevada	25	35	24	28	3	—
Sncoor	6¼	6⅝	6	6	—	⅛
Wash. & Creole	5½	5⅝	5¼	5¼	—	⅛
Yellow Jacket	77	77	71	73½	—	3½
St. Patrick	—	—	—	—	—	—
Seg. Belcher	57½	57½	51	55	—	2½

Latest Prices—Bid and Asked.

	BID.	ASKED.		BID.	ASKED.
Alpha Cons	27	29	Ida Elmore	—	—
Amador	—	—	Imperial	85	90
Belcher	575	600	Kentuck	232½	235
Chollar-Potosi	58½	59	Meadow Valley	18½	18¾
Crown Point	705	705	Opbir	46	47
Daney	2⅜	2	Orig. Hid. Treas	—	—
Eureka Cons	24¾	25	Overman	46	50
Eureka	—	—	Savage	214½	215
Golden Chariot	—	—	Raymond & Ely	131½	132
Gould & Curry	170	175	Sierra Nevada	25½	25
Hale & Norcross	240	250	Yellow Jacket	71½	74¾

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the Scientific Press and other San Francisco journals.]

ASSESSMENTS.

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	DAY DELINQUENT.	DAY OF SALE.
Bloompeia Gravel M. Co, Cal., Feb. 23, $3.	Mar. 27	Apr. 13
Buckeye G. & S. M. Co., Nev., Jan. 9, $1.	Feb. 13, Mar 14	
Caledonia S. M. Co., Nev., Feb. 1, $4	Mar. 8	Mar. 29
Daney G. & S. M. Co., Nev., Feb. 1, 05c.	Mar. 4	Mar. 25
Emerald Hill M. Co., U. T., Jan 11, 25c.	Feb. 19, Mar. 14	
Golden Age & Empire M. Co. Feb. 9, $2.50.	Mar. 12	Apr. 3
Gould & Curry, Nev., Jan 30, $15	Mar. 4	April 26
Golden Chariot, I. T., Jan. 31—$2 50,	Mar. 9, Mar 30	
Ida Ellmore, Idaho, Dec. 30 $3.00	Jan. 31—March 4	
Kentuck, Nev., Jan. 20, $16	Feb 24—Mar. 13.	
Kincaid Flat M. Co., Cal., Feb. 14, $3.	Mar. 18	April 8*
Lemon M. & M. Co., Nev., Jan. 6, 50c.	Feb. 10	March 2
Mahogany G. & S. M. Co, I. T. Jan. 26, $1.50	Mar. 6	Mar. 23
Mina Rica M. Co., Cal., Jan. 16, 20c.	Feb. 19	March 11*
Nevada L. and M. Co., Nev., Jan. 9. 4c.	Feb. 13	Mar. 4*
Noonday S. M. Co. White Pine, Eeb. 1, 20c.	Mar. 5	Mar. 25
Overman, Nev., Feb. 22, $4	Feb. 22	Mar. 11.
Phœnix, Nev., Jan. 18, 75c.	Feb. 22	Mar. 13.
Piermont M. & M. Co., N., Jan. 20, 80c.	Mar. 1, Mar. 23*	
Pocahontas G. M. Co., Cal., Feb. 25, $5.	April 5	May 6*
Quail Hill M. & W. Co., Cal. Feb. 15, $5,	Mar. 26	April 16*
San Buenaventura Co. Cal., Jan. 19, $1	Feb. 29	Mar. 29
Silver Wave, Nev., Jan. 30, $1	Feb. 26	Mar. 19.*
South Chariot M. Co., I. T., Feb. 8, $1.	Mar. 9	April 1
St. Patrick M. Co. Placer co. Cal. Feb. 8, $4.	Mar. 13	Apr. 2
S. Oulo Or. M. Co., Cal., Feb. 7, $1.50.	Mar 13	April 3*
Tecumseh, Cal., Jan. 23, $4	Feb. 27	Mar. 16.*
Tallulah M. Co., Nev., Jan. 30, $1	Mar. 5	Mar. 20
Wm. Penn, Nev. Jan. 16, 50c.	Feb. 10	Mar. 11.*
Washington & Creole M. Co. Feb. 16, 50c.	Mar. 15	Apr. 11

MEETINOS TO BE HELD.

Chapman M. & M. Co.	Annual Meeting Mar. 14
Daney G. & S. M. Co.	Annual Meeting Mar. 4
Golden Chariot M. C.	Annual Meeting Mar. 4
Marcelind S. M. Co.	Annual Meeting Mar. 4

LATEST DIVIDENDS—(Within Three Months).

Belcher, $15	Payable Feb. 5
Chollar Potosi, $1	Payable Feb. 10
Crown Point, $15	Payable Feb. 12
Eastport, Coose Bay, Coal M. Co. 1 per ct.	Payable Feb. 12
Eureka Gold M. Co., $1	Payable Jan. 0
Granite M Co.	Annual Meeting Mar. 23
Hale & Norcross S. M. Co.	Annual Meeting Mar. 13
Keystone M. Co., $3	Payable Feb. 10
North Star G. M. Co., $3	Feb. 10
Oro Fino M. Co.	Annual Meeting Mar. 25

—*Advertised in this journal.

San Francisco Metal Market.

Corrected weekly by Hooker & Co., 117 and 119 Cal. street.]

PRICES FOR INVOICES

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

Thursday, February 29, 1872

Iron.—			
Scotch and English Pig Iron, ₱ ton	$55 00	@	60 00
White Pig, ₱ ton	45 00	@	—
Refined Bar, bad assortment, ₱ lb	— 05	@	— 05½
Refined Sar, good assortment, ₱ lb	— 05½	@	— 06
Boiler, No. 1 to 4	— 05	@	— —
Plate, No. 5 to 9	— 07½	@	— 08
Sheet, No. 10 to 13	— 05½	@	— —
Sheet, No. 14 to 29	— 06	@	— —
Sheet, No. 24 to 27	— 06	@	— —
Horse Shoes	7 50		
Nail Rod	10		
Norway Iron	8		
Rolled Iron	5		
Other Irons for Blacksmiths, Miners, etc.	5	@	6
Copper.—			
Sheathing, ₱ lb	— 24	@	— 26
Sheathing, Yellow	— 24	@	— 25
Sheathing, Old Yellow	— 11	@	— 11½
Composition Nails	— 24		—
Composition Bolts	— 24		—
Tin Plates.—			
Plates, Charcoal, IX ₱ box	12 00		— —
Plates, I C Charcoal	10 00		10 50
Roofing Plates	11 00		— —
Banca Tin, Slabs, ₱ lb	—		— 45
Steel.—English Cast, ₱ lb	— 16		— 17
Drill	16		17
Flat Bar	17		20
Plough Points	3 75		
Russia (for mould boards)	12½		
Quicksilver.—₱ lb	— —		— 85
Lead.—Pig, ₱ lb	— 05½		— 06½
Sheet	— 08		— 8½
Pipe	9		10
Bar	08		09
Zinc.—Sheets, ₱ lb	— 10		— 10½
Borax.—Refined	— 25		— 30
Borax, crude	— 5		— —

Leather Market Report.

[Corrected weekly by Dolliver & Bro., No. 109 Post st.]

San Francisco, Thursday, February 29, 1872.

Sole Leather.—The demand is still equal to the supply, and prices still continue firm.

City Tanned Leather, ₱ lb	26@29
Santa Cruz Leather, ₱ lb	28@29
Country Leather, ₱ lb	25@28

The market is well supplied with French stocks, and prices have a downward tendency. Heavy California skins are firm, with an upward tendency.

Jodot, 8 Kil., per doz	$60 00@		
Jodot, 11 to 19 Kil., per doz	76 00@	85 00	
Jodot, second choice, 11 to 15 Kil. ₱ doz	60 00@	80 00	
Lemoine, 16 to 19 Kil., ₱ doz	55 00@		
Lewin, 12 and 13 Kil., per doz	68 00@	70 00	
Cornellian, 16 Kil., per doz	70 00@		
Cornellian, 12 to 14 Kil., per doz	60 00@	68 00	
Ogerau Calf, ₱ doz	54 00@		
Simon, 18 Kil. ₱ doz	65 00		
Simon, 20 Kil. ₱ doz	68 00		
Simon, 24 Kil. ₱ doz	72 00		
Robert Calf, 7 and 8 Kil	35 00@	40 00	
French Kips, ₱ lb	1	1 30	
California Kip, ₱ doz	65 00 to	80 00	
French Sheep, all colors, ₱ doz	15 00		
Eastern Calf for Backs, ₱ lb	1 15@	1 25	
Sheep Roans for Topping, all colors, ₱ doz	8 00@	12 00	
Sheep Roans for Linings, ₱ doz	8 50@	10 50	
California Russett Sheep Linings	1 75@	5 50	
Best Jodot Calf Boot Legs, ₱ pair	5 25		
Good French Calf Boot Legs, ₱ pair	4 50@	5 00	
French Calf Boot Legs, ₱ pair	4 00		
Harness Leather, ₱ lb	30@	37½	
Fair Bridle Leather, ₱ doz	48 00@	72 00	
Skirting Leather, ₱ lb	34@	37½	
Welt Leather, ₱ doz	30 00@	50 00	
Sole Leather, ₱ foot	17@	21	
Wax Side Leather, ₱ foot	18@	20	

Speaking of Subscriptions.—The proprietors of the Rural Press are frequently obliged to submit to *inflictions* similar to the one following, which has just been thrust upon us; and yet evidently the result of a practiced eye, as regards the appearance of the Rural, and a mind appreciative of its contents.

I wish to become a subscriber to the Pacific Rural Press, and will thank you to forward it to me as long as the enclosed ten dollar legal-tender note will pay for it. I should like to have the subscription include your back numbers since October 28th last, that number included, if convenient. Otherwise, let it run from this time. L. H. R.

Louisville, Ky., Jan. 23, 1872.

The Hunt & Douglas Process for the Extraction of Copper from its Ores. —No. 2.

When protosulphate of iron is used instead of the protochlorid in preparing the hath; or in keeping up its strength, as in the case of ores of the first class, sulphate of soda is formed, which may in great part he crystallized out hy extremes of heat and cold. The formation and accumulation of this sulphate may, however, be prevented by the nse of chlorid of calcium, as already set forth. The still larger production of snlphate of soda, which would take place if calcined ores of the second class were added directly to the bath, is prevented by the use of lime as already described, and that portion which must result from the excess of sulphate of copper, as recommended, may be decomposed hy the addition of small portions of chlorid of calcium from time to time. By attending to these precautions the strength of the bath in chlorid of sodium, and its solvent power may be indefinitely maintained.

We do not claim the nse of any particular form of furnace, nor of any special arrangement for calcining, lixiviating or precipitating, reserving to ourselves the choice of the best form of apparatus for these purposes; neither do we claim the use of protosalts of iron otherwise than in solution, nor the use of perchlorid or other persalts of iron, nor yet the use of snlphurons acid save and except in connection with protosalts of iron, as already set forth.

What we claim as our invention is:

The use and application of a solution of neutral protochlorid of iron, or of mixtures containing it, for the purpose of converting the oxyd or suboxyd of copper, or their compounds, into chlorids of copper.

The use of sulphurous acid for the purpose of decomposing the oxychlorid of iron formed in the preceding re-action.

The use of a process for the purpose of extracting copper from its naturally or artificially oxydized compounds by the aid of the first, or the first and second of the above reactions, substantially in the manner already set forth.

Explanations.

Chloridizing the Copper.—The reaction between protoxyd of copper and protochlorid of iron gives rise to peroxyd of iron, and a mixture of the two chlorids of copper, two thirds being dichlorid, and one-third protochlorid of copper, as shown in the equation A. The red oxyd or dinoxyd of copper in like manner gives rise to peroxyd of iron, but yields a mixture of two-thirds dichlorid and one-third of metallic copper, as shown in the equation B.

A.— $3Cu_2O_2 + 4FeCl = 2Fe_2O_3 + 2Cu_2Cl + 2CuCl.$

B. —$3Cu_2O + 2FeCl = Fe_2O_3 + 2Cu_2Cl + 2Cu.$

Inasmuch as the metallic copper (2Cu) set free in B, is readily converted into dichlorid by the protochlorid, (2CuCl) of A., it follows that if not more than one-half of the copper be dinoxyd, the remainder being protoxyd, the whole will be chloridized by the action of the protochlorid of iron bath.

Solubility of the Dichlorid of Copper.—While the protochlorid of copper is very soluhle, the dichlorid is insoluble in water, bnt readily solnble in a strong solntion of sea-salt, and of most other chlorids. A saturated brine at a temperature of 194° Fahrenheit, (90° Centigrade,) will hold in solution more than 16 per cent. of dichlorid of copper, and at 104° F. (40° C.,) more than 8 per cent. A brine containing fifteen parts of salt to one hundred of water, dissolves at 194° F. (90° C.) 10.0 per cent., at 104° F. (40° C.) 6.0 per cent., and at 57° F. (14° C.) 3.5 per cent. of dichlorid of copper. When these strong solutions are diluted with water they deposit much of the dichlorid asa white crystalline powder. A solution made with five parts of salt to one hundred of water, dissolves at 194° F. (90° C.) only 2.6 per cent., and at 104° F. (40° C.) only 1.1 per cent. of dichlorid of copper. The above figures are approximate, and a little below the results of actnal experiment. 100 parts of dichlorid contain 64 parts of metallic copper.

Composition of the Bath.—The equivalent weight of protosulphate of iron or copperas is 139, and that of common salt 58.5, while that of copper is 31.7 and that of iron 28.0. In prescrihing the proportious for the bath, numbers a little exceeding these are given, to allow for impurities in the salts employed. To chloridize three equivalents, say 95.1 pounds of copper, which are in the state of protoxyd, two eqnivaleuts of protochlorid of iron are prodnced from 280 pounds of copperas and 120 pounds of salt, dissolved in 100 imperial gallons or 1,000 pounds of water. This solution should convert one third of the copper into protochlorid and two thirds into dichlorid, equal to 98.9 pounds of dichlorid of copper. To render this soluble we have prescribed the addition of 200 pounds or 20 per cent. additional of salt to tho bath, while as we have seen, a solution holding but 15 per cent. will dissolve at 194° F., considerably more than this quantity. While these are the theoretical qnantities, there is in practice, from a secondary reaction resulting in the formation of an insoluble basic per-salt, a loss of protochlorid of iron amounting to from five to ten per cent., so that the chloridizing power of the bath is somewhat less than above represented. Moreover, if a considerable portion of dinoxyd of copper be present in the ore the amount of dichlorid will be largar than above calculated. For both of these reasons it is not well to add to the above bath more than 60 or 70 pounds of copper for each 100 gallons. The solution of the copper from a properly prepared ore will he found complete, by several honrs digestion or percolation, even in the cold, but is more rapid in proportion as the heat approaches the boiling point.

Preparation of the Ores.—In the calcination of carbonates, as recommended, the object is to expel the carhonic acid, which would otherwise cause much effervescence in the oath. When the red or dinoxyd predominates in the ore, this should be, in part at least, converted into protoxyd by calcination in the air, since when alone it leaves one third of its copper undissolved in the bath. In oxydizing sulphuretted ores by roasting till all the sulphur is oxydized there is obtained a mixtnre of sulphate of copper with protoxyd and a portion of dinoxyd, which latter, according to Plattner, may amount to 20 or 30 per cent. of the copper. Further roasting at a high heat will convert both this and the sulphate into protoxyd, but this condition is less advantageous, inasmnch as hoth time and fnel are consumed and the copper is rendered less soluble. The large proportion of dinoxyd, moreover, suffices, as already explained, to convert much of the protochlorid of copper into dichlorid, thereby effecting a saving of iron in precipitating.

Consumption of Metallic Iron.—With few exceptions the copper extracted by solution from its ores is thrown down in the metallic state as cement copper, by means of metallic iron. In theory there are required less than 89 (88.3) parts of pure iron to precipitate 100 parts of copper from a solution of protosulphate or protochlorid, but in practice two or three times as much are consumed. This great consumption of metallic iron is due to two principal causes:

1st. In the ordinary processes for extracting copper from its ores by the moist way, acids (and sometimes persalts of iron) are employed to render the copper soluhle, either as the principal agents or as auxiliaries. When these are employed the solutions contain more or less of persalts of iron, which consume the metallic iron that would otherwise throw down the copper. Thus an amount of persulphate holding four equivalents of iron consumes five equivalents of metallic iron, which are thereby converted into protosulphate, four cquivalents of iron at the same time being deposited in the form of an insoluble basic persulphate, which contaminates the cement copper.

2d. The second cause of the waste of iron is the action of the air. In order to separate the whole of the copper from the solutions a digestion of several days with metallic iron is resorted to. The protosalt of iron, which is formed in this reaction, greedily ahsorbs oxygen from the air and is therehy converted into a mixture of an insoluhle and a soluhle persalt. The latter, as ahove shown, dissolves a quantity of iron in its turn, and yields another portion of insoluhle persalt, which falls with the cement copper.

[To be continued.]

River Mining.

Such scenes as the one depicted in our cut are familiar to all who came to California in early times, when placer mining in all its forms was heing carried on extensively. For a number of years after the discovery of gold the attention of the miners was turned almost exclusively to the hars and hanks or in the beds of the rivers and gulches. In those days deep placer mining was almost unknown, and they were content to work the shallow surface diggings, which usually gave very large returns in proportion to the labor required. The bars where the accumulated gold lay hidden under the surface of the stream were collections of sand and gravel stopped in their course by some obstructions or bend in the river, and it was usually necessary in such a case to turn the stream from its course to work them.

FLUMING THE RIVER.

The object of the miner being to extract the largest amount of gold in the smallest amount of time and little labor, the mechanical appliances of the day were what we would call now, quite primitive. Still a large amount of labor was performed by those hardy pioneers in their researches after the "dust." As our illustration (which is from *Hutching's Magazine)* shows, the bed of the river was frequently laid bare by constructing a dam and a large flume to carry the water, thus allowing the miners to get at the bottom of the river.

Of course when this was done and the holes were sunk, considerable water accumulated in them, and the workmen resorted to the means shown to keep them clear. The wheels have a long shaft reaching to the hole, and at the end of this is a drum, over which a belt, fitted with buckets, passes. This belt goes up throngh a square box and the cnrrent of the river furnishes the power for drawing up the surplus water from the diggings. River mining can only be carried on in the summer and early fall, when the water is low and the miner does not stand a chance to see all his work destroyed by sudden freshets. Frequently these flumes were built at great expense in hopes of "striking it rich," and the prospectors were disappointed; but on the other hand the miners somtimes found enough gold in a few weeks to pay all previous expenses and make their fortunes in the bargain. The bars were worked in a very hasty and superficial manner, and no douht in many places, where work was done in early days, there is still a goodly quantity of the shining metal hidden from the sight of men.

While this supply of shallow auriferous dirt lasted, the gold produced was obtained mostly by private companies of working men, whose capital consisted of their muscle and energy. Now when it is found necessary to mine deeper, capital is required to carry on work. River mining attracts very little attention now-a-days, and few, except Chinamen, are found engaged in such enterprises as the one represented in our cut.

Japanese Carpenters.

The Japanese carpenters are ingenious workmen, and their work is done with marvelous neatness. A curious feature of their houses is that they do not contain a nail; all of the joints and timbers being dovetailed together hy many ingenious devices; and the whole work eveu to the rafters, is as smooth as if it had heen polished down with sand-papor. And the Japanese are a ueat people; for they use no paint to hide any blemish of construction or ornamentation, no filigree work or plaster of Paris gew-gaws, but every stick in the huilding is exposed. Every morning, as regularly as she cooks the breakfast or sweeps the floor, tho Japanese housewife takes a wet cloth and scours the whole interior of the dwelling, leaving no part untouched, and no stain or dirt-spot to mark its cleanly appearance. Then the Japanese do not come into the house with muddy hoots, after the style of the American sovereign; but, having covered the floor with neat matting, always remove the dirty sandals before stepping upon it. I stood and watched the Japanese carpenters at their work for some minutes, and noticed the peouliarity of their movements. The Japanese carpenter works toward him —that is, instead of shoving a plane upon the board at arm's length, he pulls it toward him; and he cuts, saws, and chops in the same way. His saws are fixed in handles like a butcher's cleaver, and the teeth slant or rake toward the handle. The planes are constructed like ours; but the wooden portion is very thin aud wide. The adze is fastened to the end of a hooped stick, like the handle of one of the crooked canes worn on the arm on our streets; and altogether their tools are different from ours, yet I cannot observe that they are awkward in appearance, or awkwardly handled.—*American Manufacturer.*

The Ramie Interests.

Perhaps not one-third of all the persons who attended the late State Fair had their attention directed to the few small specimens of ramie cloth that were unpretentiously on exhibition, and of all the number who examined it but a small proportion understood its real value and its significance among the fnture products of the State. As specimens of strong and elegant fabrics they are not excelled by any cloth except that made of silk, and but little inferior to silk in beanty. There is an interest excited in the production of a plant that produces such material, and this interest must increase, since the few experiments that have been tried demonstrate that the climate and soil of California will produce the ramie in perfection. The cloth on exhibition at the State Fair consisted of many patterns for dress goods, some made of ramie entire and others mixed, some with silk and some with cotton. There is no article superior to ramie for productions of cheap and at the same time elegant and durahle dress goods, and if the cultivation of it on a large scale shall realize the expectation that the experiments so far create, the time is not far distant when ramie cloth should be as common as cotton. At the Fair there was a small quantity of the fibre in a coarse state on exhibition. Its great strength is remarkable, which it does not lose when prepared for the finest fabrics. Dress goods as fine and glossy as silk can scarcely be torn at all by the ordinary effort. There is much inquiry relative to the plant among farmers, and we understand there is a ramie company in San Francisco that disseminates information in regard to the culture of the plant and how the cuttings can be obtained. Farmers must not become excited on the subject of ramie cultivation. It is possihle that it may prove not so profitable as anticipated. Labor may be too dear, and unexpected difficulties present themselves in separating and preparing the fihre. But it has qualities that commend themselves, and all difficulties must in time be overcome and the article utilized. That it promises to become an important production of the State is hardly to be doubted.—*Sac. Union.*

The Pullman palace cars are to be introduced on the principal English railways.

Useful Information.

Mechanical Applications of India-Rubber.

Pure india-rubber is of a white color; its dark color, as generally used, being occasioned by smoke. It is composed of hydrogen and carbon, and is soluble in coal-tar oil. When pure india-rubber is combined with flour of sulphur we have the commercial product called india-rubber, of great value, from the many purposes to which it may be applied. The proportion of sulphur to caoutchouc is about 2–5 parts in 100. When the proportions of sulphur are considerably increased and greater heat applied, a product is formed called vulcanite or ebonite, much used in ornament, and composed of 2 parts of caoutchouc or india-rubber, and 1 of sulphur, heated at 300 F.

The wear of vulcanized india-rubber in its application to steam engine pump-valves is a subject of great importance to the marine engineer. The india-rubber valve-covers are affected in many ways, and the duration and time of wearing present certain anomolies. They are subject to various actions, some mechanical and chemical; the specific density of the material, and the formation of the guards of the valves, on the one hand, and the action of the oil in the lubricants on the other. Pure rubber does not present the same advantage for such applications as vulcanized rubber containing a metallic pigment, experiments showing that pure rubber is more readily acted on by oils and grease than that of mixed quality. Pure rubber may be used with advantage where the water is free from grease or oil; but a mixed rubber of a specific gravity of about 1,202 is more generally useful.—*Ex.*

Artificial Eyes — How Made. — For many years eyes of glass for dolls, dummies, wax-work figures, stuffed birds and beasts, have been made in Birmingham; but only since the Exhibition of 1851 have artificial human eyes been produced there, equal if not superior to those of French manufacture. The process of manufacture is simple enough, but it requires, nevertheless, a good deal of manipulative skill. The workman takes a number of glass rods of the requisite colors, and heats them in succession. The first is generally white or colorless glass to form the white of the eye; the next forming the iris; and the third, "a little spot from a black rod," forms the pupil; evenness of the outline is the great object to attain, and this requires no small amount of skill. The demand is prodigious, especially for dolls' eyes, which are packed in hogsheads and sent to all parts of the world.

Blacking.—The lustrous qualities of blacking are frequently derived from ingredients which are most deleterious and destructive to leather. Herr Artus publishes a new formula, and claims several advantages for it, to which we may add its cheapness and accessibility: Three or four pounds vegetable black, 1¼ pounds ivory black, 5 pounds molasses, and 5 pounds glycerine, mixed thoroughly together. Six ounces gutta percha in small pieces, are then melted and when fluid, 20 ounces olive oil are added, and subsequently, 2 ounces stearine. The second mixture, while quite hot, is stirred into the first; and then a further addition of 10 ounces gum Senegal, dissolved in about 3 quarts water, is added. This compound is the stock; for use, it should be diluted with about three times its quantity of warm water.

Impressions from Prints.—Take of oil of turpentine one drachm, liquid potash four drachms, and mix together thoroughly by shaking in a bottle; then saturate a piece of wool thoroughly with the solution and dab it gently on the print. When you find that the print to be copied is nicely damped, place a sheet of white paper over it, then another paper on this, and rub gently with your finger.

Chinese Astronomy.—Prof. Jno. Williams of the Royal Astronomical Society of England, has lately published a book of Observations on Comets, in which he makes a brief allusion to the progress in this branch of science which has been made by the Chinese. He seems to recognize as authentic, observations recorded 2,300 years before the Christian era.

The eleven Territories exceed by nearly 200,000 square miles, the aggregate area of the at present admitted States of the Union.

Dust Rings for Watches.

This is a new dust excluder, to be applied to watches between the top and bottom plates of their works, for the purpose of preventing impurities from entering the works. The underside of the top plate of the works of a watch is beveled at the edge, the beveled portion extending to a shoulder. The dust excluder is made of a metallic spring band, which is laid around the train so as to rest against the beveled portion of the top plate, or against a similar bevel of the bottom plate or both. The ends of the spring band are either made to overlap, or fastened to a cast arch, which is set between the top and bottom plates, and bulged out to admit the protruding main wheel. This arched casting abuts with its rounded ends against the ends of ears formed on the top plate. One end of the band is secured to the cast arch by a screw, and the other end is slotted and fitted over a screw projecting from the arch, the screw being tightened on the narrow part of the slot. When the band is used alone, the screw or connecting pin projects from one end through a slot in the other. The spring power of the band crowds it against the bevel, and serves, therefore, to properly exclude the dust.

Wasteful Use of Gas.—The Board of Trade, of London, has recently submitted an exhaustive report, through a special commitee of experts, with reference to the principles of gas illumination. The follow points with regard to the economical use of gas should attract the attention of gas consumors generally:

By using good burners instead of bad ones, consumers may obtain from 30 to 50 per cent. more light, while their gas bills remain the same. The improvement of burners is important as a sanitary reform, as in furnishing the same quantity of light the good burner will consume less gas and consequently less air and will produce a smaller quautity of the products of combustion, and less heat, than a poor burner. Burners from two newspaper offices gave only one-half the illuminating power of the gas, while several of the burners tested gave only one-quarter the proper light of the gas.

These facts and many others which came to their knowledge proved to the referees that "an enormous waste of gas prevails, with a corresponding pecuniary loss to the public."

London pays $10,000,000 per annum for gas, and the referees believe that one-fourth this sum may be saved by the use of good burners.

Curiosities of Motion.—Is any change operated on a man by a change in the velocity of his motion round the axis of the earth? Suppose, for instance, a dweller in latitude 60 were to suddenly change his residence to the Equator, he would double his velocity. For while at latitude 60, he travels round with the earth at the rate of 500 miles an hour, at the Equator he does 1,000 miles an hour. Again, at latitude 72 the Greenlander is lazily carried round a paltry 130 miles an hour—while the man at the North Pole calmly revolves about once in 34 hours. Of course the motion is unfelt, because all things move together; but the change from the tropical to an artic climate is so great that it may possibly produce physical or mental effects of which we are as yet unconscious. Of course the steering of a ship from north to south must be sensibly effected by the constant acceleration from west to east. On the long railways of Russia, too, I believe it is found that the rails are uniformly more worn on one side than on the other, in consequence of this force.—*Gentlemen's Magazine.*

Filtering Water on a Large Scale.—All the water companies of London are compelled by law to filter the water which they supply to the city, from the Thames and the sea. The only exemption from this rule is the Kirt Co., which obtains its supplies from deep wells, penetrating the chalk formation. The filtering layer through which all this water runs is six feet thick, composed chiefly of sand.

There are three gatherings of coffee in a year in Brazil. Nothing is more beautiful than a coffee plantation in full bloom. The snowy blossoms all burst forth simultaneously, and the fields seem covered with a delicate mantle of white which exhales a fragrance not unworthy of Eden. But the beauty is ephemeral, for the snow white flowers and the delightful odor passes away in twenty-four hours.

Good Health.

A Simple Remedy for Dandruff.

There are doubtless few persons, especially among gentlemen, who do not suffer from the inconvenience of dandruff. Physicians seem to consider it not of sufficient importance to engage their attention, and the poor victims are left either to practice their virtue of endurance, or for a cure, to try some of the many nostrums advertised in public prints.

The intolerable itching which frequently accompanies the troublesome complaint, is not the only unpleasnt feature, as to persons of any pretentione to neatness, the appearence of the white scales on the coat collar and shoulders is very objectionable.

The writer, during a number of years, tried the different alcoholic solutions of castor oil and many other preparations without permanent benefit, and as a last resort, was led to adopt the plan of cleansing the scalp with borax and carbonate of potassa. This proved effectual, but after a persistent treatment of some months the hair became sensibly thinner, and perhaps would soon have disappeared altogether. The belief that dandruff arises from a disease of the skin, although physicians do not seem to agree on this point, and the knowledge that the use of sulphur is frequently attended with very happy results in such diseases, induced me to try it in my own case. A preparation of one ounce flowers of sulphur and one quart of water was made. The clear liquid was poured off, after the mixture had been repeatedly agitated during the intervale of a few hours, and the head saturated with this every morning.

In a few weeks every trace of dandruff had disappeared, the hair became soft and glossy, and now, after a discontinuance of the treatment for eighteen months, there is no indication of the return of the disease. I do not pretend to explain the *modus operandi* of the treatment, for it is well known that sublimed sulphur is almost or wholly insoluble, and the liquid used was destitute of taste, color or smell. The effects speak for itself. Other persons to whom it has been recommended have had the same results, and I communicate the result of my experiments in the belief that it may be valuable and acceptable to many who have suffered in the same manner as myself.—*American Journal of Pharmacy.*

Failure of Cundurango in England.—All that we hear of the results of the trials given to the cundurango bark furnished by our Government to the Middlesex and St. Bartholomew's Hospitals, through the College of Physicians, confirms the fear that any hope which might have been entertained, of a confirmation of the statement of its utility as a remedy in cancer, must be entirely dismissed. Physiologically, it appears to be practically inert, and its therapeutic effects in the treatment of the cancer to be *nil*. It furnishes a slightly bitter extract of feeble character. A detailed therapeutical report will be made by Mr. Hulke, and a careful examination of its physiological action by Dr. Brunton, but this mainly in deference rather to the official sources from which this small supply has been furnished, and to set at rest the excitement caused by the somewhat scandalous claims which have been set up in its favor.—*British Journal.*

The New Stimulant.—Chloral drinking, according to the physicians, is superseding absinthe, opium and alcoholic stimulants among the better classes. An insiduous sedative, its use grows more dangerously on the tippler, than more actively intoxicating drinks. The manufacture of this drug is the best evidence of the extent of its use. In Europe, its production has become one of the leading chemical industries, and it is sold by the ton. Baron Liebig affirms that one German chemist manufactures and sells half a ton a week. The London *Spectator* says: "Taking chloral is the new and popular vice particularly among women, and is doing at least as much harm as alcohol. The drug is kept in thousands of dressing cases, and those who begin its use often grow so addicted to it that they pass their lives in a sort of contented stupefaction. Chloral drunkards will soon be an admitted variety of the species."

The Lungs.—If every cell in the lungs were cut open and spread out on a wall, they would cover a space of twelve yards each way; that is, at every full breath, the air drawn in is spread over a surface of one hundred and fifty yards.

Forests and Rain.

Does the Destruction of Trees Diminish the Rain-Fall?

Boussingault, in his "Rural Economy," gives as his opinion "that the felling of forests over a large extent of country has always the effect of lessening the mean annual rain-fall."

Baron Humboldt states in his Asiatic travels, that "in crossing the steppe of Baraba, on his way from Tobolsk to Barnul, he perceived everywhere that the drying up of waters increases rapidly under the influence of the cultivation of the soil."

The same experienced traveller in his description of Lake Valentia, in the Valley D'Aragua, in Venezuela, a sheet of water on the high table lands, and without any outlet, ascribed the diminution of the waters to "the extensive clearings which had been effected in the course of half a century in the Arragua Valley," and concludes by stating "that men in all climates seem to be bringing upon future generations two calamities at once—a want of fuel and a scarcity of water."

Early travellers on the Colorado Desert, in this State, will remember the cluster of about thirty palm trees at the so-called Palm Springs, on the west side of the cañon, between the Vallecitos Springs and Carrisa Creek, and about twelve miles south of the former. These palms were planted by the padres of the old San Diego Mission. From the traditions of the old Mission we learn that the padree found a small flow of water at irregular intervale at this particular place in the desert. They planted palms there for the same reason which induced the Arabe to plant date palms at the springs in their deserts, viz: shade and water. From the circumstances of the case, the conclusion is a fair one that these Vallecitos Cañon palms were propagated from the dried dates of the Mediterranean, shipped among the supplies to the Mission. These palms increased the supply of water from the springs, and made it perpetual. The same vandal gold-hunting element that used the well buckets and curbs on the Colorado Deserte for fuel, cut down these few palm trees, and the spring shortly after disappeared. What renders this vandalism without excuse is the fact that the palm trees were unfit for fuel.

A similar phenomenon is recorded by M. Desbassyns de Richmond as having occured in the island of Ascencion. Upon planting the trees anew, however, the spring in a few years reappeared. No doubt our palm springs would reappear if we replanted the palms; and we respectfully submit these facts to the attention of the proper Legislative Committee, suggesting that a few hundred dollars be appropriated for this purpose.

Forests retard evaporation; agriculture increases it. Forests hold back the water that has fallen, and thereby diminish the chances of floods. Every leaf, every stick, and the beds of moss and mould are miniature reservoirs.—*Morning Call.*

Elder John Strong.—Probably the largest family in the country, of one original lineage, is the Strong Family. Its founder, Elder John Strong, Ruling Elder of the First Congregational Church of this town, who died April 14, 1699, aged 94 years, had 18 children, of whom 15 had families, most of them large, and some of them nearly as large as their father's. What mammoth mince pies our grandmothers must have made! Their descendants, each and all, have been traced down carefully to the present time, to the number of over 22,000. Their genealogy, costing four years of solid toil, (from 10 to 12 hours daily) involving the expenditure of several thousands of dollars, has been traced by Benj. Woodbridge Dwight, and now issued in two large volumes. Among the representative family likenesses in these books, may be found those of Gov. Caleb Strong, Prof. Theo. Strong, of Rutger's College, N. J., Hon. Edw. Southworth, Prof. James D. Dana, and Rev. Dr. Dorue Clark.—*Northampton (Mass.) Gazette & Courier.*

The doctrine that guano is the deposit or excretia of birds is put sadly at fault by the discovery of large deposits at the bottom of the ocean, showing that it is a stratified deposit of plants and animals of marine origin.

Dynamite is employed with good effect in France for the breaking up of ice in the rivers where channels are required, or where a gorge has taken place.

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San Francisco:

Saturday Morning, Mar. 2, 1872.

Gold and Legal Tender Rates.

San Francisco, Wednesday, February 28, 1872.—Legal Tenders buying 91; selling, 91½. Gold in New York to-day, 110⅛.

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Transportation over Heavy Railroad Grades.—The expense of transporting freight by rail, over the Sierra Nevada is more than five times as much as the cost of transporting the same amount of merchandise over the same distance of level road. A train which requires only one locomotive on a level, requires *five*, when going up the heavy grades on the western slope of the Sierras. Moreover, the special engines used for this heavy work tear and destroy the track in a much larger ratio than the lighter engines used on the plains. From Rocklin station, on the western base of the Sierra Nevada, to the Summit, the distance is 83 miles, and the elevation overcome is 6,768 feet. The actual equivalent of this distance on a level road is 421 miles, or a little over five times the real length of the road itself. It will thus be seen that there is demanded five times the power to operate this 83 miles that would be required to operate the same distance in the valleys.

To Correspondents.—J. W. L. The value of your specimen of clay cannot be definitely determined except by chemical analysis, the expense of which we are not prepared to undergo. Better send some to a competent assayer who will give the desired information.

L. H. and J. A. H. If you will examine the patent reports you will find that the plan you propose is an old one. That principle of propelling boats has been applied, but was unsuccessful.

On File.—Communications from "Eagle Quill" — "Ludlow," G. H. R., and "Quartz."

Annual Catalogue of the officers and students for 1871–2, of the Massachusetts Institute of Technology, is at hand.

Precious Metals in the Eastern States.

A silver "excitement" exists in Owen County, Indiana, and a number of people are making arrangements to sink shafts and prospect the country in the vicinity of a newly-discovered quartz ledge. This ledge is said to be five feet wide and rich in silver and lead. The owner says he has refused $50,000 for an eight interest and intends superintending and working it himself. He has never been in California or Nevada or he would most assuredly "snap" at that offer and throw in another eighth in the bargain. The top of the ledge only has been opened.

In Windsor County, Vermont, the people are exercised over a gold discovery. An island of about 15 acres in extent has been formed in the White River by mud deposits. It has for some years been used as a pasture, but last summer an Englishman named Saltry, who has been in California, got an idea that there was gold in the soil. He leased it on this supposition, which proved correct. He has since released in small portions to a number of parties who are now working it, among them the owner of the land, who paid $500 for the right to dig. The soil is black sand, in which grains of gold are visible.

A telegram dated the 21st inst. chronicles the discovery of gold in the Black Hills, on the White Earth River, in Iowa. It has been found in the bed of Ice Creek a small stream flowing into that river, about 200 miles above Fort Randall. The region is to be more thoroughly prospected in the spring. White Earth River is in the vicinity of Big Horn River, where the Expedition organized at Cheyenne last season expected to find precious metal.

Not to be outdone in mineral producing qualities now comes Wisconsin and says she has gold in Clark Co. According to Prof. R. D. Irving, it is found in small quantities in the quartz veins, occurring not far from the junction of the potsdam sandstone with the eozoic rocks which underlie the northern half of the State. The prevailing rocks in that region are chloritic and talcose schists intersected with veins of quartz. Associated with the gold are small quantities of magnetic iron in scales, pyrite and mispickel, scattered as usual through a tough, white quartz, presenting none of the reddish appearance common to surface gold ores of any value.

It is not probable that any great excitement will ensue from this discovery, as the quartz only assays about 20 cents per ton; still the effort on the part of Wisconsin to be a gold-producing State is commendable, but it is to be hoped that the other Eastern States which follow her example will meet with better success. To make the mines pay they will have to use some process which will work up to a better per cent. than even our mills on this coast. It's no use for you to try, there in the East, we are the treasury of the nation, in this part of the world, and likely to remain so.

Silver Excitement.—A new excitement is likely to begin in the spring in the direction of the Schell Creek mines, in Eastern Nevada. Parties in this city exhibit very rich ore and represent that people are already going to the mines, in numbers. Schell Creek is reached by stage from Humboldt Wells in 14 hours travel; fare $20. Our advice to miners is to let well alone, and if their claims are passable, not to try any new El Dorado but be satisfied with what they have. At all events, wait till spring opens and find out definitely what you are going after before you go. If the country is what it is represented to be, there will be time enough then without any risk of being frozen to death.

"Back Log Studies" in *Scribner's Monthly*, by Chas. D. Warner, author of "My Summer in a Garden," deserves special mention as being of the first order of magazine articles. No. 111 of the series appears in the March number of Scribner.

Sargent's New Mineral Land Bill.

The bill introduced by Mr. Sargent in Congress on the 23d of January, is well calculated to enhance the interests of the mining community. It has already passed the house. The provisions of the law are to give to owners of claims a fee simple of the surface to a certain distance on either side of the claim; to secure the description of the claims, so that they can be clearly identified; to regulate the tenure of possessory title by requiring that a certain amount of work shall be done annually on each claim, and to simplify and cheapen the process of obtaining United States patents for mining ground.

The claims are not to extend more than 300 feet on each side of the centre of the lode nor less than 25 feet; the owner to have the exclusive right to work all the lodes within his boundaries that come to the surface; when in developing a mine, a tunnel is run, the owners of the tunnel are to have the proprietorship of all intersecting lodes not previously discovered, to a distance of 500 feet on each side. Any person or corporation who has spent $500 in working a claim are entitled to a patent on paying $5 per acre. The notice of application to be published sixty instead of ninety days, and the necessary affidavits may be taken by local officers near the mine in question. The bill further provides that patents may be obtained by corporations whether the stockholders are citizens or not.

The provision which entitles tunnel owners to a right of 500 feet on each side of tunnel, of previously undiscovered veins, seem to us to be a superfluous one, for without it the tunnel owner as discoverer of a new vein would have a right to 400 feet, and could locate for his friends 2,600 feet more, which he would prefer to do, instead of having 1,000 feet, if the vein was worth taking up at all. The evils which Mr. Sargent proposes to remedy in the matter of cheapening the process of patenting mining ground, should have been attended to long since, and we should congratulate ourselves in having representatives in Congress who have an eye to the much neglected mining legislation. The provision permitting local officers near the mines to take affidavits to prove possession, expenditure, boundaries, etc., in making out application for patents, instead of having them taken at the land offices, will save time and expense. The absurd rule under which the present commissioner of the Land Office holds that no company shall be entitled to a patent for their mine unless all the stockholders are citizens of the United States, will be repealed under the provisions of this bill.

Premium for Electrical Improvements. The government of France, in 1866, offered a premium of $10,000 for the most useful application of the voltaic pile; time open for competition until April, 1871. At the expiration of the time, the applicants were few in number, and, in the opinion of the *savans*, to whom the matter was referred, none of the devices presented were considered of sufficient merit to entitle the applicant to take the prize. Subsequently—on the 29th of November last—the present government issued another decree renewing the offer and extending the period of competition to November 29th, 1876.

Discovery.—A dispatch from Grass Valley dated Feb. 28 says that two miners named Reese and Depew have made a rich strike on Randolph Hill, near Rough and Ready. From one pan of dust they obtained nine ounces, and took out $600 worth of gold in two hours on Tuesday. The gold is rough and in decomposed quartz. It seems to be a sort of deposit, there being no ledge. Randolph Hill was abandoned years ago as placer diggings.

Allaying the Fumes of Giant Powder.

We have several times taken occasion to refer to Dr. Blatchley's patent for allaying the fumes of Giant powder by the use of a spray of water. Well known facts connected with the power of water for the absorption of gases generally, especially when applied in the form of fine spray, warrants us in assuming that the deleterious effects of the gases arising from the explosion of Giant powder, many be very materially if not entirely obviated by that means.

So efficient is water so used, that two or three men can enter a diving bell and work under water for an entire day, without any communication whatever with the surface atmosphere—the gases produced by respiration being absorbed by the momentary use of a water spray once in fifteen or twenty minutes, and the additional oxygen needed being supplied from the same source. Elaborate experiments are also on record which otherwise show an enormous absorption of gases.

We have no doubt but that the use of the spray would also be found of great advantage in the case of common blasting powder. Experiments show that while a unit of water in the form of spray will absorb only 1.57 of carbonic acid—the gas mainly generated by respiration, as in the case of the diving bell—the same unit will absorb 3.14 parts of sulphuretted hydrogen—the gas chiefly deleterious in the use of common black powder.

We are authorized to state that the inventor will allow any party to experiment with the use of the spray for the above purpose who will report the results of said experiments to this office. The cost and trouble of such an experiment is nothing, as the water can be introduced into the mine through a common hose; the head need not be more than twenty or thirty feet. Experiments in the laboratory and practical trials in the diving bell show that the finer the spray the more effective the result.

The English Copper Supply.—Within the last ten years something like half the Cornish copper mines have been abandoned, and operations in many others greatly curtailed. The home yield of mineral during that time has been reduced from an annual yield of 140,000 tons to 70,000. While we are meeting this large falling off in British yield, the importations of ores from abroad, has, at least during the latter portion of this time also been materially lessened. The receipts from abroad for the first ten months of 1871, of all classes of ore and regulus, was but 86,696 tons against 108,123 tons during corresponding periods of 1870—no small deficiency in the face of a sudden demand and a rising market. Notwithstanding this diminished yield and importation, the foreign customers of England, called for about the same amount in 1871 as in 1870. The demand for 1870 was 32,550 tons against 32,348 tons for 1871—a falling off of nearly 202 tons.

The latest Liverpool quotations of copper, according to Lewis and Sons circular for February, is from £85 10s. @ £87 10s. per ton, according to brand. Ore and regulus is quoted at 17s. @ 17s. 3d. per unit.

Testing Coin.—Prof. Davidson of the Coast Survey, has been appointed one of the commissioners for testing the coin at the U. S. Mint, and its branches, for the purpose of securing a proper uniformity in the coins with their respective standards and weights, as provided by act of Congress.

Gold.—Important gold discoveries are reported to have been made in Coarse Gold Gulch, in Fresno County. The mines were thought to to have been worked out some time since but now promise to become valuable once more.

Giant Powder in Grass Valley.

The Grass Valley *Union* flings some hard words at us for a paragraph which appeared in a communication in the Press of Feb. 24th, with regard to the present unhappy controversy now going on in that town in reference to the use of Giant powder in the mines. When the article was penned and passed the supervision of the editor of this paper, the facts set forth therein were strictly true, taking the *Union's* own version of the matter at the time. Unfortunately, however, the article after being put in type and proved, was crowded out of the issue for which it was prepared, and found its way into the next number without our notice, after the condition of the controversy had materially changed, by the murderous attacks alluded to by the *Union*. Our record will show that, while we are ever ready to advocate the real interests of the miner, we have never sustained them in any unlawful acts. Indeed, in the very article quoted by the *Union*, the following paragraph occurs: "They [the miners] may depend upon our hearty support so long as they only resort to *lawful means* to abate what they claim is a serious injury to their interests."

The *Union* also intimates that the objectionable paragraph was called out through the influence of unworthy notices connected with the sale of Dr. Blatchley's patent for allaying the fumes of Giant powder by means of a water jet. In making the allusion to that patent, we were only following our usual very proper policy of calling special attention to what we consider meritorious in our advertising columns, and in furtherance of this idea our readers will find some additional remarks upon the subject this week, to which we would call their especial attention.

The Tubular Iron Wheelbarrow.—This is one of those simple yet excellent inventions, that whilst it seems strange that it was never thought of before, possesses a merit that ought to stimulate our inventors to the application of the principle involved, to other purposes than wheelbarrow making. Wherever a light and yet strong implement is desired, one which will stand all the vicissitudes of our climate, with its extreme moistnrs and aridity, and it can be formed of tubular iron instead of wood, which latter, is forever swelling and shrinking until it falls in pieces, it should be so constructed. The frames of harrows and cultivators, of horse-rakes and parts of harvesters and even the frames of wagons might be made of tubular iron that would last a man's lifetime. Inventors, try your genius on tubular iron, patent its application to the implement to which you discover its adaptability, and make your fortunes.

New Incorporations.

The following have filed certificates with the County Clerk, San Francisco.

Bowers M. Co.—Feb. 20. Location: Gold Hill District, Silver county, Nevada. Capital, $500,000; in $5,000 shares. Trustees—Richard Ivers, C. Jones, L. B. Frankel, Chauncy B. Land and A. Fleeshbacher.

Louise M. Co.—Feb. 26. Location: Pioche District, Lincoln county, Nevada. Capital stock, $1,200,000, in 12,000 shares. Trustees—A. Kohler, S. A. Raymond, S. A. Coburn, Watson Webb and A. K. Chase.

Juanita Consolidated S. M. Co.—Feb. 26. Location: Esmeralda county, Nevada. Capital stock, $5,000,000, divided into 50,000 shares. Trustees—Wm. Sharon, A. K. P. Harmon, J. D. Fry, J. H. Robinson, A. L. Greeley.

Silver Hill M. Co.—Feb. 27. Location: Gold Hill District, Storey county, Nevada. Capital Stock, $5,400,000, in 54,000 shares. Trustees—A. K. P. Harmon, James C. Flood, Chauncy B. Land, Joseph Holland and W. S. Hobart.

Woodland G. M. Co.—Feb. 28. Location: Calaveras county, California. Trustees—Wm. J. Gunn, Charles F. Brown, William Stuart, George Bower and John H. Wood. Capital stock, $1,000,000, in 10,000 shares.

"West Point," by "Crooks," will appear next week.

Col. L. M. Black, of Montana.

We give, herewith, a portrait of Col. Leander M. Black, of Montana, engraved at this office from a photograph furnished by one of the Colonel's friends at Bozeman, his place of residence. Col. B. is emphatically called a self made man. He left his native State (Kentucky) in 1859, with all his worldly effects in a satchel, and started for the "Far West," bringing up in Colorado, where, by the spring of 1866 he had accumulated a fortune of $250,000, and reached a seat in the upper branch of the Territorial Legislature. About this time he left Colorado for Montana, which he has adopted as his permanent home, and where he has added largely to his possessions; but what is of far more importance, he has also been so fortunate and honorable in his dealings with his neighbors, and his public and private life has been so uniformly faultless that he has secured the friendship and attachment with all whom he has come in contact.

No man in the Territory has manifested more energy and public spirit in advancing the general interest of that region than has the subject of this sketch. At a critical junction in the history of the Territory,

COL. L. M. BLACK.

and when large numbers of hostile Indians were threatening its destruction, and when in response to a call for troops, men were found in abundance, but no means for feeding them, Col. Black came forward promptly, saying, "I will feed all who will fight." He was as good as his word, and long trains of provisions were soon rolling along the road toward the Yellow Stone, to feed the volunteer protectors of Montana. In this prompt act of patriotism the Colonel expended about $150,000, not a dollar of which has yet been returned to him by the Government, whose duty it was to protect the citizens of the Territory at the national expense.

We have now in the hands of the engraver, a large and spirited representation of the city of Bozeman, Col. Black's place of residence, which will soon appear in our columns, with appropriate reference to its history, etc.

Quicksilver.—The following table shows the amount of quicksilver produced in the last three years:

	1869. Flasks.	1870. Flasks.	1871. Flasks.
New Almaden mine	17,000	14,000	18,763
New Idria mine	10,450	10,000	9,227
Redington mine	5,000	4,546	2,128
And sundry other mines	1,150	1,000	1,763
Totals	33,600	29,546	31,881

Grain.—The *Alta's* commercial correspondent writing from New York, says the harvests of southern Russia which are coming in, show such unusual deficits, that there will be but little grain for export from what has been one of the chief supply districts of Europe. Nearly the whole crop will be needed for home consumption.

Mr. Geo. B. Ellery, now on his way to London will act as subscription and advertising agent for the Scientific Press and Rural Press while in that city. His address will be, 5, Lothbury, London, E. C. Eng.

A New Arctic Expedition.

Mr. Octave Pavy, a Frenchman, who recently arrived here, has inaugurated an expedition with a view of reaching the North Pole by way of Behring's Straits. He will leave San Francisco in May in a chartered vessel for Petropaulvoski, where he proposes to procure reindeer, dogs, sledges, etc., necessary for his land journey. He will then proceed through Behring's Straits to Cape Yakan, on the northeast coast of Siberia, where the expedition will leave the vessels and proceed on its own account. Complete outfits have been provided, and among them a somewhat novel raft constructed of rubber after the style of the Nonparsil, which crossed the Atlantic in 43 days. The raft is made of four cigar-shaped cylinders, fastened in the decks by wooden slats to which the masts, rigging, etc. are attached. The whole thing, which is sloop-rigged, is so arranged that it can be packed in a barrel, while, when ready for service it has a capacity of carrying 10,000 pounds of freight, besides the crew. When it is necessary Mr. Pavy will cross the land on sledges, carrying the boat with him. He is very sanguine of success and has given the subject thorough study. He concludes that while so many have attempted the passage by the other route to an open Polar Sea, the existence of which was conclusively settled by Dr. Kane in 1861, it remains for him to prove that it can only be approached by way of Behring's Straits.

Mr. Pavy proposes to make observations on the direction of the currents and their temperature, tides, Aurora Borealis, variations of the compass, and scientific matters generally. He is endorsed by the Geographical Society of Paris, the American Geographical Society of New York, and kindred societies elsewhere. The whole party is to consist of only six men. The usual anti-scorbutic provisions have been supplied and the expedition will be well fitted out generally. We wish the enterprise all success, and hope that no serious impediments will obstruct their progress to the much-talked-of open Polar Sea.

In Memoriam.

Died.—In Westfield, Mass., Feb. 19th, 1872, Maria K. Weller, aged 72 years, widow of Roland Dewey and mother of E. M. and A. T. Dewey, of this State.

Our mother has departed! Her journey of seventy-two years, through the rugged way we all are hastening, has ended. Strong, resolute and dutiful, her life here—the building of her life hereafter—was one of continued labor. Her sweets here have been the recurring harvests of her honest toils and humble teachings. Blessed ever be her memory. Separation may loosen and time lessen the attachment of friend, brother and sister; but age and distance fail to lessen the fondness and faithfulness of a true mother—the ever-loving and watchful heart, whose loss we cannot restore from out the world's vast field of friendship. Passing away through pain that none of less courage could have so patiently endured, we are consoled with thoughts, now, that surely "there is rest for the weary in the sweet fields of Eden." n.

Elevator.—Bradley & Rulofson, the enterprising photographers, No. 424 Montgomery street, have added to their other improvements a patent hydraulic elevator, by means of which ladies and gentlemen are carried to the top of the building without any muscular exertion. They had a reception on the 24th inst., and many availed themselves of the occasion to take a ride.

Improved Bakery.—Weister & Co., No. 17 New Montgomery St., can furnish a new method of constructing furnaces for large bakeries worth examining into by those about building or remodeling. It is under Baker's patent, Dec. 5, 1871.

The Orizaba brought up 968 bars of bullion from Cerro Gordo District, valued at $25,000.

The Sacramento Basin.

From the dome of the Capitol at Sacramento the expanse of water visible around, has more the appearance of a vast basin filled to the brim, than a fertile agricultural valley. It will be well for those who think it an easy matter to suggest a perfectly feasible plan for the reclamation of these low, valley lands, by a system of levees along the banks of the Sacramento river exclusively, and shutting off in many instances by dams the auxiliary drainage offered by the numerous sloughs that traverse the tule lands back from the river proper, to carefully examine and make a note of the enormous quantity of water to be displaced by drainage, before a large part of these lands can be made dry enough the coming summer for successful culture.

Make a note also of the probable hight of levee that would be required at this time, were all the water that now covers the valley, heaped up from both sides and deposited upon a base only as wide as the river bed. It is a mistake to suppose that any levee built at reasonable cost, can be made, that will hold all this great body of water set up as it were on edge. In every other country in the world where levees are built to confine large rivers from overflow, they are back from the banks at distances from one fourth to half a mile on either side. And where the country is lower at a distance from the river, than directly on its banks, wide artificial water courses with heavy embankments are constructed through the lowest of the grounds to serve as helpers to drainage during seasons of excessive overflow.

If such partly natural and partly artificial rivers are required in Italy to convey the waters of the Alps to the river Po, and they certainly are, may not the same principle be applied with equal benefit to the great Sacramento Basin and its surplus waters.

Mining Accidents.

A miner named Peter Sevie, working in the Yellow Jacket mine fell 40 feet down an ore chute, on the 13th inst., and was very much bruised.

J. K. Williams while working on a ladder in the Idaho mine last week, fell a distance of 12 feet and received severe injuries.

A miner by the name of Rowe working on the Kent County lode in Montana, fell 40 feet, on the 30th ult., breaking two ribs and otherwise injuring him.

Theodore Oreilli while running in his claim near Clipper Hill, El Dorado Co., last week was caved upon and killed.

Geo. Robinson was badly bruised in Hardy's claims last week by some boulders falling on him.

The same paper informs us that Hector McKay was killed in the Redding claim at Whisky Diggings. He was running a load of dirt down a grade of the tunnel when the car jumped the track, knocked out the timbering and let a cave down upon him. He was 21 years of age.

Sales.—The Georgetown *Miner*, says that the Snowdrift mine has been sold to a company of English capitalists; figures not given.

From the Helena *Gazette* we learn that M. H. Ryan of Beartown, M. T., has purchased an interest in the mining ground of R. and N. Kennedy for the sum of $10,000.

The Isthmus of Suez has been doubled in width within the period of authentic history. When Herodotus wrote, Heropolis stood upon the shore of the Red Sea. The site of that city is now about equidistant from that sea and the Mediterranean. This increase in the breadth of the isthmus is due to the sand which is constantly being thrown up by the waves of the Red Sea.

A Disclaimer.—We have been assured it was not the intention of the San Francisco Boiler Works to convey the impression that the first steel boilers on this coast were made there, but by the men who are at this time employed in that establishment.

Domestic Economy.

A German Kitchen.

A German kitchen generally has but one window, and notwithstanding their proverbial neatness, in many things, the floor of the kitchen is generally as black as oil and coal can make it. This apartment, says a writer, in an exchange, is under the general supervision of the lady of the house, with various subordinates in rank and office. It is the seat of active operations from morning till night, as it is the custom here to eat five times a day.

As I passed the kitchen door this morning, I took a hasty inventory of stock on hand. On the stove I found a whole colony of coffee-pots. They were of various sizes and hues, each bearing evident traces of faithful service. Veterans they must have been, for they were variously maimed and mutilated, some destitute of a handle, others deprived of a nose, yet none of them faint-hearted or discouraged. I regret that I cannot give the exact number of the stalwart group, but when I had counted nine, my attention was called off to a more interesting group of beer-bottles quietly reposing in a basket near by. The stove boasts of one griddle, and a most serviceable piece of kitchen-furniture it is, too. Its services are called into requisition through the whole range of cooking, from beefstake to dessert.

The first active scene of the day begins in the kitchen sometime in the morning, when a brisk broiling, frying, and steeping goes on. A German breakfast consists of coffee and bread. This is served with such delightful indefiniteness, that one scarcely knows whether he has taken breakfast or not. It has no stated time for beginning or ending, but begins any time, when any one feels inclined to commence it, and ends when there is no one to continue it. Never a dinner without soup and beer. A soup is a most extraordinary compound. Therein may be found anything in the line of vegetables which is indigenous to the soil, herbs of various qualities and flavors, the whole catalogue of spices, and other thiugs "too numerous to mention." The eating of soup gives rise to a variety of pleasant emotions, aside from those produced upon the gustatory nerves. It produces a state of expectancy, and one would be thoroughly disappointed if something did not "turn up."

Cook your raisins before placing them in pies, cakes or puddings. Soaking them is not sufficient. Steaming them by pouring a small quantity of boiling water amongst them in a tightly closing dish, and allowing them plenty of time to cook before opening, is a good plan. When raisins are rightly cooked before using they appear plumper, and more palatable, and enough more healthful to be eaten without injury by most dyspeptics.

A Good Soup.—Take a fresh meat bone of any kind and boil until the meat will readily fall to pieces, add pepper and salt for seasoning, potatoes peeled and cut, and a very little thickening, or if preferred put half a teacupful of rice in with your meat when first put on. Bread may be added when taken up, or have some biscuit rolled thin to lay around on the top when the potato is put in. Salt meat soup may be made in the same way by freshening the meat so that it will not make the soup too salt.

To Make Bean Porridge.—Put one pint of beans to soak over night; the next morning put them to boil in a sufficient quantity of water for the porridge, with a corned beef bone to season the same; have one pint of corn hulled the day before, and add about two hours before the meat is done. When the meat is done tender take it out, make a little thickening for the porridge with Indian meal and a very little flour. Milk and pepper may be added when eaten, according to the taste.

Spittoons.—Some housekeepers refuse outright to have spittoons in their houses. Their severity in the matter is entirely pardonable, as the sight of them is never an agreeable one, no matter how fine the *cuspidore* may be. One of the best devices in use is the encased spittoon, resembling a small ottoman or foot-rest. A spring near the bottom is pressed by the foot, which raises the cover and the withdrawal of it allows it to fall again. Spittoons in use require daily cleaning.

East Indian Method of Cleaning Silver Ware.

It is the practice of East Indian jewelers never to touch silver and gold with any abrasive substance. The most delicate filigree work and wire constructions of silver are rendered snowy white by the very simple manipulation here communicated: Silver is most susceptible of spotting and discoloration by sea air, the human perspiration, the presence of sulphuretted hydrogen (as seen in an egg-spoon left uncleaned), the excreta of cockroaches and other strong-smelling insects, and lastly, by the contact of mice; the latter cause has irretrievably injured some new plated ware, never used, but left on a side board accessible to these little vermin. Cut some juicy lemon in slices; with these ruh any large silver or plated article briskly, and leave it hidden by the slices in a pan for a few hours. For delicate jewelry the Indians cut a large lime nearly in half, and insert the ornament; they then close up the halves tightly, and put it away for a few hours. The articles are then to be removed, riused in two or three waters, and consigned to a saucepan of nearly boiling soapsuds, well stirred about, taken out, again brushed, rinsed and finally dried on a metal plate over hot water, finishing the process by a little ruh of wash-leather (if smooth work). For very old, neglected, or corroded silver, I dip the article with a slow stirring motion in a rather weak solution of cyanide potass.; but this process requires care and practice, as it is hy dissolving off the dirty silver you obtain the effect. Green tamarind pods (oxalate of potash) are greater detergents of gold and silver articles than lemons, and are much more employed hy the artizan for removal of oxides and firemarks.—*Watchmaker and Jeweler.*

Housekeeping in Germany constitutes a special department of industry, and is called, "Haushalterung." Of course this industry is monopolised hy the woman, and constitutes her chief glory in this land of poets and scholars. No young lady is ragarded as having a finished education, unless she has spent at least ono year in the house of some good family, learning Haushalterung.

Soap.—A young lady, who makes all the family soap, gives the following recipe for a good, cheap article: Add to 10 quarts of water, 6 pounds of quicklime and 6 pounds common washing soda. Put all together, hoil half an hour, and let it stand all night to clear. Draw off the lye, and add to it 1 pound common resin, and 7 pounds of fat. Boil this for half an hour, then let it stand till cool, and cut into hars.

A preparation of one part calomel, five parts wheat flour, one part sugar, one-tenth part ultra-marine, mixed together in fine powder and placed in a dish, is said to he a most efficient poison for mice.

Domestic Receipts.

Honey Fruit Cake.—Take four eggs, and well heat. Sieve in five cups of flour. Add two cups of honey, one of sweet milk, two teaspoons cream of tatar, one of soda, one pound of raisins and currants, one quarter of a pound of citron, one teaspoon each of cloves and cinnamon. Bake in large loaves and slow oven. This keeps fresh for months.

Chocolate Cake.—Take one cup sugar, one-half cup of butter, one-half cup milk, two eggs, one teaspoon saleratus, and two cups flour. Grate half a cake of the unsweetened chocolate (Baker's) and mix with one-half cup milk and the yolk of one egg. Sweeten to taste, and add a teaspoon of some flavoring extract—vanilla is nice. Boil this dissolved chocolate till soft, and then add with it the other ingredients, and bake three-quarters of an hour.

To Prevent Mucilage Moulding.—C. C. writes the *Rural New Yorker*, that he makes it hy using one part of alcohol and three parts of water to dissolve gum arabic; and he keeps a bottle of one part alcohol and two parts of wator with which to thin it when it becomes too thick. It never molds.

Icing Pastry. — When nearly baked enough, take the pastry out of the oven, and sift fine powdered sugar over it. Replace in the oven, and hold over it till the sugar is melted, a hot iron shovel. The above method is preferred for pastry to he eaten hot; for cold, heat up the whites of two eggs well, wash over tho top of the pies with a brush, and sift over this a good coating of sugar; cause it to adhere to the egg and pie-crust; trundle over it a clean brush dipped in water, till the sugar is all moistened. Bake again for about ten minutes.

The California Powder Works

No. 314 CALIFORNIA STREET,

SAN FRANCISCO.

Manufacturers and have constantly on band

SPORTING,

MINING,

And BLASTING

POWDER,

Of SUPERIOR QUALITY, FRESH FROM THE MILLS. It being constantly received and transported into the interior, is delivered to the consumer within a few days of the time of its manufacture, and is in every way superior to any other Powder in Market.

We have been awarded successively

Three Gold Medals

By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others.

We also call attention to our

HERCULES POWDER,

Which combines all the force of other strong explosive now in use, and the lifting force of the BEST BLASTIN POWDER, thus making it vastly superior to any other pompound now in use.

A circular containing a full description of this Powder can be obtained on application to our Office.

16v20-3m JOHN F. LOHSE, Secretary.

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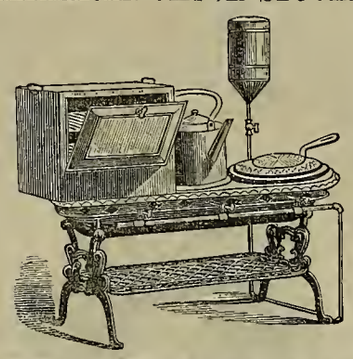

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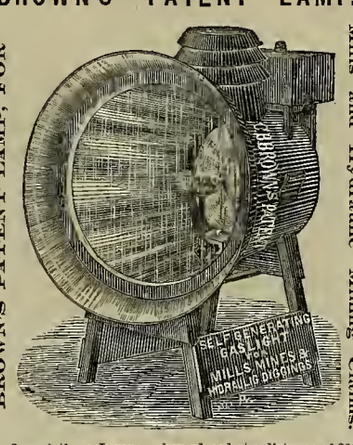

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The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the apperture and between the grinding surfaces.—Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

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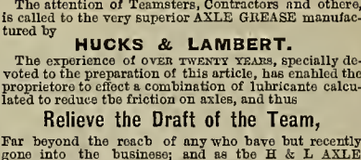

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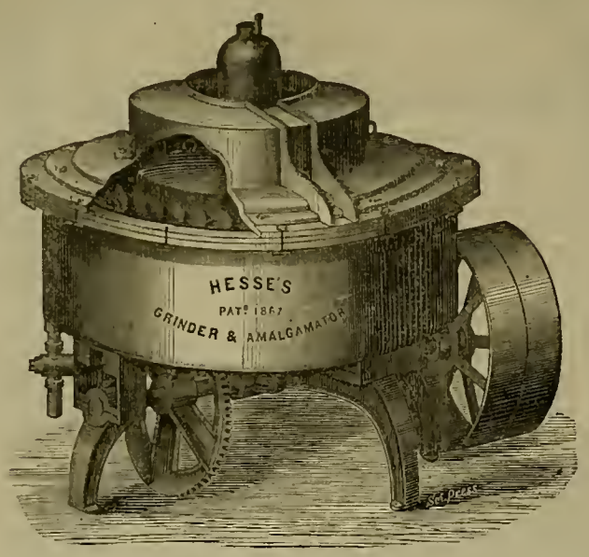
SAN FRANCISCO.

THE HESSE GRINDER AND AMALGAMATOR.



This machine is the most complete and desirable grinder and amalgamator now in use. Owners of Quartz Mills and Sulphuret Works will find it greatly to their interests to use this machine. The following are some of its many advantages, viz: The comparatively little power required to run it; the small wear of metal in comparison with other grinders; the large amount of work that may be accomplished in a given time, being about three times the amount usually performed in ordinary pans; the continuous working process, whereby the labor of handling the ore is avoided; the peculiar arrangements and action of the currents in the machine, whereby all the particles of ore are brought in contact with amalgamating surfaces, and are discharged as soon as ground to the required degree of fineness, thus saving an unnecessary waste of power and metal.

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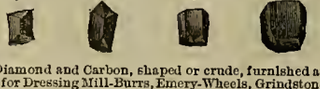
DICKINSON'S
Patent Shaped Diamond Carbon-Points.
Fig. 1 Fig. 2 Fig. 3 Fig. 4



Diamond and Carbon, shaped or crude, furnished and set for Dressing Mill-Burrs, Emery-Wheels, Grindstones, Conglomerate, Drilling Rock, Sawing or Working Stone, Truing up Hardened Steel, and for other mechanical purposes. Also Glaziers' Diamonds. See Scientific American, July 24th, Nov. 20th and 27th, 1869; Engineering and Mining Journal, Jan. 17th, 1871; Journal of the Franklin Institute, Philadelphia, June, 1870. For Circulars descriptive, and Prices, send stamp to
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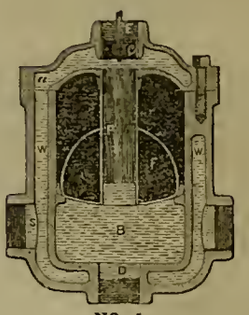
CRAIG & BREVOORT'S
Patent Condenser for Steam
PUMPS, &c.



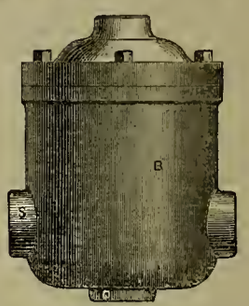
NO. 1.

The annexed engravings represent a Condenser intended to be attached to the ordinary steam pump, thereby bringing it within the class of low pressure, or more properly speaking, of condensing engines; the steam, when it has done its work in the cylinder, instead of being exhausted into the atmosphere, is conducted to the condenser, on its entry into which, it meets the water drawn by the pump, and is immediately condensed.

The Cut No. 1 represents a vertical section of the Condenser, and No. 2 an elevation.

The flange D is bolted to the suction orifice of the pump, and the flange S to the pipe leading to the well, or whatever source of supply the pump may have; W is a water jacket surrounding the main chamber of the condenser, B, and with which the suction pipe, S, communicates, permitting a free circulation of water within the jacket and into the hollow cover or top through the series of openings, one of which is shown at A, and from thence into the body of Condenser, B, through pipe P, carried by float F; the pipe P also acts automatically as a valve to enlarge or contract the space through which the water enters it, by which means the possibility of the condenser being at any time flooded is avoided. The pipe P, it will be observed, also acts as guide to float F.

The valve, O, (shown in Cut No. 1), which is raised or lowered by means of screwed stem—shown coming through elbow in Cut No. 2—is for the purpose of increasing or decreasing the flow of water according to the capacity of the pump to which it is attached.



NO. 2.

The exhaust pipe from steam cylinder is screwed into cover at E; the exhaust steam is thus thrown directly into contact with the water entering the condenser on its way to water cylinder of pump through D. A vacuum being of course immediately formed, acts on the exhaust side of the steam piston, aiding it in its work. If at any time it is desirable to run the pump without the condenser, it is only necessary to turn the three-way cock, which is placed in the exhaust pipe, into such a position as to cause the steam cylinder to exhaust into the atmosphere; when this is done the pump is perfectly free from the condenser, and acts as if it were not attached. This condenser is specially useful for pumps running in mines, or any other position where trouble is experienced in getting rid of the exhaust steam. Address H. L. BREVOORT.
6v23eowly 128 Broadway, New York City.

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24v22-3m JOSEPH MOORE, Superintendent

Wastage of the Precious Metals—No. 3.

BY ALMARIN B. PAUL.

[Written for the PRESS.]

Montana.

"The trouhls sssms to hs the gold is so impalpshly fins that they loss a very considsrable percsntsge by imperfect manipulations," says ons.

"I hsvs nsver saved more thsn $20 per ton and the ors assays about $50," says another.

Extend tests as far ss you may, on a smaller or larger scale, and wastags stsres ons hadly in the face at every turn.

I mads a tsst of 50 pounds of tailings for a party who took them *a mile above his mill* aud the rsturn was 55 per cent. of what was his average working. I also msde a test of three-fourths of a ton, and the result showed ths loss in ths mill-working to he 63 psr cent. I could write every column of your paper full, corrohorative of ths fact of the enormous loss in the milling of our gold ores. But these given should be as convincing as more; and I hope enough so, to awaken a desire for investigation at least. From what attention I have givsn the suhjsct in actual lahor, as well as collecting all the data attainable from others, I know that the loss as a whole is fully 50 per cent., and, in the majority of mills, all of 60 per cent. of what the ore contains.

I can now ask: Is it not time we were heginning to consider this question of the wastage of the precious metals? It is this that produces so many failures, such utter lost of capital. Investments are made in mining on assays of well sampled ores of the mines, hut not until machinery is running, do they realize the fact that only a small percentage of the metal is saved, and a failure too often is inevitable. Among the evils of mining may be enumerated, at times, too much science and too little practice; then again conceited practice and no scisnce. Science is esssntial, practice equally so; strictly, scientific mining may be denominated, science doing nothing; practical mining, science doing something; practical-scientific mining—the grand requisite—is a correct conception of cause and effect—the scientific analyzation of difficulties and the practically overcoming them. But to my suhject. There are a numher of institutions in California that have proved grand successes. They have been exceedingly fortunate, hut their success may he attributed to having ores of high value, not to gaining a high percentage of the metal. For take California mills, and the first class are all on a par in wastefulness, while the poor are not to he considered at all. My tests are from the best, and I leave the reader to fancy what the poorer ones may be.

California in twenty-one years has produced over $800,000,000, and wasted $1,000,000,000 more ! ! For the wastage in "sluicing" is greater than that in quartz mining. The Sacramento river in ages to come, and when it shall he upheaved as were the Sierra Nevada, will gladden the heart of some straggling miner with an auriferous stratum, the wealth of which will throw all histories of Potosi's, Comstock's, and Del Rey's comhined, into the shade.

To remedy the evil, more care must hs taken. The fact is, we are too much of a rushing, reckless people; we have not got sohered down yet; and I dont know as we ever will. It's rush, rush, and make too little solid, permanent, profitable headwsy. We have oceans of wealth surrounding us, and ought to be ths most opulent, refined and wealthy land on earth,—the load-stone for God's creation. But how is it, and why is it, that we are not?

When one examines into the mining interssts of the world and analyzes gold, its fineness as a metal, and then the science which has maintained the general system in vogue for gold more especially, and see how many, many years, all have gone along with one so reckless and wasteful he almost hlushes for the science and mechanical skill of the day, for a greater absurdity cannot exist than the rough, coarse way of dealing with so delicate and valuahle a metal as gold; the general treatment hsing not to catch it hut to run it off. It seems to me, men go mors on what somehody else has done than their own analytical powers.

From data of loss, given in my last article, we must come to the conclusiou that gold mining, not only in California, but elsewhere on the Pacific slope, as all are operating on about the same system, is unquestionably behiud all other hranches of industry in perfectness, and certainly not up to the point it should be. In fact, so imperfect is it, that our gold mining enterprises, as a whole, may be set down as a failure, when ths question of *profit* in all is considered. If it can he considered highly successful in this gsnsral sense, ought we not now to hs teeming with prosperity?

That soms chsngs should bs brought about, must hs evident to all. What that changs will bs or should he, each must determine for himself. In ordsr to better ths interest, all operators should give their attention to incressing the percsntags of yisld without a correspondiug increass of expenditurs. Thers is a hensfit, however, in producing mors, evsn with an equal sxpenditurs, as it gives an additional amount of metal for circulstion, and requires an equivalent of lahor. But this idea, although correct, is an unpopulsr one; it does not helong to ths selfish spirit of the ags, for without a *profit* on lahor, it is not wanted. This ags is for profit, not good, unless the "good" makes the profit.

Ons step in advance would hs,—taking more care. There is too much slashing ahout in our gold mining. Thers is snough in silver, but no compsrison hstwesn the working of the two metals. This plan of seeing how much can hs pounded up and rushed through every 24 hours, is a false, wasteful and ruinous system.

The profit will he found in *how well* and how cheap it can be done. It is in the right direction certainly to reduce ores expeditiously and cheaply, but not to as expeditiously wash *everything* away, having an eye more to pounding up the rock, than to taking up the metal. The following slip, clipped from the PRESS, to my mind, tells quite a long story in itself: "Here is a 40-stamp mill, that pulverizes its 250 tons weekly, employing 40 to 100 men. The ledge averages five feet thick. The Montezuma, too, is located here; hut for reasons hest known to the company, they have permitted their 20 stamps and a good mine to remain idle for the last two years."

Forty to a hundred men gutting a mine, to run how much down stream? I know ssveral similar institutions which work from "40 to 100 men," and at the end of the month the owners do not have one dollar for themselves; whereas lsss expense, less rush, and more metal saved, could turn the scale often from loss to profit, and "20-stamp mills with good mines" need not he idle. I contend that ore can he reduced, held under control for manipulation, and metal amalgamated as cheaply as this uncontrollable sluicing system so universal in California.

That our gold ores are so readily amalgamated, is one of the ruinous ideas extent. The majority of California miners are, in fact, hut little experienced in all the troublesome accompaniments of even gold ores, considering that if the rock does not pay, that it cannot certainly contain it. All, however, admit it to be difficult to extract the gold from iron sulphursts, forgetting that even a small percentage of lead, copper, arsenic or antimony which is to he found in nearly all the gold ores of California, vitiates the mercury in a little while, rendering it quite inefficient in collecting even the gold that otherwise from gravity might be taken up. We hear great accounts of ths value of ores from all parts; hut do they prove up their asssrtions hy the product per ton? One of your correspondents, only a week or so ago, stated in his communications that 'we must have improved machinery or abandon this in use.' He had heen investigating the matter. It is too universal to consider that it is only necessary to rig up a set of stamps, apply the power, and let them rip away smashing rocks, to wash the sands off, forgetting that it is equally as patent to wash off the smaller particles of gold.

[To he continued.]

Rainfall at Sacramento.

[By T. M. LOGAN, M.D., Secretary State Board of Health.]

Jan. 1, 1872. Rainfall for the season to date....12.421 inches
Jan., 1872. Rainfall for the month..... 4.040 inches
Feb., 1872. Rainfall up to 25th..... 4.040 inches

Total for the season up to date.....20.501 inches

REMARES.—February has this season proved a wet month, and the rainfall is now plus the average for the entire season. No rain fell from the 12th te the end of January, except a mere sprinkle on the 23d; so that it would seem the usual interval hetween the former and the latter rains has this season occurred dnring the latter half of January, and not in February, as is the most general rule.

COMPLIMENTARY.—From F. C. Johnson, Vice-President Indiana State Horticultural Society, we have received ths Annual Report of said Society.

From Jay Cook & Co., maps and documents pertaining to the route, resources, progress and business of the "New North West" and its great thoroughfare, ths Northern Pacific Railroad.

AT Shasta the total rainfall for the season, to Feb. 27, foots up 90.27 inches.

DR. SHERMAN'S RELIABILITY.—We are continually receiving letters of inquiry about Dr. Sherman, and his reliability in the specialty of treating and curing rupture. About two years since, a gentlemen showed us a photograph of his taken before he placed himself under the care of Dr. Sherman for rupture. This was a few months after treatment. The difference between the man when the picture was taken and the time when we saw him, was wonderful. He then considered himself cured, and gave the credit to Dr. Sherman. In view of this circumstance, and what we had previously heard, as a matter of interest to those of our readers who might be afflicted in a similar way, we indorsed Dr. Sherman.

In order to remove every doubt, and to make sure that no wrong should he done to any one, one of the associate editors of this paper devoted an entire day to the investigation of Dr. Sherman's system of treatment of his patients. The result of this investigation confirms the truthfulness of our indorsement. Many prominent gentlemen in this city tell us they tried other parties without being benefitted, then placed themselves under Dr. Sherman's treatment and were cured. Perhaps we may express the strongest conviction of our assurance of his success, by steting that if we should ever he afflicted as others were, who have been treated by him, we should go to him for treatment, with every reason to believe that he would effect a cure. Further than this, no man can say.—*Pomeroy's Democrat, N. Y.*

Mining Companies

Should advertise their Meetings, Assessments, and Sales, in the SCIENTIFIC PRESS. Rates more than one-half less than daily publications. Stockholders should take the hint and request their managers to truly economize by advertising in a MINING JOURNAL, where all notices may be seen by cheaply purchasing and examining a weekly. You will thus save money and uphold a journal which upholds your interests.

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The Evangel, Offics, 414 Clsy strset, San Francisco. Terms, $4 per year, in advance. THE EVANGEL is the orgen of the Baptist Denomination for the Pecific States and Territories. All efforts on the pert of brethren and friends to extend its circulation will be gratefully appreciated. $3, for one year's subscription, will be received from new subscribers, strictly in advences. Address "Evangel, San Francisco, Cal." Sample copies furnished free. 4v3-1amhptf

UNIVERSITY OF CALIFORNIA.—The Preparatory Department is under the charge of five Professors of the University, and six tutors.

Besides the studies of the pnhlic schools, Algebra, Geomctry, Latin, Greek, German, French, Spenish and Book-Keeping are taught.

Terms: Board and tuition, 4 weeks, $30. Students received at any time. GEONGE TAIT, Oakland, Master Fifth Class. se9bptf

Mechanics' Institute.—Entrance 27 Post street, (het. Kearny and Montgomery), San Francisco.

The Library of Reference, the Library, Reading Room and Chess Roomars open from 8 A.M. until 10 P.M. every day, (except Sundays and Legal Holidays).

The Society possesses a Library of 15,000 volumes—the most valuable technical and scientific library on the Coast, embracing the transections of the leadlng Scientific Societies of the United States and Europe, (among which are the philosophical transections of the Royal Society of Great Britain, complete), and the standard, scientific end tcchnical works; and is in immediete receipt of all new standards publications.

The Reeding Room is supplied with the current periodicals and newspapers of the day.

Ths Mechanics' Institute is open to all, and ths Trustees will bs pleasod to have visitors and others in spect ths Rooms.

Entrance Fee, $1.00. Quarterly Dues (in advance) $1.50. Lifs Membership, $50.

RICHARD H. BUEL, Consulting Mechanical Engineer, 7 Warren St., New York.—Professor R. H. Thurston, of the Stevens Institute of Technology, has consented to associate himself with me in consultation on matters of special importance. I have enjoyed considerable experience as an engineer officer in the U. S. Navy, in actual service afloat, as Principal Assistant to the Chief Engineer of the Norfolk Navy Yard, and as Assistant Professor of Natural and Experimental Philosophy at the U. S. Naval Academy. I have also heen engaged in the management, erection and repairs of sawmills and other machinery in the South; as Principal Assistant Engineer of the Tehuantepec and Nicaregua Surveying Expedition, and as Professor of Mathematics, *ad interim*, at the Stevens Institute of Technology. I have at command a large and varied assortment of instruments nsed in testing engines, boilers and other machinery. Machinery of all kinds bought and sold. Advice and assistance given to those who desire to invest funds in meritorious and valuable Patent Rights. Special attention will he given to expert practice in legal cases. I have permission to refer to a number of gentlemen well known in professional circles. 1t

DOCTOR J. A.

SHERMAN,

ARTISTIC SURGEON, OF 697 BROADWAY, NEW York, respectfully announces to the residents of San Francisco and vicinity, that he has taksn a suit of offices at

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PREMIUMS.

New subscribers for the year 1872 may have, without charge, ths numher for the last quarter of 1871 of such periodicals as they may subscribe for.

Or instead of the above, new subscribers to any two, three, or four of ths above periodicals, may have, as premium, one of the 'Four Reviews' for 1871; subscribers to all five may have two of the 'Four Reivcws' for 1871. Neither premiums to subscribers nor discount to clubs can be allowed unless the money is remitted direct to ths publishers. No premimns can be given to clubs.

To secure premiums, it will he necessary to maks early application, as the stock avaiiable for that purpose is limited.

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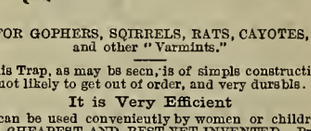

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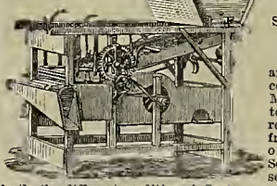

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Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the Scientific Press we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

Kincaid Flat Mining Company—Location

of works, Tuolumne County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 14th day of February, 1872, an assessment of three dollars per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Sec'y, at his office, No. 220 Clay street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 18th day of March, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 8th day of April, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

By order of the Board of Trustees.

R. H. CORNELL, Secretary.

Office, 220 Clay street, San Francisco. fe24-td

Pocahontas Gold Mining Company—Location

of works, Mud Springs, El Dorado County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 26th day of February, 1872, an assessment of Five Dollars per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, Room No. 26, Hayward's Building, No. 419 California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on Saturday, the 6th day of April, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before will be sold on Monday, the 6th day of May, 1872, to pay the delinquent assessment thereon, together with costs of advertising and expenses of the sale.

D. A. JENNINGS, Secretary.

Office, Room No. 26, Hayward's Building, 419 California street, San Francisco, Cal.

Fabrnary 26, 1872. mar2-5w

Quail Hill Mining and Water Company---

Location of works, Salt Springs Valley, Calaveras County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 15th day of February, 1872, an assessment of $5 dollars per share was levied upon the capital stock of said Company, payable immediately in United States gold coin, to the Secretary, at the office of the Company, No. 409 California street, up stairs, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 26th day of March, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 16th day of April, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. F. CRONISE, Secretary.

Office, 409 California street, San Francisco, Cal. fe24-td

Silver Wave Mining Company----Location

of works, White Pine Mining District, White Pine county, Nevada.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the twentieth (20) day of January 1872, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. shares.	Amount.
Armstrong, C, Trustee	420	20	$ 20 00
Barton, W H, Trustee	352	200	200 00
Barton, W H, Trustee	376	10	10 00
Breed, H L, Trustee	394	20	20 00
Cahill & Co., E, Trustee	163	50	50 00
Cathcart, A B, Trustee	372	722	722 00
Cathcart, A B, Trustee	408	100	100 00
Cathcart, A B, Trustee	409	100	100 00
Cathcart, A B, Trustee	450	1000	1000 00
Cathcart, A B, Trustee	455	573	573 00
Edwards, L B	393	100	100 00
Eyre, E E, Trustee	184	100	100 00
King, W F, Trustee	457	50	50 00
Loveland, L F, Trustee	217	50	50 00
Martin, M S, Trustee	199	100	100 00
Minturn, Chas	453	300	300 00
Miller, H R, Trustee	269	50	50 00
Montagnie do la, J E	333	100	100 00
Parker, C H	171	100	100 00
Prichard, W P, Trustee	341	100	100 00
Tibbey, E S, Trustee	385	50	50 00
Williams, W J, Trustee	244	50	50 00
White, Jas T	399	12	12 00
Woods, F H, Trustee	375	22	22 00
Woods, F H, Trustee	380	8	8 00
Woods, F H, Trustee	434	10	10 00

And in accordance with law, and an order of the Board of Trustees, made on the Twentieth day of January, 1872, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the office of said Company, on Tuesday the Nineteenth day of March, 1872, at the hour of 2 o'clock P. M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

J. W. CLARK, Secretary.

Office: 418 California Street, San Francisco. ma2-2w

South Gulch Gravel Mining Company.

Location of Works, Brushville Mining District, Calaveras County, California.

Notice is herchy given, that at a meeting of the Board of Trustees of said Company, held on the 7th day of February, 1872, an assessment of one dollar and fifty cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary at the office of the Company, No. 409 California street, up stairs, San Francisco, Cal.

Any stock upon which said assessment shall remain unpsid on the thirteenth day of March, 1872, shall he deemed delinquent, and will he duly advertised for sale at public auction, and unless payment shell he made hefore, will he sold on Wednesday, the third day of April, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. F. CRONISE, Secretary.

Office, 409 California street, San Francisco, Cal.

Tecumseh Gold, Silver and Copper Mining Company

Location of Works: Oopher District, Calaveras County California.

Notice.—There are delinquent upon the following described stock, on account of Assessment levied on the 23d day of January, 1872, the several amounts set opposide the names of the respective Sharcholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Charles Osmer	6	10	$ 40 00
Charles Osmer	31	2	8 00
Charles Osmer	32	2	8 00
Charles Osmer	33	1	4 00
Charles Osmer	132	35	140 00

And in accordance with law and an order of the Board of Trustees, made on the 23d day of January, 1872, so many shares of each parcels of said stock as may he necessary, will be sold at public auction, hy Maurice Dore & Co., at No. 327 Montgomery street, San Francisco, Cal., on Saturday the 16th day of March, 1872, at the hour of 12 o'clock M., of said day, to pay said delinquent Assessment thereon, together with costs of Advertising and expenses of sale.

F. J. HERRMANN, Secretary.

Office—516, Kearny st., San Francisco. mar2-3t

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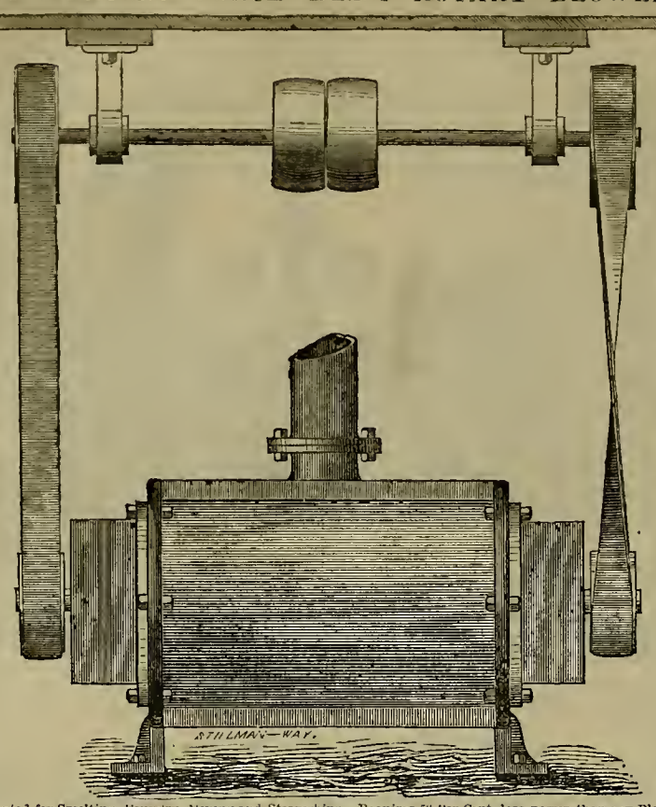

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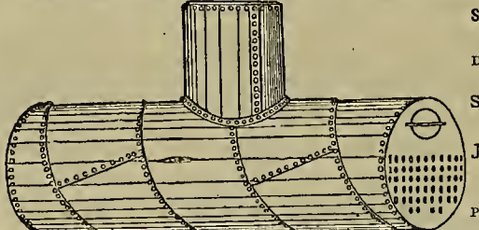

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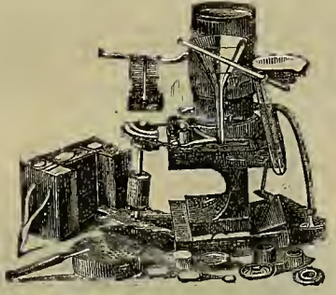

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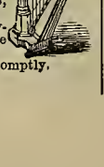

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Wm. Penn Consolidated Gold and Silver

Mining Company—Location of works, Storey and Lyon Counties, State of Nevada.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the 26th day of January, 1872, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. of Certificate.	No. of Shares.	Am't.
George Stead	18	25	25 00
George Stead	19	25	25 00
George Stead	20	25	25 00
George Stead	21	21	21 00
H J T Scheel	25	50	50 00
H J T Scheel	26	50	50 00
H J T Scheel	27	25	25 00
H J T Scheel	28	25	25 00
H J T Scheel	29	2	2 00
B J Scheel	30	50	50 00
B J Scheel	31	50	50 00
B J Scheel	32	25	25 00
B J Scheel	33	25	25 00
B J Scheel	34	2	2 00
Frank Kruyer	35	30	30 00
Frank Kruyer	36	25	25 00
Frank Kruyer	37	25	25 00
H F Rice	42	50	50 00
H F Rice	43	50	50 00
H F Rice	44	50	50 00
H F Rice	45	10	10 00
S D Prescott	49	24	24 00
John W Work	53	25	25 00
Henry R Reed	15	6	6 00
Henry R Reed	16	6	6 00
Henry R Reed	17	4	4 00
John F Sears	13	2	2 00
Alfred Deaupe	3	5	5 00
W P C Stebbins	1	28	28 00
Gregory Yale	4	17	17 00
E H Doty	8	10	10 00
E H Doty	10	12	12 00
E H Doty	11	10	10 00
E H Doty	12	10	10 00
W E F Krauso	9	1	1 00
E F Stone	5	88	88 00
E H Doty	unissued	165	165 00
Henry Tomey, Trustee	unissued	155	155 00
George Hearst	unissued	46	46 00
L M Pearlman	unissued	94	94 00
Jacob G Clark	unissued	52	52 00
H F Cutter	unissued	106	106 00
Thos. McNamara	unissued	50	50 00
W H Bremer	unissued	50	50 00

And in accordance with law and an order of the Board of Trustees, made on the 26th day of January, 1872, so many shares of each parcel of ssid stock as may be necessary, will be sold at public anction, at the auction house of John Middleton & Son on the 21st day of March, 1872, at the hour of 1 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of Sale.

ma3-3t HENRY TOOMY, Secretary.

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These Works have lately been increased, by additional Tools, and we are now able to turn out any kind of work, equal to and cheaper than any establishment in the State; that is to say:—

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Improved Safety Store Hoists,

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TURNING LATHES, Etc., constantly on hand.

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Every Variety of Shafting,

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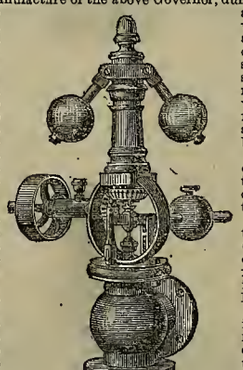
These Governors have now been sold in this market for several years, and wherever once introduced and made known, are invariably sought after. They are in the Eastern States fast displacing all other Steam Governors, and are regarded as *the perfect regulator*. They are manufactured by Messrs. Gorchur & Robertson, practical engineers, who have given many years time exclusively to their manufacture and perfection. The manufacturers say: After an experience of eleven years in the manufacture of the above Governor, during which time several important improvements have been made and two additional patents obtained, we feel justified in recommending it to all parties using Steam power, and warranting it to be the most perfect regulator in the market.



The Gardner Governor is so well known that we think it unnecessary to enter into a detailed explanation of the principles involved, or details in its construction, merely giving the leading objects realized by this important invention. The Governor combines with the greatest simplicity of construction, accurate regulation of speed, POSITIVE INSURANCE AGAINST ALL ACCIDENTS LIABLE TO OCCUR FROM SLIPPING OR PARTING THE GOVERNOR OR DRIVING BELTS, and a convenient arrangement for ADJUSTING THE SPEED OF THE ENGINE WHILE IN MOTION, without change of pullies.

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We would especially invite the attention of steam Engine Builders to this Governor, feeling assured that they can purchase for less than they can make an inferior article, and thereby increase the value and sales of their Engines.

We respectfully refer to the following parties using the GARDNER GOVERNOR, and can speak understandingly of its merits: Oakland Cotton Mills, the Selby Lead and Silver Smelting Works, L. & E. Emanuel, Vulcan Iron Works, Fulton Foundry, Levison Bros., Cal. Jewelry Co., Pioneer Woolen Factory, D. A. McDonald & Co., and others in San Francisco; Ophir Co., Lady Bryan, and Sacramento and Meredith Mills, John McCone, Virginia, Nev.; Globe Iron Works, Stockton; A. F. Chury, Albany, Oregon, and many others.

☞ WE WARRANT these Governors to give perfect regulation of speed under all circumstances; and if there is one within one thousand miles of San Francisco, that is not giving perfect satisfaction, it may be returned to us at our expense, and we will exchange it for any other Governor in the country, or refund its price.

☞ When ordering please state whether THROTTLE-VALVE is wanted or not; and whether BLOCK or FINISHED Governor is desired. ☞ THE RATE OF SPEED FOR GOVERNOR IS FULLY STAMPED ON THE REVOLVING HEAD OF EVERY GOVERNOR. Send for circular and price list to

TREADWELL & CO.,

Agents for Pacific States, San Francisco.

☞ At Treadwell & Co.'s (late BERRY & PLACE'S) Machinery and Supply Depot may be found in stock the above Governors, together with all sizes of HOADLEY'S PORTABLE ENGINES, BLAKE'S STEAM PUMPS, STURTEVANT BLOWERS, PORTABLE DRILLS, TAPS AND DIES, DREYFUS'S CYLINDER LUBRICATORS, Etc. Also a heavy stock of HARDWARE AND MINING TOOLS, LEATHER BELTING, LINEN HOSE, BOILER FELT (saves 25 per cent. of fuel), SELF-OILERS, LACE LEATHER, STEAM PACKING (all kinds), BELT STUDS, Etc., Etc., embracing every description of Engineers' and Machinists' supplies and Millmen's findings. 7v24-tf

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FISHER'S
KNUCKLE JOINT
AND
NOZZLE
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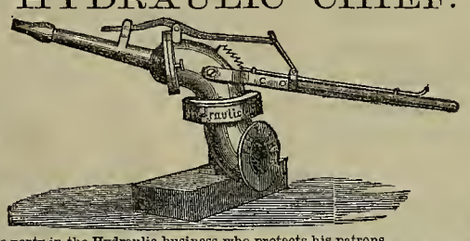
Cheapest and Best Hydraulic Machine in use.



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Manufactured
TO ORDER,
to throw from
One
to an
eight-inch
STREAM.

The only reliable party in the Hydraulic business who protects his patrons.

9v23-tf Address F. H. FISHER, Nevada, Cal.

HYDRAULIC MINERS, TAKE NOTICE—I hereby caution Miners and Manufacturers against making, buying, selling or using a Hydraulic Machine or Joint known as the Little Giant, manufactured and sold by R. R. & J. Craig and Richard Hoskin, as the same is an infringement upon the invention of the machine known as FISHER'S HYDRAULIC CHIEF, secured by Letters Patent, No. 110,222, dated Dec. 20, 1870. All parties participating in such infringements will be rigorously prosecuted. Nevada, Jan. 13th. F. H. FISHER.

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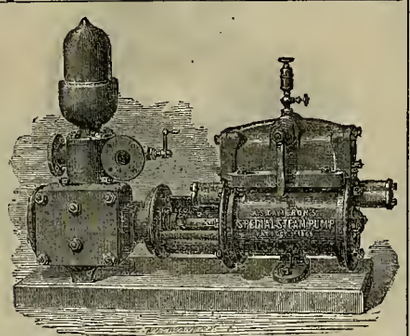

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We have this day admitted Mr. William R. Eckart as a member of our firm, the business of which will be hereafter conducted under the firm name of Prescott, Scheidel & Co. PRESCOTT & SCHEIDEL.

Marysville, Jan. 8, 1872.

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Referring to the above, we respectfully solicit the patronage which has for the past twenty years been enjoyed by our predecessors, pledging our best attention to the wants of all who may so favor us.

Quartz and Amalgamating Machinery,
SAW AND GRIST MILLS,
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☞ Superior to any in use.

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Improved Stop Governor,

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Particular attention paid to Ores received on consignment.

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Notice is hereby given, that the copartnership heretofore existing between A. J. Severance, Charles W. Randall and J. Gus. Burt, under the firm name of "Severance, Holt & Co.," is this day dissolved by mutual consent. A. J. Severance, having purchased all the interest of his late partners, will continue the business of manufacturing and selling Diamond Drills, as before, under the style of A. J. Severance & Co.

Dated San Francisco, Nov. 24, 1871.
Office, 315 California street. A. J. SEVERANCE,
CHAS. H. RANDALL.
22-v23-tf J. GUS. BURT.

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BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco.

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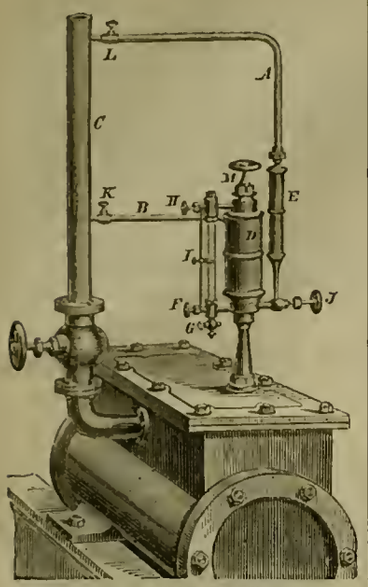

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These Lubricators are acknowledged by all engineers to be superior to any they have ever used; feed constantly by pressure of condensed water, supplied by pipe A, regulated under the oil by valve J, and forced out through check valve and pipe B into the steam pipe C; it then becomes greasy steam, passes to all the valves and cylinder at every stroke of the engine; glass tube I indicates amount used per hour. Packing on rods and stems lasts longer, and the rings on the piston will not corrode. One pint of oil will last from three to six days, according to speed and size of engine; I, sliding gauge; K, valve to shut off when engine stopps; H, F, valves to shut off in case of frost; steam does not enter the cup; it is always cool; warranted to give satisfaction. Patented February 14, 1871. Manufactured by California Brass Works, 125 First street, S. F. 24v23tf

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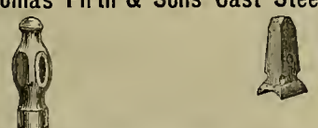

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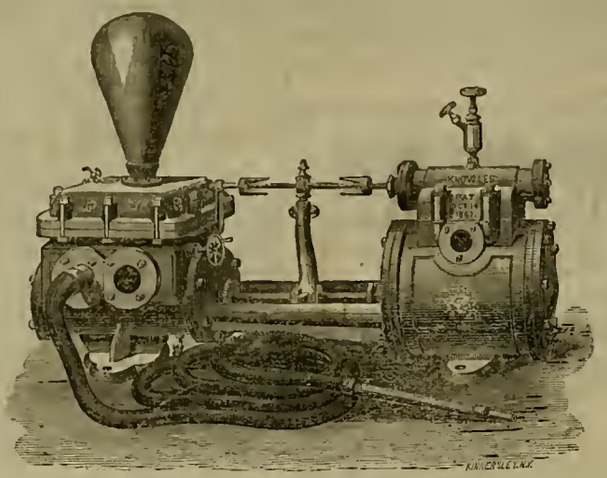

It has no Cranks or Fly-Wheel, and has no dead points where it will stop, consequently it is always ready to start without using a starting-bar, and does not require hand-work to get it past the center. Will always start when the steam cylinder is filled with cold water of condensation.

The trial of Steam Pumps at the Eighth Industrial Fair in San Francisco, by a Committee of Five of the most thoroughly practical mechanics on this coast, showed the Knowles Pump to lose but 11½ per cent., while others lost as high as 40 per cent., showing great difference in economy.

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THE LARGEST STOCK OF PUMPS IN THE WORLD,

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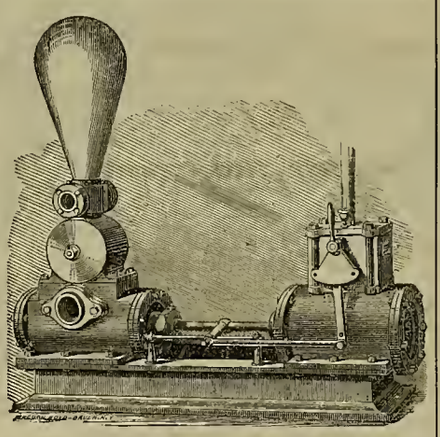

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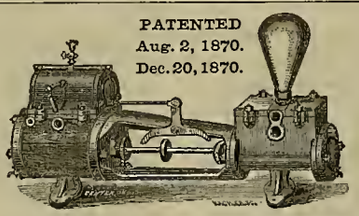
Dec. 20, 1870.



Combines Simplicity and Durability to a Remarkable Degree.

Its parts are easy of access, and it is adapted to all purposes for which Pumps are used—especially Mining.

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From American and Foreign Mines; together with the Proceedings of the American Institute of Mining Engineers, the N. Y. Polytechnic Club, and other Scientific Bodies, and

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For Roasting Rebellious Ores.

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It is Adapted to All Kinds of Ores.

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CENTRAL PACIFIC RAILROAD.

February 20, 1872.

San Francisco & Sacramento.

Leave going East.			Arrive from East.	
*4.00 P M	7.00 A M	San Francisco	8.30 P M	*2.20 P M
4.35 P M	7.35 A M	Oakland	8.00 P M	1.50 P M
4.10 P M	7.50 A M	San Jose	8.30 P M	2.10 P M
5.35 P M	8.35 A M	Niles	7.05 P M	12.45 P M
8.25 P M	11.28 A M	Lathrop	4.43 P M	9.45 P M
8.45 P M	11.50 A M	Stockton	4.07 P M	9.07 P M
10.45 P M	1.45 P M	Sacramento	2.20 P M	7.15 A M
Arrive from West.			Leave going West.	

San Francisco & San Jose.

Leave going South			Arrive from South	
.....	3.00 P M	San Francisco	10.40 A M	.....
.....	4.40 P M	Niles	8.55 A M	.....
Arrive from North.	5.30 P M	San Jose	7.0 A M	Leave going North

Stockton, Lathrop & Merced.

Leave going South			Arrive from South	
.....	7.35 P M	Stockton	10.20 A M	.....
*9.45 A M	8.25 P M	Lathrop	9.30 A M	*8.20 P M
11.35 A M	9.45 P M	Modcsto	8.13 A M	6.45 P M
2.40 P M	12.15 A M	Merced	5.45 A M	3.30 P M
Arrive from North			Leave going North	

Sacramento, Colfax, Reno & Ogden.

Leave going East.			Arrive from East.	
	2.00 P M	Sacramento	2.00 P M	
	5.40 P M	Colfax	10.20 A M	
	1.00 A M	Reno	2.10 A M	
	9.10 A M	Winnemucca	4.15 P M	
	12.00 M	Battle Mountain	1.25 P M,	
	4.40 P M	Elko	8.45 A M	
	6.20 A M	Ogden	5.20 P M	
Arrive from West.			Leave going West.	

Sacramento, Marysville & Red Bluff.

Leave going North			Arrive from North	
*8.45 A M	2.35 P M	Sacramento	1.05 P M	*4.45 P M
10.25 A M	3.25 P M	Junction	12.15 P M	3.25 P M
1.50 P M	5.15 P M	Marysville	10.20 A M	12.00 M
8.00 P M	8.35 P M	Tehama	6.50 A M	5.30 A M
.....	9.30 P M	Red Bluff	6.00 A M	.....
Arrive from South			Leave going South	

San Francisco, Vallejo & Calistoga.

Leave going North			Arrive from North	
*4.00 P M	*7.30 A M	San Francisco	*8.00 P M	*12.15 P M
6.30 P M	9.30 A M	Vallejo	6.05 P M	10.30 P M
7.28 P M	10.40 A M	Napa	4.50 P M	9.30 P M
9.10 P M	1.00 P M	Calistoga	3.00 P M	8.00 A M
Arrive from South			Leave going South	

San Francisco, Vallejo & Knight's Landing.

Leave going East.			Arrive from East.	
†7.30 A M	*4.00 P M	San Francisco	*12.15 P M	†8.00 P M
9.35 A M	6.35 P M	Vallejo	10.30 P M	6.05 P M
12.05 P M	10.10 P M	Davis	7.10 P M	3.3- P M
1.00 P M	11.45 P M	Knight's Land'g	5.30 A M	2.30 P M
Arrive from West.			Leave going West.	

San Francisco & Healdsburg.

Leave going North			Arrive from North.	
.....	*2.00 P M	San Francisco.	*11.00 A M	.....
*7.10 A M	4.35 P M	Donahue	8.45 A M	*5.35 P M
8.20 A M	5.00 P M	Petaluma	8.20 A M	5.00 P M
9.45 A M	6.00 P M	Santa Rosa	7.30 A M	3.30 P M
10.20 A M	6.45 P M	Healdsburg	6.45 A M	2.00 P M
Arrive from South			Leave going South	

Stockton, Milton & Oak Dale.

Leave going South			Arrive from South	
.....	*11.25 A M	Stockton	*4.25 P M	.....
.....	11.52 A M	C.P.R.R. Depot.	3.52 P M	.....
.....	12.42 P M	Peters	3.02 P M	.....
.....	1.32 P M	Milton	2.12 P M	.....
.....	1.44 P M	Oak Dale	2.00 P M	.....
Arrive from North			Leave going North	

CAL. P. R. R. CO.'S STEAMERS.

Leave going East.			Arrive from East.	
*4.00 P M	*4.00 P M	San Francisco	*10.00 P M	*3.00 P M
6.00 P M	.....	Vallejo	.....	6.00 P M
7.00 P M	6.00 P M	Benicia	8.00 P M	5.00 P M
.....	2.00 A M	Stockton	2.00 P M	.....
2.00 A M	.....	Sacramento	.....	12.00 M.
Arrive from West.			Leave going West.	

Explanation.

For trains running "from" San Francisco, take the left hand columns and read downwards.

For trains running "towards" San Francisco, take the right hand columns and read upwards.

OAKLAND BRANCH.—LEAVE SAN FRANCISCO, 7 00, 8 10, 9 2-, 10 10 and 11 20 a. m., 12 10, 1 50, 3 00, 4 00, 5 15, 6 20, 8 00 9.20 and *11 30 p. m. (9 20, 11 20 and 3 00 to Oakland only).

LEAVE BROOKLYN, *5 30, 6 40, 7 50, 9 00 and 11 00 a. m., 1 30, 2 40, 4 55, 6 10, 7 40 and 10 10 p. m.

LEAVE OAKLAND, *5 40, 6 50, 8 00, 9 10, 10 00, and 11 10 a. m., 12 00, 1 40, 2 50, 3 50, 5 05, 6 20, 7.50 and 10 20 p. m.

ALAMEDA BRANCH.—LEAVE SAN FRANCISCO, 7 20, 9 00, and 11 15 a. m., 1 30, 4 00, 5 30, and 7 00 p. m. (7 20, 11 15, and 5 30 to Fruit Vale only).

LEAVE HAYWARDS, *4 30, 7 00 and 10 45 a. m., and 3 30 p. m.

LEAVE FRUIT VALE, *5 25, 7 35, 9 00 and 11 20 a. m., 1 30, 4 05 and 5 30 p. m.

—*Sundays excepted. †Sundays only.

T. H. GOODMAN, Gen'l Pass'gr and Ticket Agt. A. N. TOWNE, Gen'l Supt.

THE FACTS!

There appeared in the SCIENTIFIC PRESS of February 10th and 24th, 1872, over the signature of Treadwell & Co., an advertisement of the Blake Steam Pump which reads as follows: "The Blake Pump was awarded a Silver Medal at the last Exhibition of Mechanics' Institutes, San Francisco, and State Fair at Sacramento, as being the best Steam Pumps on exhibition;" which, permit me to say, is a LIE, and BERRY & PLACE know it.

The Official Report, Class 7, Page 63, of the last Mechanics' Institute Fair of San Francisco reads in this wise: "In the forcgoing trials it appears that the most efficient Pump on exhibition is the Knowles. The workmanship on this Pump is also very good. We would therefore recommend that this Pump receive a Silver Medal. Diploma awarded."

(*Signed by the Committee.*) OEO. W. DICKEY, H. B. ANGELL, CHAS. R. STEIGER, W. EPPELSHEIMER, MELVILLE ATWOOD.

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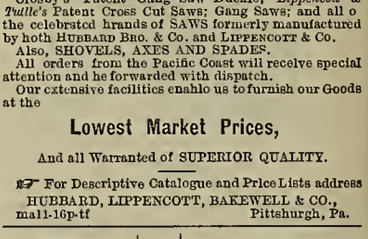

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San Francisco Office, 331 Montgomery street (Stevenson's Building), Room 32, Third floor.

J. BERTON, President.

E. P. HUTCHINS, Secretary.

N. B.—Application for Registry, or Examination and Report on Mining Property, may be made to the Secretary, San Francisco office.

SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,

Mining, Mechanic Arts and Inventions.

BY DEWEY & CO., Patent Solicitors.

SAN FRANCISCO, SATURDAY, MARCH 9, 1872.

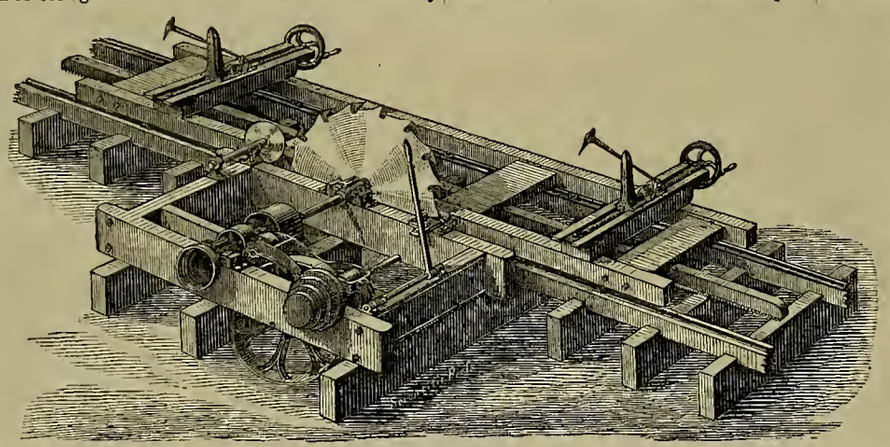
VOLUME XXIV. Number 10.

An Improved Portable Sawmill.

Onr illnstration represents one of F. A. Huntington's improved portahle sawmills, which is made so as to ba conveniently moved from placa to place as tho exigencies of lumber supply may require. It is a California dovico which fills a want in machinery for tha pioncer districts of this Coast which cannot he enpplied by Eastern manufacturers. In mountainons districts theso mills are very dcsirable, for as a general thing it is much easier to move the mill to tho timber, than the timber to the mill, nnless of conree, the location is by the side of a stream which furnishes snfficient water to floet down loge. It is the more deeirahlo on this coast from the fact that in those portione of the mountains where eufficient enow falls for eledging it nsually liee in too great depthe and of too saft a nature to admit of continued eledging, there being comperatively few freezing daye throughout onr mild winters. Our streams are very low in eummer and nnmanagahlo for floating timher during most of the winter.

Many of our early California towns were built elmost entirely of shakes, which are now largely resorted to where lumher is difficult to procnra, and where these portahle machines are then very useful in furnishing the neceeary floaring, etc. A mill of thie kind may he run either by eteam or horse power es may be deeired.

They are hnilt in the etrongest, most durahle and workmanlike manner, and are capahle of driving any eize eaw up to 64 inches. They are furnished with improved friction feed and gig back, hoth heing operated by the eame lever, no bolt heing used to gig hack. The capacity for cutting is from 8,000 to 12,000 feet per day witb 15-horse power. They are holted together so as to he easily teken apart for transportation and may he set again with equal facility. Mr. F. A. Huntington, tbe maker, No. 18 Fremont street, in this city, also builds steam engines, planing mills, lath and picket macbinee, shinglo machines, etc., a cless of home manufactures very deeirahle on this coast where lumher is eo plentiful and good. His ehingle machines are not excelled by any in practical use in the United States (or the world even), so far as we are informed.



PORTABLE SAWMILL.

THE MINING CORPORATION ACT.—Information is desired as to what has hecome of the Mining Incorporation Bill, which passed the Assembly eome weeks since. Ite long rest is ominous. Is there any ohjection to giving the partial protection to stockholders, which this bill contemplatee?

THE new iron draw of the bridge across the Mississippi river at Winona, Minnesota, is said to be one of the longest draws in the world, heing 360 feet in length.

AN ACT TO ENFORCE THE RESPONSIBILITY OF STOCKHOLDERS.—A hill was introduced into the Assemhly on the 17th ult., hy Mr. Gray, which is designad to enforco the reeponsihility of etockholdere in corporations ae preecrihed by the constitution and to provide for the prompt payment of demands againet euch corporations. It provides tbat oach etockholder of an incorporation created under the general laws of thie State, shall be held individually response for his proportion of all ite dehte and liahilitiee according to the amount of stack held by him; the term, etockhalder, applying not only to euch persons as appear hy tbe hooke to he such, but aleo to every equitahle owner of etock although the same may appear on snch books in the name of anothar person. This applies to guardians of minors and elso to avery guardien or other trustee who voluntarily invests any trust funds, euch funds not being liehle under the provicions of the Act, hut the guardian or otber trustee making the investment, to he held reeponsihle as a stockholder nntil such responsihility devolves upon the person heneficially interested therein, hy reaeon of their hecoming competent and ahle to control and diepose of the seme. In reepect to etock held by a guardian or other trustee, under a transfer hy a third person or his ordere, the person giving the directions shall he reresponsible, with certein exceptiane.

WATER RIGHTS.—A publio meeting was held at Placerville on the 23d ult., wbere resolutions were passed requsting the Legislature to define "water rights," wbich, when held in accordance witb judicial decisions and local laws and customs are declared by Congress to he vested rights, which must be protected. Parties have in many places claimed water with an avowed purpose of nsing it for mining or agricnltural operations and have made no use of it, while others, who really need it are afraid to appropriate it for fear of litigation. The terme should he clearly defined and partiee who bave a nominal ownerehip, be reqnired to make use of tbe water aacording to law or release their title to those who need it.

The Geological Survey.

The hill providing for tho continuance of the State Geological Survey for two years, and appropriating the sum of $2,000 per month to carry it on, which hed previously peesed tha House, paseed the Senate on the 4th inet. by a vote of 36 to 2. The final pessage of thie important hill ie highly gratifying to all scientiets on this Coast and elsewhere, as well as to every intelligent men who desires the dissemination of useful iaformation. We have freqnently commented upon the practical utility of the Snrvey, and its importance to the miners and agriculturiets as well as to the ganeral puhlic, for the reason that it is an earnest investigation hy ahle breins and skillful hends, of the materiel resonrces of the State. The maps now in hand will he worth much more to the people than the value of the appropriation, and the work done upon them wonld have heen lost if the Survey hed not heen carried on.

The Governor will no douht eign thie hill, as the almost unenimous vote by wbich it paesed, fairly represents the wishes of tbe people. Professor Wbitney and hie ahle corps of aesistants have labored assiduouely in carrying out the plans of the Survey and their work speeks for itself. When the map representing the extent and location of the auriferous gravel beds of this State is given to the public, that alone will prove the value of tbe Survey and the amount of work accomplisbed. The continuance of the Survey will increase the stock of scientific knowledge and benefit all the people of the State.

AN ARIZONA mining expedition is being organized at Denver, Col., under G. W. Graham. It ie to he under military rnlee, each memher furniehing a hreech loader, and revolver; 50 pouuds of haggagé allowed.

A MANUFACTORY of epools in Foxcroft, Maine, employs 50 hands. The company recently hought 1,200 acres of timber to convert into spoole.

California Academy of Sciences.

The regnlar semi-monthly meeting of the Academy was held on Monday evening last, Professor Kellogg in the ahair. Several new mambere wore propoeed. A letter accepting the Presidency of the Academy wae received from Prof. Georgo Davidson. A nnmber of

Donations

Were made to the lihrary, among them a Germen pamphlet on the suhject of Australian ants, and several communicatione on scientific euhjecte. Mr. Hanke preeented to the cehinet a fine specimen of brown jasper teken from a large vein of the same material in the neigbhorhood of Murpby's Camp. He aleo presented a specimen of tourmaline.

The Transit of Venus.

Communications were received from Prof. Davideon and Rear-Admiral Sands of the National Observatory, in relation to the neceseity of Congressionel appropriaton for ecientific ohservations of tbe trenseit of Venns across the disk of the snn, which will teke place in 1874. The principal European Governments have teken eteps in the matter, and the United States ehould aleo coöperate in a work so important to aetronomical science. The eecretary stated thet he had elready succeeded in getting a number of eignatures of prominent ecientiets on thie Coaet, asking the necessary eppropriation. Tbe Preeident and Secretary were authorized to sign the memorial for the Academy.

Shell Mounds.

R. E. C. Stearns gave tbe reeult of his ohservation of the numeroue ehell mounds in Florida, particularly in the neighhorhood of De Soto's supposed landing, where there were two clesees of mounds, earth mounds and shell mounds. The earth or burial maunds contein hut few ehells. The sbell mounds were compoeed of alternate layers of shelle and aehes, wbich alternation he eccounted for by the periodical visite of the Indians end their burning of gress, and then throwing over freeh deposits of shells. In connection with thie he incidentally investigated the euhject of the reported ahundence of pearls in Florida in the fresh water mollusks which are referred to in the works deecriptive of the visits of De Soto. His experience was to the effect that the fresb water mollusks yielded no pearls of eize or value. In the earth or hurial mounds he found arrow heads of cbalcedony and fragments of pottery.

Dr. Gihbone gave the views of a writer wbo advanced tbe tbeory that tbe mound worke being similar ovor the world, their origin ebould be attributed to the eame race. Mr. Wetmore referred to eome interesting developmente made in tbe ehell mounds in South America. Judge Hastings also spoke on the same subject.

The diecussion of tho subject of aerolites wae postponed until next meeting, and the Academy adjourned.

CORRESPONDENCE.

Mining at West Point.

EDS. PRESS:—West Point is in Calaveras Co., California, a quartz-mining town between the Middle and North fork of the Mokelumno river, eastward from Mokelumne Hill, and 16 miles by stage road; its olevation is about 2,800 feet above the sea. The climate is good and but little snow falls duriug the winter season. The bed-rock is granite, the lodes are narrow and in most cases rich in gold and sulphurets, and are fonnd to increase in width as they go down to the depth of 100 to 300 feet. Mining and milling at one time seemed to be two separate occupations, but of late they work to much better advantage conjointly. This section of country has been worksd by Mexicans, who, as a general thing, hunt for rich pockets and those near the surface. They seldom go deeper than 50 feet, and when they find water or blasting ground they give up the claim and go after new deposits. In early days there were upwards of 100 men engaged in this class of mining as their regular business.

Quartz Mines.

In the neighborhood of West Point there are quite a number of good quartz mines being opened and prospected, some of which have besn idle for years until this season, one great advantage bsing that most of them can be worked and put in a paying condition with a small outlay by the owners.

Last summer the little town of West Point was extremely dull and the storekeepers wero anxiously looking for some one to purchase their goods, but now a change has come; the blacksmith has plenty of work and the stores have orders for miles around, which keeps them busy packing their goods to the newly opened mines.

Since the advent of A. Bateman, Esq., who took hold of the splendid property known as the Zacetara mine, at Skull Flat, and made it a success, it seemed to have inspired others with confidence that West Point will soon come out, redeem itself, and take its stand among the prominent quartz districts of the State.

The Bartolo Mine

Being superintended and worked by the energetic J. A. Lefoy, Esq., stands well, and will be a good property. The record of this mine is extremely good. It is being worked by shaft.

There is also the

Paine and Mexican Mine,

One and a half miles from West Point, which has a good reputation aud is being opened by means of a tunnel, and which promises to soon show some rich devslopments. This mine is to be worked by a San Francisco company.

We are in hopes soon to see the famous

Billy Williams Mine

In working order, it having been lying idle for some time. This mine has a tunnel in to pay rock, the ledge showing ore of a first-class character of from 13 inches to 2 feet in width, and will only require a small outlay to make it a paying institution. It is situated one mile from the Zacetara mine.

We were told of a new location a short distance from town on the North Fork of the Mokelumne river known as the

Woodland Mine.

It was discovered by Mr. Geo. L. Swan of this place, and purchased, and worked by a San Francisco company; it makes a good showing. They have a tunnel in 100 feet with good walls and a well defined ledge; they have passed over two chimneys which carry paying quartz in quantity. The ore shows free gold in small quantities, and will all pay a handsome profit for milling. The dump pile shows from 40 to 50 tons of good ore.

The Eagle Mine,

Just across the rivor, which is the dividing line between the two counties, is a good paying property. Mr. J. B. Pine is superintendent and owner with parties in San Francisco. This mine has been worked by Mexicans in years past, who did not go deep or through the hard granite rock, and as they were discouraged with the result, Mr. Pine purchased the mine aud continued the tunuel through the hard granits, aud is now in some 280 feet with a fine ledge of 3 feet in width showing rich sulphurets and free gold. Thc last crushing made about the 1st of February resulted in a clean up at the rate of $65 per ton. This mine has a 10-stamp mill on the bank of the river which is run by water power. The ledge on which the Eagle mine is located has besn traced across the Mokelumne into Calaveras county for a distance of four miles, and the Woodland mine spoken of above is considered to be on the same ledge as is also the Harris mine.

Then there is the Brown mine on the same side, which is being worked by a San Francisco company, and bids fair to be a good investment with a small expenditure of money; they have a well defined ledge of 2½ feet which they are working through an open cnt.

The mining laws of West Point give 200 feet on a vein to a claim and require one days work every month to hold it.

"CROOKS."

West Point, Feb. 21.

Ophir, Utah Territory.

EDITORS PRESS:—In every issue of the PRESS I notice items gleaned from the Salt Lake *Tribune* treating on the different districts of this Territory, Ophir getting its share of notice of course. But I seldom see an Ophir letter. In behalf of the intersst of your many readers who have never visited this camp,—minsrs, those who have interests here and others—I will give a description of

Oquirrh Range

And its districts. Oquirrh is a district range, though only abont 50 miles in extent, flanked with the Wahsatch range on the east, and the West mountains on the west; with 20 miles miles width of valley intervening on each side.

To convey to the reader a more definite idea of the location of the several districts aud towns, I will make Salt Lake City the starting point. Leaving the city from its west side, crossing over Jordan bridge, and continuing in a southwesterly direction for 13 miles, brings us to Chambers's place, at the north end of the mountain; 3 miles of up grade now brings us on the west side of the range and in full view of Great Salt Lake—a few more miles and the town of "E. T.,"—thence to Tooele, (dinner station), the county seat of Tooele county, distance from Salt Lake City 28 miles. Up the Cañon back (east) of the town is Tooele district; no mining of consequence is going ou here. On tho east side of the range, nearly opposite to this district, is Bingham Cañon; distance from Salt Lake City about 27 miles; direction south, and the only district on the west side of ths range. From Tooele a few miles and we lose sight of Salt Lake, but only to come in view of Stockton Lake; to Stockton, 10 miles. All of this distance by the old overland road, and all the way quite picturesque. Stockton is a pleasantly situated town; its smelters and hardy men give the first evidence of a mining town community. It is one of the oldest, if not the oldest district in the Territory. They have apparently well defined ledges, though generally low grade. From here we go up, up, up past the mouth of Dry Cañon, to East Cañon 9½ miles. Here we encounter mills, smelters and arastras until we reach

Ophir,

Two and one half miles further np. Ophir is a mining town, but includes among its 450 inhabitants some very fine families. This district takes in three cañons: East, Dry, (on the north) and Silverado (on the south side). It contains more mines, and in a greater variety, than any other; but having been struck, as they were, by a class of poor and inexperienced miners, it is sadly wanting in development, yet many of the mines are developed sufficiently to prove that we have defined leads and vast bodies of rich ores.

I will mention some of our mines at another time. In

Dry Canon

Some very good mines are opening np. Several heavy companies are carrying on miniug to quite an extent. Some of our best base and best chloride leads are here.

On Silverado Hills

Have been found the richest ores in the country; though, as is usually the cass, they have not extended to any depth; there is now, however, a chance of an exceptiou to this rule, as one of the Silverado mines abouuds in hornsilver at the depth of 50 feet. Six miles from Ophir brings us to

Camp Floyd

District, which also abonnds in rich ores. There is another small district at the terminus of the range. These cañons all cut the range at a right angle and run up in an easterly direction.

The Mineral Belt.

From the extreme sonth nearly to the north end, seems to be a continnons mineral belt varying in width from 1 to 4 miles. From the middle of the south end of the range wood is plenty, and will be for years to come, for all milling and smelting purposes. Up the cañon a few miles above Ophir, is plenty of lumber of fair quality. Water is plenty and very good. Thus, you see, Nature has anticipated and kindly supplied our wants.

Our mills and smelters are nearly all closed at the present time. Walker Bro.'s mill has a large qnantity of ore aud wood on hand and contemplate a long run. The English Company are making preparations for a heavy season's business, judging from indications.

Old winter has been very severe, bnt its white locks are growing "beautifully less" and he is dying a uatural death.

LUDLOW.

Ophir, Feb. 21st.

Banner District, San Diego County.

EDITORS PRESS:—A few items from this place may be interesting to the readers of your journal. The present actual mining population is abont 150. There are three quartz mills, two of them run by steam power and the other by watsr. There are two boarding houses, three stores and three saloons. Ten mines are at present taking out quartz, and a number of other Cos. are sinking shafts and running tunnels. Cordwood is worth $3.50 and $4.00, delivered at the mills; mining timbers, 12 and 22 cents per lineal foot delivered at the mines; lagging, 14 cents each, delivered. Lumber scarce, $60 and $70. They charge at the mill for crushing rock $7 and $10 per ton. There is plenty of water all the year round for milling purposes.

The Mines.

The Golden Chariot mine has let a contract to sink a shaft 100 feet deep; I do not know the figures. This Co. is having 45 tons of rock worked at the McMechan mill which is expected to pay largely; the last rock worked from this mine paid $182 per ton.

The Redman Co. have leased the Bailsy mine and have a force of men getting out rock, which will keep the mill running steadily. At the Kentuck mine ths ledge looks well at present, the last two crushings averaged about $50 per ton.

The Madden mine is producing better rock than at any previous time since its discovery.

The Antelope Co. struck the lsdge in the cross drift two days ago; the quartz looks very well, and a wide vein is in sight.

The tunnsl of the Big Blne Co. was in yesterday 280 feet. There has been 50 or 60 tons of rock worked from this location, paying $112 per ton; there is no defined lead, but bodies of quartz here and there in pockets and nodules, apparently having no connection and lying in all conceivable shapes. It is possible these nodules are all from one chimney, but it has not yet been found.

Wilson's steam stamp mill started up day before yesterday, and works admirably.

QUARTZ.

Our Mines on the London Market.

The *Alta* takes the following extract from a private letter written by a gentleman who left here for London early in December last, with the intention of placing one of our California mines on the English market:

"I had on reaching London (on the 3d,) first-class letters of introduction to many of the leading honses in the mining business, and after making inquiry I decided not to use a number of them, as this kind of investment is in snch bad odor that it is rather throwing away weight to make use of people who do not understand that some of our American mines are not swindles. I set to work as soon as possible, explained all, and gavo the whole affair as good a character as I could, but fouud plainly in about ten days that this mine business is so utterly run into the grounds in London, and such an outrageous amount of swindles passed off of late, that it was sheer waste of time to try it any further. I had from excellent authority that pressing the matter now would be useless, as people would not touch American mines on any account.

"We were jnst two months too late. Some man in particular has floated quite a number lately, many of which are quite worthless. People are not only shy but indignant, and you see a broad grin stealing ovor their faces when you mention the word "mine." In fact, I think I could at present sell the most barren portion of the Sierras for Agricultural purposes more easily than the best mine on the Pacific Coast."

Characteristics of Mineral Veins.

Prof. Smyth in one of his recent lectures before the Royal school of Mines in London, remarked as follows:

One of the most important questions connected with the deposit of minerals in true lodes is whether the country or rocks in which they occur produce any effect on their metallic character. If we take the opinions of the most practical and observant miners of different districts we shall find that they lay stress not only on the facts that ores of particular sorts are found in certain rocks, but much more than that, for they say that ores in abuudance are to be met with more frequently in certain varieties of those rocks. Thus, it is not enough to say that a rock is granite, but rather what is its physical condition, and in that respect granite is extremely variable. Again, it is important to know whether particular classes of rocks have bsen more subject than others to open and admit the miuerals introduced into them, or whether the agencies by which the minerals were introduced may themsslves have produced the changes observable in the containing rocks.

Most of the crystalline or igneous rocks contain ores of one sort or anothsr, aud also that granite is most noticeable of all, as being, as it were, the great parent of tin ores, and as contaiuing not unfrequently gold, silvor, copper, lead, antimony, and iron. If we look at the geological map of Cornwall and Devon we shall see great bosses, as it were, of granite protruding from the clay-slate, and that all the more important groups of mines occur very near (that is, within two or threo miles) to the edges of these granite bosses. Of course, there are exceptions, but even in those cases it may bs the granite is not far off below, although it is not seen at the surface. There was a not uncommon impression years ago, and indeed it is held by some persons even now, that granite is unfavorable to copper ore; but there are many notable examples of very important copper mines in ths granite, and that opinion, therefore, is not of much value.

As to tin, there is no doubt but that the larger portion of the mines for that metal are in the granite or its immediate neighborhood; and in some cases, where the shafts are sunk on the killas, they reach the granite in the depth below. Schist, mica-slate, and olay-slate are all rocks yielding ores in large quantities of different kinds. Limestones are extremely prodnctive of lead ores. Limestones also are productive of silver ores in Chili and South Australia, and are noted generally in those countries for their argentiferous lead. In this country, however, the limestones in some districts are important as producing iron ores of an excellent quality; and, again, in Belgium and Westphalia they yield valuable ores of calamine. In Spain there are several valuable mines of lsad in a particular kind of limestones. Syenite; porphyry and greenstone are all worthy of a great amount of study, as in certain conditions they yield large quantities of valuable ores.

The character of a lode in the neighborhood of a crossing is frequently found to be greatly different from that which is found in other parts of the same vein, and it is worthy of mention that the rarest metals, snch as cobalt and nickel, as well as silver, are freqnently fonnd near these crossings.

JESSE MEYERS leaned against a shaft revolving three hundred times per minute, in a Muncy, Ind., slaughter-house. He was undressed in about ten seconds, but, strange to say, he was not at all injured. His coat, pantaloons, and vest were doubtless made of shoddy.

Scientific Progress.

Spiral Leyden Jar.

According to a writer in the *Philosophical Magazine*, a spiral Leyden jar may be constructed as follows: "A strip of tinfoil, four feet long, and eight inches wide, is placed in the centre of a strip of vulcanized caoutchouc four feet long, and one foot wide, in such a way that at one end (say the right) there is a margin of four inches of caoutchouc, and at the other (the left) four inches of tinfoil. A second piece of caoutchouc, of the same dimensions as the first, is placed over the tifoil, the ends coinciding with the first piece of caoutchouc. A second piece of tinfoil, of the same width as the first, but four inches shorter, is then laid on the second caoutchouc, with its right-hand end over the end of the first foil, its left end of course falling four inches short. A brass wire with a knob is laid across the end of the upper foil. The whole is then rolled up from the right end, and bound. What was the lower of the two foils projects between the two layers of caoutchouc, and may be prolonged around the circumference of the roll. It forms the outer coating, or earth surface. What was the upper coating of foil now corresponds to the inner coating of the ordinary jar, and is entirely covered, excepting when it is prolonged by the wire and knob at the centre of the roll. If the sheet caoutchouc be one-eighth of an inch in thinkness, a jar of very great electrical capacity is obtained."

An Astronomical Problem.—One of the greatest unsolved problems in astronomy in our era is the combined system of movements of the stars of our own sidereal system. It is worthy of the application of the highest talents and of the largest learning, and it seems to invite especially the devotion of young men who may make it their life-long labor. There are at least four aids and encouragements to undertake the work; first, the form of our sidereal system, which is a ring with an interior disk-like stratum, and both the ring and the stratum lie in the same plane; secondly, our position in the system, which, as already shown, is near the center; thirdly, the origin of the system and its motions, according to the nebular theory; fourthly, the present calculable influence of the stars on one another, such particularly whose distances are known.

The aid we may receive in the solution of this great problem, from our position near the center of our sidereal system, may be estimated by our relation to our solar system. How much more simple would the motions of the planets appear from a central point, like the sun, than from a half-way position, as on our earth! Knowing, therefore, our stand point in our sidereal system, we may put together the motions of the fixed stars with the more confidence and hope of final success in unraveling the great mystery of their intricate dance.—*Ennis.*

Estimation of Graphite.—F. Stolba communicates the fact that it is possible to determine, accurately enough for practical purposes, the percentage of carbon in commercial graphite by simple combustion in the air. He employs for this purpose a simple Bunsen burner, and announces that the burning of a few grammes of graphite is by no means so difficult as is generally supposed. The author places a weighed portion of the finely powdered and dried material in a platinum crucible, having a punctured cover. The crucible is placed over the flame in an inclined position, and the cover is placed so as to leave one-fourth of the same open. By this arrangement, by which a good draft is secured within and occasional stirring of the material, a few hours completes the operation, leaving the ash in an excellent condition for further analysis.

Marbleized Glass for Buildings.—It is not unlikely that a new building material will soon be introduced to the public, that promise to work quite a revolution in the style of buildings. A gentleman from New Albany has invented a plan for the manufacture of marbleized glass of such perfection of pattern and exact imitation that it requires the closest examination to detect it from genuine marble. This glass can be made plain, white or variegated, to suit any taste or requirement, the Louisville *Ledger* says, and can be made from one to two inches in thickness at the New Albany Plate Glass Works. It is claimed that for ornamental house fronts, floors or pavements, this marbleized glass is superior to marble in durability. It will maintain its colors, they being indestructible. A patent on this invention has, we understand, been taken out, and it is claimed that the great cheapness of this marbleized glass, as compared with marble, will bring it into general use for house fronts, floors and ornaments.—*Chicago Journal.*

Interesting Facts with Regard to Iron and Cadmium.—Dr. Schönn announces that the metal cadmium may, under certain circumstances, be rendered indifferent to the action of acids. It has long been known that iron, if plunged into acid of a certain degree of concentration acquires a peculiar surface condition, rendering it indifferent to the action of the strongest acid. Iron which has undegone this surface change has been termed passive. It appears, too, that such iron has acquired some peculiar physical qualities, since it will form a galvanic circuit with ordinary iron; the changed metal behaving electrically negative to the other. That such iron has really been decidedly altered in character is evinced again by the fact that it refuses to reduce copper from solutions of its salts.

It appears, from Dr. Schönn's observation, that if cadmium is wrapped with some platinum wire, it may be placed, without being in the least acted upon, in strong nitric acid; though if the wire surrounding is removed, or if the acid is diluted, the cadmium is instantly attacked, thus showing that the passivity of the cadmium is due entirely to its contact with the platinum. The same author has shown that tin will give the same phenomenon.

Consumption of Smoke.—At the November meeting of the Scientific and Mechanical Society of Manchester, England, the discussion turned on smoke-consuming furnaces. After a thoroughly scientific *expose* of the generally accepted theory of smoke-consumption, and of the hundred and one inventions, self-acting and otherwise, that have been applied for this purpose, the practical experience of the members was brought to bear upon it. Self-acting apparatus was voted to be of no practical use whatever. The system of admitting air behind the bridge found a few supporters, but after being brought to the test of experience, even with all its appliances of hollow fire-bars and perforated bridge, its advantages were found to be very doubtful. The opinion of the majority of the members was, that a short dead plate, with perforated fire-door, and an efficient stoker, is the best smoke-consuming apparatus extant, and coupled with plenty of boiler power, to avoid forcing the fires.

Action of Light on Cane Sugar Solutions.—M. Raoult communicates the fact that a solution of cane sugar may be converted into grape sugar (glucose) under the influence of light. The observation was made in the following manner:

A concentrated aqueous solution of cane sugar was placed in glass tubes, which were sealed while their contents were boiling. These were placed near each other, under the same conditions, with the sole difference that one was kept in total darkness, while the other was exposed to the bright daylight. Several months later the tubes were examined, when both solutions were found, under the microscope, to be free from vegetable matter. The solution, however, which had been in the light, at once gave an abundant red precipitate with a copper salt on addition of a free alkali (the test for grape sugar); while the contents of the tube kept in the dark, gave no sign of the reaction.

Gas Pokers.—It is only quite recently that anything has been done to obviate the trouble invariably attendant upon kindling fires. Various fire kindlers, such as cakes of rosin and sawdust, etc., have been introduced, and found very serviceable: but the latest and most original effort in this direction is a "gas poker;" simply a hollow iron tube, shaped like a poker, with perforated holes in one extremity, and the other arranged with a flexible tube, of sufficient length to connect the "poker," when thrust into the stove or grate, with the nearest gas burner. This done a match will light the gas, and in a few minutes you have a fire, whether of wood or coal, without any trouble or litter. Any kind of coal but anthracite may thus be readily lighted. For city use, or where ever gas is used this is the simplest and most effective idea yet brought out.

Mechanical Progress.

Wood Carving by Machinery.

There seems to be no limit to the adaptability of machinery to the arts, whether for manufacturing or decorative purposes. For machine carving several different processes have been devised; none of which appear to be so simple or really artistic as the one latest announced, the object of which is to impress upon wood, by charring it, any design however elaborate. This process may be described substantially as follows:

This object is effected by engraving the design upon the face of hollow iron cylinders, the lines forming the design being left raised as in wood engraving. According to the kind of work required, the cylinders vary in size, from a diameter of a few inches to above two feet. The cylinder is fixed on an axis, and adjusted by means of screws and a lever to the proper distance from another cylinder, which is not engraved. To make this adjustment correctly and to secure the uniform rotation of the engraved cylinder, one end is closed, except the hole into which the axis is screwed and a few small holes to secure the free circulation of air. Two gas pipes are passed into the engraved cylinder; through one of these gas is supplied, and it is ignited, the jets being so placed that they play against the side of the cylinder. A second pipe, also perforated with holes in the sides, is supplied with air, by means of a rapidly revolving fan. By this means a powerful blast is urged upon the gas flame, and a most energetic blow pipe is formed. The gas flames, which played at first steadily against the side, now sweep with a roaring noise the interior of the cylinder, which notwithstanding the mass of metal, can be rapidly made red hot throughout by its action.

The cylinder being sufficiently hot a smooth board is pushed between the two cylinders and subjected to considerable pressure. By this the design, which is upon the roller, is pressed and burnt into the timber, every line being faithfully and deeply marked. Plank after plank passes on through the rollers in steady order, so that in a comparatively short time many hundred feet may be thus impressed with the pattern on the cylinder.

Where there is a continuous pattern, as for mouldings, the cylinder is small, and is, of course, with every revolution repeating itself. Where ornamented panels are required, the circumference of the cylinder is the length of the panel, and boards of the same length are regularly passed through, every one of them receiving a repetition of the pattern. The heat of the cylinder can be regulated with very great nicety, by turning the gas on or off, and by adjusting the supply of air to the blow pipe.

When the board has passed through the charring operation, it passes to the workman, who scrapes it down over the entire surface, so as to bring out the lights, and produce the best effects. When this is accomplished, the surface is varnished or polished and the result is an ornamental panel or moulding of the greatest beauty, and of remarkable permanence.

White woods, as sycamore and lime, are employed for this work. It is easy also, by this process, to give to the less expensive varieties of wood the peculiar characteristics of the more expensive kinds; rosewood and walnut are very excellently imitated, and upon these again any pattern can be impressed.

The advantages of this process appear to be the facility and cheapness with which we can place on wood the most artistic designs; it is not of course applicable to the production of a single specimen; but, where we have to repeat the same design, with every repetition the price is reduced. The beautiful sepia, or chocolate color, received by the woods employed in the process are especially pleasing.

Any person who has whittled down a piece of charred, fine grained, white wood, will at once call to mind the beautiful and variegated shades that can be readily produced by cutting more or less deeply into the charred surface.

A mixture of glycerine and litharge forms a durable cement, which will resist a temperature of 275°. It sets rapidly, and should be used immediately after mixing.

Fire-Proof Wood for Buildings.

The destructive fires of the year 1871 have directed public attention more strongly than ever before to the necessity of more secure provision against this danger in the construction of our dwellings, shops and stores. In the denser portions of large cities, a law forbidding the erection of frame buildings of any kind is manifestly just, and removes in a very great measure the liability to wide-spread conflagrations like that at Chicago. But in other localities in the suburbs of cities and towns, villages and rural neighborhoods, wood will continue the ordinary material for building, and people who choose it for economical or other reasons cannot be compelled, even were such a measure desirable, to adopt brick, stone or iron in its stead.

It is, therefore, a fact worthy of general notice that wood may be rendered, without great labor or expense, nearly as capable of resisting fire as brick or stone. This is done by soaking the dried lumber a short time in a solution of soluble glass, a silicate of soda or potash, after which it is immersed in lime-water, by which the silicate of soda is decomposed and the pores of the wood filled with a silicate of lime. This substance is fire-proof and cannot be dissolved in water, and its presence and effect in the fibre of the wood are, therefore, permanent. Soluble glass is readily obtained, being already largely used for various purposes in this country. There is no patent upon the process, and it can therefore be used by any builder or lumber dealer.

The comparative cheapness of frame buildings, in the erection of which the tastes of the owner as to style and ornament may be consulted with but a moderate tax upon his means, will maintain their popularity at least until some equally convenient and inexpensive material is discovered. A process by which their exposure to the ravages of fire can be remedied in so great a degree is of too great value to the community to be lightly overlooked.

Coating Metallic Objects With a Black-Brown Varnish.—On the bottom of a cylindrical cast-iron vessel, 18 inches high, is placed a layer, one-half inch thick, of coal-dust (bituminous of course); upon this is placed an iron grating, and thereon are put the iron, steel, or other metallic objects intended to be coated with the varnish. The vessel, having been first closed with a well-fitting lid, is next placed on a bright coke fire, and heated for about a quarter of an hour just to an incipient red heat. The vessel is then removed from the fire, and on the lid being removed, after about ten minutes, the metallic objects will be found coated very uniformly with a good and durable varnish, which resists bending, as well as a high temperature, without cracking or coming off. Very small objects, such as hooks-and-eyes for instance, are better placed along with some coal-dust in a coffee roasting apparatus, and this turned, as is usual in the roasting of coffee, until the metallic objects have obtained the desired depth of color and are uniformly coated with the varnish.—*Chemical News.*

A Buffalo man must have the credit for the most novel invention yet proposed for propelling boats on the canal. The power is not attached to the boat, but the entire body of water in the canal is moved, and the current thus created is used as the propelling power. The plan embraces a wall laid in the center of the canal its entire length, dividing it into two equal channels. At the head of each level is placed an immersed wheel of peculiar construction, which is moved by a stationary engine, and the action of which is to throw the water from one of the channels into the other. A current is thus created from the machinery in one channel, and toward it in the other.—*Artisan.*

A new safe has been invented which makes things very unpleasant for burglars. The walls are filled with gunpowder in such a manner that the blows of a sledge or the cutting of a chisel in the attempt to rob the safe will ignite the powder, blow off the outer crust, annihilate the burglar, and leave the contents of the safe uninjured.

The smallest steam engine in the world is said to be in Greenwich, England. It will stand on a three-penny piece; so small are some of the parts that they require a powerful magnifying glass to see their form. The whole weight of the model is less than three-penny weight. When working its crank shaft performs from twenty to thirty thousand revolutions in a minute.

MINING SUMMARY.

THE following information is condensed mostly from journals published in the interior, in close proximity to the mines mentioned.

California.

ALPINE COUNTY.

MONITOR MILL.—Monitor *Miner*, Feb. 24: The Monitor mill is shut down for a few days, to give time for an investigation into the cause and hit upon a rsmedy for the great amount of iron in the amalgam.

AMADOR COUNTY.

MINE IMPROVING. — Jackson *Ledger*, Feh. 25: Work on the State of Maine mine is being vigorously carried on, and the ledge givss hetter evidence of value as work progresses. After the first of March the working force will he increassd, and the mine worked day and night.

WORLEY CLAIM.—The claim recently discovered near Drytown, is turning out remarkably well. The owners have erected hydraulic works with a fall of 110 ft. which enablss them to wash up a large amount of dirt daily. The pay gravel is now 5 ft., in depth, and pays largely.

PAUGH MINE.—Work is progrossing rapidly; in sinking the main shaft, a few days ago, the workmen came upon a body of very rich rock having the appearance of heing extensive and permanent. The ledge is well defined.

PHOENIX.—Very rich rock was struck last week hoth in the north levcl and bottom of the maiu shaft, now snnk to the depth of 600 ft. The ledge in hoth the shaft and level, is well defined, hut the extent not yet ascertained—7 ft. in width baving heen exposed without reaching the walls. The entire mass of rock recently discovered will yield at least $15 per ton.

ALPINE MINE.–Very ricb rock was struck last week, in sinking the main shaft; the shaft is over 250 ft. in depth, and the entire rock hetween the walls will yield, by ordinary mill process $20 per ton. The ledge is full 3 ft. in width.

UNION QUARTZ MINE.—Jackson *Dispatch*, Feh. 25: Work has heen resumed on this mine, situated on Jones' Bar on the Mokelumne river. The shaft is 60 ft. deep; at which depth the lead is 4 ft. wide and yields a prospect of $15 per ton.

CASCO MINE.—Work will soon be resumed on this mine, which is at Middle Bar on the Mokelumne river.

BUTTE COUNTY.

RICH STRIKE.—Chico *Enterprise*, March 2d: Some gentlemen from Chico while prospscting last week on the ridge South of the North fork of Butte Creek discovered a mineral deposit which prospected from 15 to 50 cts. of gold to the pan.

CALAVERAS COUNTY.

QUARTZ.—Mok. Hill *Chronicle*, March 2: We hear very favorable reports of quartz operations in Angels. A first-class quality of ore is being taksn from the Stickles mine npon which new machinery has recently been erected. The lead is looking tip top. A "clean up" was made this week, after a short run, and $1,400 obtained. The Big mins is also doing splendidly, the ledge showing better than at any other point in the shaft.

GOOD rock continues to bs taken from the Prussian Hill mine near Railroad. The ledge is steadily improving.

EL DORADO COUNTY.

ORR'S STATION.—Cor. Placerville *Republican*, Feb. 29: On the 25d ult. Romondo & Co. of Hogg's Diggings, took from their claim 3 nuggets, the largest of which weighed 92 ozs. The value of the nuggets was $1,719.

UNIONTOWN.—Cor. same: Steckslager & Co. are driving ahead at their ricb claim, and are shoveling out the dust. G. Kliеber is working ground that will pay well.

NUGGET.— A "Chinee," a few days since stumbled upon a lnmp which be sold to C. W. Brewster, last week, for $170.

KERN COUNTY.

Bakersfield *Courier:* The tunnel designed to reach and drain the Snmmer and Big Blue leads at the deep level, in Kernville, has been brought to completion.

LOS ANGELES COUNTY.

SHIPMENTS.—Los Angeles, Feh. 28: One hundred and forty two sacks of silver ore, received from the Clark dist. and over 2,000 bars of hase bullion, from Cerro Gordo are waiting shipment at San Pedro.

NEVADA COUNTY.

SCOTT'S FLAT. — Nevada *Transcript*, March 2: Merrow, Dean & Co., have made one run and cleaned up $1,400. They have the claims ahout clear, and will have bigger returns. Ashburn & Co. have their flumes nearly completed, and are washing.

LOCATION.—The Ivanhoe Co. have located 1,600 ft. on a quartz ledge, called the Knights of Malta ledge, in Grass Valley township.

SHUT DOWN.—It was reported yesterday that the North Star mine, at Grass Valley, shut down on Wednesday night.

GOOD PAY.—The claims of Roberts & Co. at Bunker Hill, are yielding over $10 per day to the hand, and they are getting hetter every day. The yield during the last 10 days has heen about $600.

BLUE TENT.—The Sailor Flat Co. is working day and night. They are washing off a large amount of gravel.

Belden & Co. are working day and night.

Killham & Co., have a prospect for a splendid season.

EUREKA.—The Eagle Co. has heen running powder drifts this winter.

The Illinois Co. has bsen washing at intervals during the winter, and the resnlt has been flattering.

Atwater & Knotwell's claims bave not been worked during the winter. This is a good mine, and it is reported that a tunnel is soon to be run to give sufficient fall for working.

The Boston mine is at Woolsey's Flat, and has been worked continuously during the winter with excellent results. A large force will be employed in the spring.

The Blue Bank Co. bas not heen worked dnring the winter, except the running of a bed rock tunnel, the work being done ou contract by Rich and Blight.

The X. I. X. claim, has been unworked for some time, in consequence of a large cave wbich filled the diggings with clay.

The Narrow Road will be worked in the spring.

Orleans Flat is improving; 2 sets of claims have heen worked during the winter.

Kleese & Co. have "cntting up fall," and Johnson & Co. have been sluicing.

The Canadian quartz mine, on Wolf Creek, has heen doing well during the winter, making some splendid runs. One of the finest 8-stamp mills in the county, run by water power, is on the mine. It is reported that this mine was sold to an English Co. two weeks ago for $120,000.

THE SITUATION.—G. V. *Union*, March 1: Eureka mine bas considerable trouble with water. Sinking the shaft continues with all possible energy, and it is down 965 ft. from the surface. The mill has heen runuing with 15 stamps, but the gold yield does not pay the expsnses of the mine. Idaho mine never looked hetter at any time in its history. It is paying largely and regularly. North Star is put to all it can do with its very large pumps to keep the water down. The ore coming ont is very good. Empire mine, on Ophir Hill, has not been paying for several mouths. Knight of Malta mine has made a contract hy which machinery for prospecting will he put up and started at a very early day. Perrin's miue is in good rock with a 2 ft. ledge. The Coe is pumping to keep the water out. It is said that a contract will be let to-day for taking out rock. The last ore that came out of the Coe looked well. Henston Hill is being worked by 13 practical miners, who take out trihute. They are getting out splendid ore. The good rock comes from 150 ft. on the incline and will pay about $100 to the ton. Defiance is heing rapidly opened, and is showing well. Daisy Hill is the promising mine of the dist. Not a crnshing from this mine but has paid well. The ledge is large and shows free gold and sulphurets.

CHISPA.—Last Friday W. Pierce, who was engaged in sluicing near the Daisy Hill mine, found a lump of gold weigbing 2 ounces.

GOLD BRICKS.—We saw yesterday at Findley & Co.'s Banking House, 2 gold bricks, of the value of $17,000, the result of 2 weeks run of the Idaho mine.

DEER CREEK.—Grass Valley *Republican*, Feb. 17th: A crushing last week of 190 tons of ore from the Wyoming ledge averaged $27 a ton. The old Nevada quartz mine is developing a superior hody of ore at a depth of 75 ft. below the bed of Deer creek. The ledge is from 3 to 10 ft. wide, and the rock they are hoisting will yield from $17 to $25 to a ton. The Providonce mine, opposite tbe Nevada, has been leased by a Co. of practical miners who are sinking a new incline on the ledge. This is down 135 ft. from the surface, and 25 ft. below the bed of Deer creek. In the bottom of their incline they have a fine body of ore 4 ft. wide, heavily charged with sulpburets. They have already raised 50 tons of rock, taken from their incline while sinking. The incline the Co. are sinking has 2 compartments, one for hoisting and tbe other for pnmping. The Co. intend to sink their incline 100 ft. deeper hefore they commence drifting on the ledge. The Tremont mine, running parallel with the Novada and Providence, is being reopened after having heen idle for several years.

DUTCH FLAT.—At 8 o'clock Saturday, an immense hlast of 700 kegs of powder was exploded in the Dutch Flat Blue Gravel miue with splendid success, and immense execution.

DAISY HILL.—The mine displays a fine body of ore at the bottom of the shaft from 3 to 4 ft. in width.

PLUMAS COUNTY.

RICH STRIKE. — *Quincy National*, Feb. 17th: A very ricb chimney was discovered in the Baker mine, one day last week. The strike occurred on the 180-ft. level, and it is thought that the rock will yield $500 per ton. From one days' run of 4 stamps, $200 was cleaned up.

HUNGARIAN HILL.—Operations on Hungarian Hill will commence next wesk.

LIGHT'S CANON.—Pierce & Co., whose claims are about a mile east of the old Presby place, bave plenty of water and have been running some time. These claims are very rich.

GOOD LEDGE.— The workmen in the Genesee claims, near Genesee Valley, have recently struck the largest ledge ever found in the claims, and the prospects are favorable that it is extensive.

STRUCK IT.—It is reported that Webster & Co. bave struck good pay in a flat opposite the moutb of Sqnirrel creek, near Argentine. It is said that they are making as high as $18 per day to the hand.

MEADOW VALLEY. — Cor. same: On Eagle Gulch, Wilson & Co. are husy, also Edmond & Co. One Co. is at work on Big creek. Hunt & Roinson, on Scad Point, have not yet commenced work for the season. Tucker & Co, have commencsd piping in their claims at Scale's Gulch, and Bossel & Co. are at it on the hillside near the upper end of Meadow Valley.

On Spanish creek, Grace & Co. have commsnced work at grass Flat. Nslson & Co. have already commenced piping on their ground near hy.

The Phelps Bros. are prospecting a gravel deposit further up on the creek. At Red Hill, Messerer & Co. are putting their claims in good order, to take advautage of the abundant water supply.

On Gopher Hill, Metcalf is at work, as also Thomas Haycock, with plently of water. L. Jacks is piping a good portiou of the time. Morris Smith & Co. are steadily at work. E. B. Jackson Badger Hill, is running off the gravel pretty lively. All the above companies have reasonable expectations of realizing a fair profit this season.

SAN BERNARDINO COUNTY.

PROSPECTING.—San Bernardino *Guardian*, Feb. 24: The expedition which left San Bernardino abont 2 weeks ago, for Death Valley, for the purpose of finding, if possible, the rich silver ledges discovered there and abandoned a few years ago, will be followed by another party who will leave in a few days from this place.

SHASTA COUNTY.

The placer claim of Moody and Eiler, in the new mining camp near the Tower House is paying $25 a day to one rocker.

SIERRA COUNTY.

SOLD. — Downieville, *Mt. Messenger*, Feb. 24: The North America claims at Newark, have been sold to capitalists.

GRANT'S MILL.—Considerable ore has been crushed recently at Grant's mill from the Good Hope ledge.

Cor. Marysville *Appeal*, Feh. 28: The Docile has heen steadily advancing until it has reached a distance of 630. ft from the mouth of the tnnnel. They have crossed several spurs supposed to he offshoots from the main lead, which they are liable to tap at any time.

The New York cleaned up yesterday, with very satisfactory results.

The Buckeye is the richest mine iu this vicinity.

Nevada.

ELY DISTRICT.

BULLION.—W. F. & Co. shippcd since Feb. 22, bullion valued at $67,705.47.

SPRING MT. TUNNEL.—Work is being carried on by 3 shifts, driving the main tunnel ahead about 9 ft. a day. The formation is favorable, and works easily. The ledge struck 25 ft. from the mouth of the tunnel is improving. The ledge matter is abont 4 ft. wide.

PEAVINE.—Work is to he commenced at once upon the mine to thoroughly develop it.

RED CLOUD.—Work is being carried on without ceasing. The shaft is down over 50 ft.

INGOMAR.—Gen. Page is putting up steam hoisting works. The claim is looking very well.

WARD BEECHER AND VULTURE.—It is reported that a valuable strike has been made in this mine at 165 ft. On Monday last a large body of horn-silver was struck in the Vulture, 5 ft. in thickness.

BOWERY.—The main shaft is heing straighteued, enlarged and timhered.

ALPS.—Since our last issue the body of ore in the east drift has improved considerably. The west drift continues in good ore.

SOMERSET MINE.—This claim is on tbe eastern slope of Spring Mt., about 200 ft. south of the Havana mine. The incline is 31 ft. deep. At the hottom of the shaft the ledge is 30 inches wide. The ore shows chlorides and some horn-silver.

EUREKA DISTRICT.

RUNNING.—Eureka *Sentinel*, Feb. 24: The furnaces are all running with plenty of ore on the dumps, and are constantly turning out their usual quantities of hullion.

FRIEBURG.—Goodwin & Co. are working 80 men in tbeir mines and on their furnaces. The new furnaces will go into operation in about 10 days.

BATTLE MT., March 1st.—By telegraph—130 tons of copper ore from the Battle Mt. M. Co.'s mine was forwarded from here this morning to S. F. for shipment to England.

HUMBOLDT.

BULLION.—Unionville *Silver State*, March 2: Amount shipped from the Arizona mins, since Feh. 17th, was $13,197.

UTICA MILL.—This mill, at the outlet of Humholdt Lake, is to be started up again on ore from the Oro Fino mine, Desert dist. There is now ahout 1,000 tons of ore, which it is estimated will pay $60 in gold to the ton.

NATIONAL MINE.—This mine though favorably situated has not been worked of late. Chris. Lark, has concluded to put on a force of hands, as soon as spring opens.

STILL YIELDING.—The Sheba mine is still prodncing large quantities of fine ore. Some assays made of a fair quality of shipping ore went as higb as $2,200 per ton.

MAMMOTH.— Thc owners contemplate putting it in the way of development as soon as the spring opens.

ECLIPSE. — The owners are pushing ahead in their tunnel and expect to strike the main ledge within the next 20 ft.

The prospects are that the bullion yield of Unionville for 1872, will be nearly double what it it was in 1871.

The Henning mine is said to be looking better than ever.

SEMINOLE TUNNELING CO.—Recent developments in the mines owned by the Seminole T. Co, in this dist. prove heyond douht the value of the property. Last week a vein was tapped disclosing 3 ft. of quartz containing ore of excellent quality.

DUN GLEN.—Cor. same: Sprague & Co.'s mill is running regularly on ore from the Lang Syno mine, which is yielding far more than the most sanguine of its ownsrs ever expected it would. They have had many difficulties to contend with, but thsy have finally succeeded to a certainty. Their process is heyond a doubt one of the best now in use for the reduction of gold ores.

Tho Lang Syne miue is improving in the south drift. The lode is 2½ ft. wide, all of whicb is good milling ore.

The Red Warror, a new location, shows a good body of pay ore on the surface.

WINNEMUCCA Feh. 26: By Telegraph.—W. F. & Co. received to-day 4 bars of bullion from Silver City Idaho.

REESE RIVER.

MONITOR ORE.—Reese River *Reveille*, Feb. 27: The Manhattan Mill will commence to-morrow to crush ore from the Monitor mine, at Belmont. Forty tons is at the mill awaiting reduction.

RESUMED.—The Pacific Co. have resnmed work in their mines and overything is going on as usual.

WASHOE.

SIERRA NEVADA.—Virginia *Enterprise*, March 2: The ore body struck in the Sierra Nevada mino last Saturday is improving.

CHOLLAR-POTOSI.—The bad state of the roads has compelled the Chollar folks to shnt down their mine, all their dnmps bsing full to overflowing. A few men are still at work in the mine prospecting.

THREE or fonr Cos. are at work in the vicinity of American Flat. As yet hut one of these—the Globe—is milling ore.

IN FULL BLAST.—The mills on Six an

Seven-mile Cañons are in full blast on ores from the Comstock.

A Co. called the New York have begun sinking a shaft back of the the Marysville mill, east of Gold cañon.

There is talk of resuming operations on the Occidental mine this spring.

The Justis Co. are running a tunnel from Gold Cañon to their mine for the purpose of making an outlet for the water pumped from the lower levels.

WHITE PINE.

Bullion.—White Pine *News*, Feb. 24: W. F. & Co. shipped to-day to London for Eberhardt & Aurora M. Co. (limited). 2 bars of bullion 184 pounds valued at $2,334.01.

Silver Wave.—The Perkins shaft is down 105 ft. in limestone formation. No. 4 shaft is down 115 ft. and running on spar wall. The drift from the bottom of the shafts is finding chloride and quartz mixed.

North Aurora.—In the South drift from the Lady's chamber the ore has improved in grade and body.

Ward Beecher.—Sinking winze in the bottom of Phillpots chamber, to connect with the East drift from the Lady's chamber. Shipping by tramway to the mill.

East Shenoygan.—The East Shoboygan Co.'s mines are looking well. The most of the force of men are engaged prospecting and making openings.

Copper Silver Glance.—A shift of 2 men is engaged sinking the North shaft. The indications for finding a good body of ore are encouraging.

Noonday.—Mr. Woodman, the foreman, is opening the mine in good shape. The ore body holds out as far as openings are made.

Arizona.

Yavapai Co.—Prescott *Union*, Feb. 17: The last run made by Jackson, Shoup & Co'a. 4-stamp mill, upon ore from the Del Pasco lode, yielded 43¼ ozs. of gold. This run did not exceed 3 days. The Tiger mine is yielding plenty of rich ore. The Benjamin and other mines, near Prescott are developing. Placer mines are doing well in the several creeks and gulches in the vicinity of Prescott, and Weaver. The Vulture is being mined and milled with satisfactory results. A furnace is being erected at Peeplea valley.

Mohave Co.—In Wallapai Dist., all the prominent mines are turning out well.

The Pioneer mill has been running regularly upon Lone Star rock, and is paying very well. Mr. Spear, shipped last week $5,000 in bullion. The furnace at Chloride is going up.

Smeltino Works.—Los Angelea *News*, Feb. 24: About 50,000 lbs. of machinery for smelting works at Wallapai, is lying at the beach, ready for shipment.

Colorado.

Colorado *Herald*, Feb. 14: At a depth of 450 ft., Harper's claim in the California Lode, carries a crevice of ore that varies in width from 2 to 4 ft. in the shaft, while in the drift running west its entire length, 140 ft., a crevice of ore has been exposed that averages over 1 ft. in width.

Good News.—In the Caribou mine, in the bottom of the main shaft the crevice is 5 ft. 7 inches in width of paying ore, 20 inches of which is first-class, worth from $500 to $700 per ton. On the east shaft a whim has been erected and put in operation. From this they are raising a large amount of fine ore. The teams are delivering about 20 tons per day to the mill.

The Carihou mill at Middle Boulder, has turned out a very handsome lot of bullion. They have shipped about 12,000 ozs. and have a large amount of amalgam not yet retorted.

The starting of this mill has given the dist. a new impetus. Already the owners of the Seven-Thirty, the Potosi, the Boulder Co. and others have sent in a lot of ore for sale, and others are preparing to do so. Ben Hines is pushing work on the Trojan and crushing his second-class at the Hines & Heizer mill, at Middle Boulder. The yield is about 7 ozs. per cord.

Lake Co.—Cor. same: Lode mining is lively. Work on the Printer Boy, Pilot, Oro Fino, New Brunswick, etc., is being pushed ahead with great vigor. Prospecting on a number of new lodes is being carried on with good indications of striking pay.

A. G. Hill is opening the Graut and has a very fair crevice of quartz. A. Gorman is driving a tunnel, and soon expects to strike a lode. On the south side of California Gulch, Mr. Bugh has started a new tunnel, with a view of prospecting the hill, where it is thought there are a number of good lodes as yet unopened. Above Oro City, McCanuon & Demsoy are working a lode discovered last summer, that prospects big. Henry Mayfield, in Iowa Gulch is prospecting for lodes. At Granite 20 miles below, C. S. Hill has a contract to sink 50 ft. on the Hatty Jane lode, one of the most promising in this locality. A report is current that the Yankee Blade Co. intend to resume work soon.

Boulder Co.—Cor. Caribou *Post*, Feb. 20th: The Jones lode, on the northwest side of Caribou Hill, is down 30 ft. They have a pay streak of fine mineral 4 inches wide. I observed 20 sacks of ore, which assays $200 per ton.

The Grand Review is down 58 ft., and looking about the same. A number of lodes are being worked on Idaho Hill, viz: The Elephant 109 ft. deep, is to be drifted upon soon. The Silver Point, 28 ft. deep. The Monitor is also being worked.

The Seven-Thirty has attained a depth of 70 ft. They have a pay streak 6 inches wide of very fine mineral. At a depth of 35 ft., they have a drift running east 35 ft. and a shaft 35 ft. deep in the drift. The second-class ore runs $500 per ton; third-class $100. It is estimated that they have $10,000 worth of ore on hand.

The Trojan lode, at Cardiual, is looking extremely well. They are down 95 ft., and drifting. Two different parties are taking out ore from the Boulder Co.

Our Mines.—Same paper, Feb. 17th: The old Caribou Co. who are working the East End, have a fine shaft erected, and are taking out rich ore in large quantities.

The Seven-Thirty is being worked with very promising and paying results.

The Wabash lode is down nearly 60 ft. and is looking exceedingly well.

Some of the other lodes that are being worked on Caribou Hill, are the Stranger, Grand View, Sweeden, and Jonas lodes.

At Cardinal the Trojan is being worked. They are hoisting a large quantity of valuable ore.

Shipped.—Colorado *Miner*, Feb. 22: Baily & Nott have shipped on account of owners, during the past week, 20 tons of smelting ore.

Palmer & Nicholas have shipped 2 bars valued at $2,260.88.

The Matilda Fletcher lode is yielding very rich 1st class ore, and large quantities of 2d class milling ore. A 10 lbs. lot of 1st class ore, treated, gave a yield at the rate of $12,000 coin per ton.

Maine Lode.—The yield of the Maine lode for 8 months, since its discovery, has been $38,989.32 above expenses.

Gold Hill.—Caribou *Post*, Feb. 24: Mr. Fullen is working his White Rock lode this Winter, and Mr. Cort is erecting an engine house and other buildings on the Horse-fall.

Yesterday, at the bank of Young & Co. was seen 855 oz. of gold retort, the Jan. product of the Leavitt lode Mountain City. This is valued at $15,500, and is the product of 105 cords of stamp-mill ore.

Local Record.—In making our trip this week, we noticed both the ore chutes of the Oro Fino full of ore. We also found the shaft on the Navigation mine down about 140 ft. where it connects with a drift from the Oro Fino.

The Ida Elmore is being opened up fast. The 6th level drift is run 130 odd ft. north, far enough to get over the rich body of ore in No. 7.

Idaho.

Bullion.—Silver City *Avalanche*, Feb 24: W. F. & Co. shipped from here this week 3 bars of bullion, valued at $6,468.07.

The Mahogony mine is turning out some very fine ore between the 3d and 4th levels. The shaft is down for the 5th level. The ore house is full of ore which will soon be hanled to the mill.

The South Chariot 4th level drift is being run north on the vein. The main shaft is to be straightened and sunk for the 5th level.

There are 75 tons of Empire ore at the Elmore mill which will pay about $150 a ton.

South Mt.—Cor. same: The only mines being worked here are the Bay State and Hastings, operations on all others having been suspended on account of bad weather.

Banner Dist.—Idaho *Statesman*, Feb. 20: Gardner and Lee are down 30 ft. on the ledge. The quartz looks better, but has become very hard; it all has to be blasted.

Montana.

St Louis Gulch.—Cor. Helena *Herald*, Feb. 22: The Union Co. have recently struck very rich pay in their ground in the left fork of Indian creek. From 2 pans of dirt were washed out $10.90.

The Kelloy Bros. have a large tract of mining ground, from which they are raising a small mountain of grit, over average in richness. From hence for about a half mile no work is being done, some of the ground being worked out and the remainder not yet drained.

At the head of the drain is the claim of Easterly & Co., who are pushing ahead with the work fast, and at the same time hoisting and sluicing with profitable results. Passing on down the creek, we come to the mines of W. H. Risk, J. Lyons, Collior & Co., H. Winters, and Buckingham & Co., all of whom are doing well. Then we reach the works of Tierney & Co., who are coming up with the old Diamond drain, with good prospects. All that is being done here this winter in the way of placer mining.

Junction.—Cor. *Avant Courier*, Feb. 15th: At Aldor Gulch nearly all the flume Cos. are going to increase their force of hands, and the works generally will be more energetically pushed forward than they have for many years past.

At Summit, Covely & Bro. are tapping the Keystone 200 ft. deep, and have about 80 tons of fine ore on the dump.

There are 14 bed-rock flumes in the gulch, most of which have been doing well.

Hart & Cass have their main drain completed, and are making branch drains preparatory to extensive spring operations.

At Adohe Town there is more progress manifest than all the rest of the gulch combined.

Utah.

Pioche Bullion.—S. L. *Tribune*, Feb. 26: W. F. & Co. have received since the 16th inst. 2 two lots of bullion valued at $126,608.90.

North Star Dist.—Cor. same: I visited the Shenandoah mine owned by Schonberg & Co., who have sunk upon their shaft 50 ft. The Co. have some 150 tons of splendid ore on the dump worth $150 per ton.

The next mine in the immediate vicinity is the "Old Hickory," owned by Hooker Cook & Adams. They have got down 40 ft. through a rich and very large body of mineral.

South Star.—In this camp are the Taylor and Jupiter lodes, with shafts in ore, from 80 to 100 ft. in depth. The Mt. Vernon and Bibhins are looking well.

Middle Star contains some of the most promising ledges in the Dist.

West Camp is the last discovery. The ore in this camp is quite free, and can be easily milled without the intervention of roasting furnaces. Most of it is of a high grade. Prospecting is being actively carried on here, as well as throughout the entire Dist.; and frequent discoveries of great richness reward the miners.

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the Scientific Press and other San Francisco journals.]

ASSESSMENTS.

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	DAY DELINQUENT.	DAY OF SALE.
Alps S. M. Co., Nev., March 1, 75c	April 9	April 30
Bloomfield Gravel M.Co, Cal., Feb. 23, $3.	Mar. 27	Apr. 13
Buckeye G. & S. M. Co., Nev., Jan. 9, $1.	Feb. 13, Mar 14	
Caledonia S. M. Co., Nev., Feb. 1, $4	Mar. 8	Mar. 29
Daney G. & S. M. Co., Nev., Feb. 1, 65c.	Mar. 4	Mar. 25
Emerald Hill M. Co., U.T., Jan 11, 25c.	Feb. 19, Mar. 14	
Golden Age & Empire M.Co. Feb. 9, $2.50.	Mar. 12	Apr. 3
Gould & Curry, Nev., Jan. 30, $15	Mar. 4	April 26
Golden Chariot, I. T., Jan. 31—$2 50.	Mar. 9, Mar. 30	
Ida Elmore, Idaho. Dec. 30 $3.00	Jan. 31	March 4
Kentuck, Nev.. Jan. 20, $10	Feb. 24	Mar. 13.
Kincaid Flat M. Co., Cal., Feb. 14, $3.	Mar. 18	April 8*
Lemon M. & M. Co., Nev., Jan. 6, 50c.	Feb, 10	March 2
Mahogany G. & S. M. Co, I.T. Jan. 26, $1.50	Mar. 6	Mar. 23
Mina Rica M. Co., Cal., Jan. 16, 20c.	Feb. 19	March 11*
Nevada L. and M. Co., Nev., Jan. 9. 4c.	Feb. 13	Mar. 4*
Noonday S. M. Co. White Pine, Feb. 1, 20c.	Mar. 5	Mar. 25
Overman, Nev., Feb. 22, $4	Feb. 22	Mar. 11.
Pacific Borax Co., Nev. Feb. 23, 15c.	March 28	April 16
Phœnix, Nev., Jan. 18, 75c	Feb. 22	Mar. 13.
Piermont M. & M. Co., N., Jan. 20, 80c.	Mar. 1, Mar. 23*	
Pocabontas G. M. Co., Cal., Feb. 25, $5.	April 6	May 6*
Quail Hill M. & W. Co., Cal. Feb. 15, $5,	Mar. 26	April 16*
San Buenaventura Co. Cal., Jan. 19, $1.	Feb. 23	Mar. 29
Silver Wave, Nev., Jan. 30, $1	Feb. 26	Mar. 19.*
South Chariot M. Co., I. T., Feb. 8, $1.	Mar. 9	April 1
South Eureka, Nev., Mar. 2, 15c	April 4	April 24
St. Patrick M. Co. Placer co. Cal. Feb. 8, $4.	Mar. 13	Apr. 2
S. Gulch Gr. M. Co., Cal., Feb. 7, $1.50.	Mar 13	April 3*
Tallulah M. Co., Nev., Jan. 30, $1	Mar. 5	Mar. 26
Tecumseh, Cal., Jan. 23, $4	Feb. 27	Mar. 16.*
Washington & Creola M. Co. Feb. 16, 50c.	Mar. 15	Apr. 11
Wm. Penn, Nev. Jan. 16, 50c	Feb. 10	Mar. 11.*

MEETINGS TO BE HELD.

Chapman M. & M. Co.	Annual Meeting Mar. 14
Daney G. & S. M. Co.,	Annual Meeting Mar. 4
Golden Chariot M. C.	Annual Meeting Mar. 4
Granite M. Co.	Annual Meeting Mar. 23
Hale & Norcross S. M. Co.	Annual Meeting Mar. 13
Marcelind S. M. Co.	Annual Meeting Mar. 4
North Oro Fino	Annual Meeting Mar. 25
Oro Fino M. Co.	Annual Meeting Mar. 25
San Marcial S. M. Co.	Annual Meeting Mar. 19
Siskiyou M. Co.	Annual Meeting Mar. 11
Siempre Viva S. M. Co.	Annual Meeting Mar. 18
Starlight G. & S. M. Co.	Annual Meeting Mar. 20

LATEST DIVIDENDS—(Within Three Months).

Belcher, $15	Payable March 9
Chollar Potosi, $1	Payable Feb. 10
Crown Point, $15	Payable Feb. 12
Crown Point, $15	Payable March 15
Eastport, Coose Bay, Coal M. Co.	1 per ct. Payable Feb. 12
Eureka Gold M. Co., $1	Payable Jan. 6
Keyatone M. Co., $3	Payable Feb. 10
North Star G. M. Co., $3	Payable Feb. 10
Raymond & Ely, $5	Payable March 8

—*Advertised in this journal.

S. F. Stock Exchange Board.

San Francisco, March 7, 1872.

Stocks have fluctuated considerably during the week and prices at close are rather low. The sales at the Board for the week ending Wednesday the 28th ult. amounted to $3,377,000. The capital stock of the Keystone M. Co. has been increased to $1,000,000 in 10,000 shares. The Marcelind M. Co. has elected the following Trustees: S. Heydenfeldt, (Pres.), C. E. Elliott (Sec.), C. C. Palmer, P. P. Cunningham and Geo. D. Roberts. The Raymond & Ely mine sent down on the 29th ult. $33,000, on the 2d, $31,000, and on the 6th inst. $31,200. The Alameda Coal Mining Co. have elected the following Trustees: W. B. Agard (Pres.), B. E. Anger, A. Braudt, P. Cassou, L. Pavillier. M. Phillips is still Secretary.

The Chapman M. & M. Co. have elected as Trustees, E. P. Figg, L. A. Chapman, J. H. Vimont, O. L. Muller, and C. B. Putnam. Jos. Maguire was elected Secretary.

The dividend of the Chollar-Potosi was omitted this month for the first time in ten years. The February receipts from the Succor mine amounted to $18,000.

The Daney election on Monday resulted as follows: O. F. Griffin, Geo. F. Bragg, L. S. Adams, F. A. Gibbs, and Robt. Sherwood.

Comparative Prices—Extremes. Advance and Decline.—S. F. Stock and Ex. Board.

	Feb. 29.	*Highest.*	*Lowest.*	March 7.	*Adv.*	*Dec.*
Alpha	$29	27	32	31	2	—
Amador	—	280	280	—	—	—
Belcher	575	610	575	595	20	—
Buckeye	4⅜	4⅜	4	—	—	—
Chollar-Potosi	59	64	55	58	—	1
Calodonia	10¾	18	9½	18	7¾	—
Cons. Virginia	33	37	30	34	1	—
Crown Point	705	720	700	720	15	—
Daney	—	2¾	2	3½	¾	—
Eureka Cons	25¼	26	24½	25½	¼	—
Eureka	16	16½	16	16	—	—
Exchequer	15	18	15	—	—	—
Could & Curry	180	205	164	185	5	5
Golden Chariot	13	13¾	12¾	13¾	¾	—
Hale & Norcross	255	260	248	252½	—	2½
Imperial	91	100	85	92½	1½	—
Ida Elmore	12	13½	11½	13½	1½	—
Kentuck	240	240	225	—	—	—
Mammoth	—	600	600	—	—	—
Meadow Valley	19	20½	18¾	20½	1½	—
Mahogany	—	13	11	14	—	—
Ophir	49	58	45	52	3	—
Orig. Hid. Treas.	9	9¾	9	8¾	—	¾
Overman	50	57	46	51	—	—
Pioche	16	16	13	13¾	—	2¼
Raymond & Ely	133	140	25	135	2	—
Savage	215	230	200½	—	—	—
Sierra Nevada	28	31	25	27½	—	¾
Succor	6¾	6¾	5	5½	—	¾
Wash. & Creole	5¾	6½	5¾	6	¾	—
Yellow Jacket	73½	75	67	71½	—	2
St. Patrick	—	21	20	20	—	—
Seg. Belcher	55	58	53	55	—	1

Latest Prices—Bid and Asked.

	BID.	ASKED.		BID.	ASKED.
Alpha Cons	31	31	Ida Elmore	12	13
Amador	280	290	Imperial	90	91
Belcher	585	600	Kentuck	—	—
Chollar-Potosi	57¾	58	Meadow Valley	19½	20
Crown Point	700	720	Ophir	51	52
Daney	3¼	3½	Orig. Hid. Treas	8¾	9
Eureka Cons	24⅞	25	Overman	51	51
Eureka	16	16	Savage	—	—
Golden Chariot	13¼	13¾	Raymond & Ely	134	135
Gould & Curry	175	177	Sierra Nevada	26	26½
Hale & Norcross	250	252½	Yellow Jacket	70¾	71½

San Francisoo Metal Market.

Corrected weekly by Hooker & Co., 117 and 119 Cal. street.]

PRICES FOR INVOICES

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

THURSDAY, March 7, 1872

Iron.—			
Scotch and English Pig Iron, ₱ ton	$55 00	@	60 00
White Pig, ₱ ton	45 00	@	— —
Refined Bar, bad assortment, ₱ lb	— 05	@	— 05½
Refined Bar, good assortment, ₱ lb	— 05½	@	— 06
Boiler, No. 1 to 4	— 05	@	— —
Plate, No. 5 to 9	— 07½	@	— 08
Sheet, No. 10 to 13	— 05½	@	— —
Sheet, No. 14 to 20	— 06	@	— —
Sheet, No. 24 to 27	— 06	@	— —
Horse Shoes	7 50		
Nail Rod	10		
Norway Iron	8		
Rolled Iron	5		
Other Irons for Blacksmiths, Miners, etc.	5	@	6
Copper.—			
Sheathing, ₱ lb	— 24	@	— 26
Sheathing, Yellow	— 24	@	— 25
Sheathing, Old Yellow	— 11	@	— 11½
Composition Nails	— 24		— —
Composition Bolts	— 24		— —
Tin Plates.—			
Plates, Charcoal, IX ₱ box	12 00		— —
Plates, I C Charcoal	10 00		10 50
Roofing Plates	11 00		— —
Banca Tin, Slabs, ₱ lb	— —		— 45
Steel.— English Cast, ₱ lb	— 16		— 17
Drill	— 17		— 17
Flat Bar	— 17		— 20
Plough Points	3		— —
Spring (or monid boards)	— 12½		— —
Quicksilver.— ₱ lb	— —		— 65
Lead.— Pig, ₱ lb	— 05½		— 06¾
Sheet	— 08		— 8½
Pipe	— 9		— 10
Bar	— 08		— 09
Zinc.— Sheets, ₱ lb	— 10		— 10½
Borax.— Refined	— 25		— 30
Borax, crude	— 5		— —

Leather Market Report.

[Corrected weekly by Dolliver & Bro., No. 109 Post at.]

San Francisco, Thursday, March 7, 1872.

Sole Leather.—The demand is still equal to the supply, and prices still continue firm.

City Tanned Leather, ₱ lb	26@29
Santa Cruz Leather, ₱ lb	26@29
Country Leather, ₱ lb	25@29

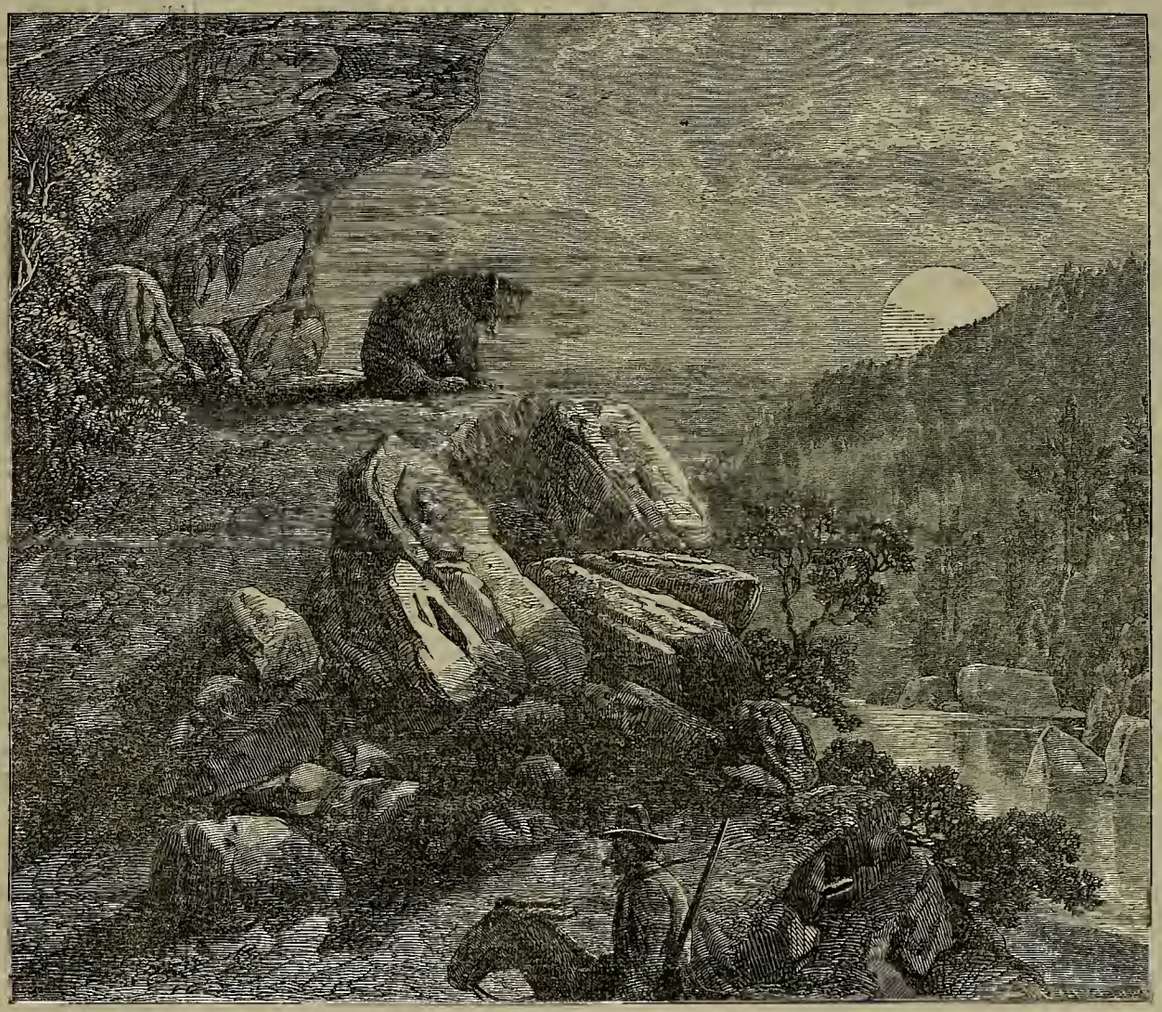
French skins are firmer with an advance in some grades. Heavy California skins are firm, with an upward tendency.

Jodot, 8 Kil., per doz	$80 00@ — —
Jodot, 11 to 19 Kil., per doz	76 00@ 95 00
Jodot, second choice, 11 to 15 Kil. ₱ doz	60 00@ 80 00
Lemoine, 16 to 19 Kil., ₱ doz	85 00@ — —
Levin, 12 and 13 Kil., per doz	68 00@ 70 00
Cornellian, 16 Kil., per doz	70 00@ — —
Cornellian, 12 to 14 Kil., per doz	60 00@ 68 00
Ogerau Calf, ₱ doz	54 00@ — —
Simon, 18 Kil., ₱ doz	65 00 — —
Simon, 20 Kil. ₱ doz	68 00 — —
Simon, 24 Kil. ₱ doz	72 00 — —
Robert Calf, 7 and 8 Kil	35 00@ 40 00
French Kips, ₱ lb	1 00@ 1 30
California Kip, ₱ doz	65 00 to 80 00
French Sheep, all colors, ₱ doz	15 00 — —
Eastern Calf for Backs, ₱ lb	1 15@ 1 25
Sheep Roans for Topping, all colors, ₱ doz	8 00@ 13 00
Sheep Roans for Linings, ₱ doz	5 50@ 10 50
California Russett Sheep Linings	1 75@ 5 50
Best Jodot Calf Boot Legs, ₱ pair	5 25 — —
Good French Calf Boot Legs, ₱ pair	4 50@ 5 00
French Calf Boot Legs, ₱ pair	4 00 — —
Harness Leather, ₱ lb	36@ 37½
Fair Bridle Leather, ₱ doz	48 00@ 72 00
Skirting Leather, ₱ lb	34@ 37½
Welt Leather, ₱ doz	30 00@ 50 00
Buff Leather, ₱ foot	18@ 21
Wax Side Leather, ₱ foot	18@ 20

Meeting a Grizzly.

In the early days of California the mountains of the State were infested with those fierce and powerful monarchs of the forest, the grizzly bear, and numberless are the stories current of wild and startling adventures in their search. Those pioneers of civilization, the miners, frequently met them in their prospecting trips, and when prudent, gave them a wide berth; still, some of the more reckless and daring of this adventurous class, sometimes attacked them, and unless well armed and in numbers, were in luck not to come off "second best." As a general thing unless surprised or attacked, they will not act on the offensive; cases are, however, known to the contrary. The growl alone of these beasts, when surprised or wounded, is enough to make a prudent man keep at a respectful distance, and the writer knows from personal experience that at night, in the dark gloom of the forest, with one in close proximity, it will make a man feel queerer, and his hair straighter, and offer superior inducements to accelerate tree climbing than most anything else could.

The miners of California generally went pretty well armed in early times, and in their visits to their neighbors at night were careful to carry their trusty revolvers, and, if possible, a rifle. This was found necessary for protection against ferocious beasts and still more ferocious men. Our cut represents a "pioneer" returning home at night, and who has taken a short cut home instead of going by the regular trail. His mule, from natural instinct, shows his knowledge of the proximity of the grizzly by laying back his ears and looking as if he did not like it. The bear is seated in front of his den upon a point of rocks overlooking the placid river, which glistens in the moonlight, and seems to be enjoying himself.



THE SHORT CUT HOME.

A well-appointed iron ship building yard and plant has just commenced operations at Wyandotte, a few miles below Detroit, on the river, adjoining the extensive rolling mills of E. B. Ward, who backs the enterprise, and which is under the management of Captain S. R. Kirby. A double-decked freight propeller is in course of construction, being intended principally for the silver ore trade of Lake Superior.

Letters patent have recently been granted for the invention of an improved railroad car for the transportation of grain. By this invention the grain is discharged in from three to thirty minutes, a great saving in time over the present process. One man can attend to the unloading of ten care, and discharge their contents as quickly as four men can unload one of the cars now used for grain.

The pig-iron product last year was 1,850,000 tons, of which all but 387,000 tons was anthracite or Pennsylvania. The business employed 940,000 men at aggregate wages of $564,000,000, and the value of the product was $900,000,000.

The Hunt & Douglas Process for the Extraction of Copper from its Ores.

No. 3.

The result of the above causes combined is that instead of 89 parts of iron there are consumed, according to circumstances, from 200 to 300 parts of metallic iron to produce 100 parts metallic copper in the form of cement copper. This too is rendered impure by an admixture of insoluble presalts of iron generally amounting to from 20 to 40 per cent., and even more. The present process avoids both of these faults, and enables us to obtain a pure cement copper with a very small consumption of iron. The solution obtained with the bath of protochlorid of iron can contain no persalt of iron in solution, and if protoxyd of copper alone has been employed will hold three equivalents of copper combined with two equivalents of chlorine, so that they will be precipitated by two equivalents of iron, being at the rate of 59 parts of metallic iron for 100 parts of metallic copper. If, from the presence of much dinoxyd, or from other reasons, the greater part of the copper be present as dichlorid, it will be remembered that this requires only one equivalent of iron to precipitate two equivalents of copper, being at the rate of 45 parts of irons for 100 parts of metallic copper.

The precipitation of copper from the solutions is at first rapid, especially if these are hot, and kept in agitation. Inasmuch as the waste liquors are not rejected in this, as in the ordinary process, the long digestion with iron required to remove the last portion of copper is dispensed with, and the liquid, after having given up the greater part of its metal, is withdrawn and used for the treatment of a fresh portion of ore. The prolonged action of the air on the bath is thus avoided, and we obtain a cement copper almost entirely free from insoluble iron salts, and with the consumption of a minimum quantity of iron.

The Regenerated Bath.—If the action of the air be excluded it will be found that the bath, after complete precipitation of the copper by iron, will be nearly as rich in protochlorid of iron as before the solution of the copper. The loss, which is due to the separation of a portion of oxychlorid of iron during the solution, is variable, and in some cases does not exceed six per cent. The various ways of supplying this loss are three: (1) The direct addition to the bath of a portion of protosulphate or protochlorid of iron. (2) The addition of a portion of sulphate of copper from the roasted ore, and (3) the use of enlphurous acid. Of these the first requires no explanation, and the second and third will be explained under the two following headings. The proportion of iron in the bath should be determined from time to time by the following method: A small portion of the bath, freed from copper by digestion for some hours with metallic iron in a stoppered bottle, is diluted with 50 parts of water, and strongly acidulated with snlphnric acid. A standard solution of permanganate of potash of known strength is then added from a graduated tube so long as it is decolorized. By comparative experiments of this kind on the regenerated bath its stringth in protochlorid of iron is readily determined.

The Protosalts of Iron.—In preparing the bath we have recommended either protosulphate or protochlorid of iron. The former salt, being an article of commerce, is to be obtained in many places where the latter cannot readily be procured, and may be easily manufactured for the purpose in regions where neither of these can be readily obtained, provided snlphuretted copper ores are to be had. It is well known that in roasting these a considerable portion of the copper is converted into sulphate, which may be readily dissolved by water from the roasted ore. If to each 63.4 ponnds of copper thus dissolved, we add 120 pounds of common salt, and digest the liquid with metallic iron in a close vessel, best with the aid of heat, till the copper is precipitated, the solution will contain such an amount of protochlorid of iron that it will only be necessary to add 200 pounds of common salt and a sufficient amount of water, to make 100 gallons of the bath of the strenght before prescribed.

If a roasted ore, charged with sulpbate, be added directly to the bath of protochlorid of iron, it will be found, after precipitating the copper by metallic iron, that the regenerated bath will contain not only the protosalt of iron corresponding to that originally present in the bath, but also that resulting from the action of the metallic iron on the sulpbate of copper introduced, which has given rise to protochlorid of iron and sulpbate of soda by double decomposition; thus rendering the bath impure both from the presence of sulpbates and from an excess of protochlorid of iron. To obviate these results we add to such roasted ores, (as already described), so much lime as may be necessary to convert the whole or the greater part of the sulphate of copper present into insoluble sulphate of lime and protoxyd of copper, which latter is at once soluble in the protochlorid bath. A small portion of sulpbate of copper, as above prescribed, may be left undecomposed by lime, and by its reaction with metallic iron will give the protosulphate of iron required to enpply the small loss already explained, and keep up the regenerated bath to its original standard, as shown by the test with permanganate.

The use of protosulphate of iron for making the bath, introduces a large proportion of sulpbate of soda. A great part of this, it is true, crystallizes out when the bath is exposed to cold, and may thus be got rid of. The use of a portion of chlorid of calcium may also, as already explained, be resorted to with advantage where this substance can be cheaply procured. In districts where hydrochloric acid is a bye-product of little value it will be best to obtain the protochlorid of iron directly by saturating the crude acid with scrap iron and employing the product as already explained.

Use of Sulphurous Acid.—When the mixture resulting from the action of oxyd of copper upon the bath of protochlorid of iron is heated, and exposed to the action of an excess of sulphurous acid, the whole of the separated peroxyd of iron is converted into a protosalt, and the bath, after precipitation by metallic iron, is found to contain much more protosalt than at first. Such a result is generally to be avoided, but by passing into or over the bath a small portion of sulphurous acid, it is easy to dissolve such a portion of the precipitated oxychlorid or oxyd of iron as to prevent the loss of iron which otherwise occurs, and keep up the standard of the regenerated bath without the addition of a salt of iron or of sulphate of copper.

The introduction of air with the sulphurous acid is to be prevented as much as possible, since it tends to convert the dichlorid of copper into protochlorid, and thus increase the consumption of metallic iron.

*When, as in ordinary cases, the bath holds sulphates, the precipitated peroxyd contains a basic persulphate, with but little of the oxychlorid which is found in a bath where chlorids only are present.

[Concluded next week.]

Michigan silver mines this year have yielded about $1,000,000 worth of ore. The estimate is that about $100,000 a month can be taken out at a cost of $8,000. Wyandotte smelting works have sent $400,000 to the mint from one mine alone.

An umbrella frame in process of manufacture has to pass through more than one hundred hands, and is the result of remarkably delicate and ingenious manipulations.

Useful Information.

Removing the Odor of Carbolic Acid.

The value of carbolic acid for many applications is now well established, but for medical purpoeee is greatly diminished by the odor, which ie extremely offensivo to many porsone. It may, thorefore, bo interesting to know of a method which will remove this odor, eubstituting for it a delicate trace of geranium loaves, which may, perhaps, be improvod upon by adding a few drops of that oil. Tho process, as rocently published, consists in pouring one pound of the best carbolic acid (tho white crystallized) into two gallons of cold distilled water, taking care not to pormit the *whole* of the acid to enter into solution. With a good samplo, if, after shaking repeatedly at intervals, botween two and three ounces of tho acid remains at the bottom of the vessel usod, this will be a sufficient residne to hold and contain all the impuritios; witb bad eamplos, less water must be used, and more acid. The watery solution is to bo siphoned off, and filtered, if necessary, through fine filter-paper till perfectly clear. It is then placed in a tall cylinder, and pure powderod salt added, with constant agitation, till it no longer dissolves. On etanding for a time, the greater part of the carbolic acid will be fonnd floating as a yollow oily layer on the top of tho ealine liqnor, and merely requires to be removed to be ready for use. As it containe five por cent. or more of water, it does not generally orystallize, but it may be made to do so by distilling it from a little lime. The portion collected, up to about 365° F., bas, at ordinary temperatures, scarcely any odor save a faint one resembling that of geranium leaves. The addition of about four drops per fluid ounce of tho Frenob oil of geranium will still further mask tho slight odor of the acid, and has an additional advantage of liquefying the pure crystallized product. The pure acid may be dissolved in 230 parts of water, and used as a gargle, or in 25 parts of wator for painting the throat, or in 50 parts for the carbolic spray.

Clearino Bean of India.—Among other vegeteble productione of India is a epeciee of *Strychnos*, known there as the clearing nut, the dried seeds of which are used to e considerable extent for the purpose of cleering muddy water. For this purpese one of the nuts is usually rubbed bard for a short time round the inside of the oertben pot; the water afterwards is ponred into it and left to settle, the impurities soon eubsiding, and the water being left pure, clear, and wholesome. It ie said tho natives never drink well-water if tbey can get pond or river water, whicb they treat in the way indicated. These seeds have much the action of alum, but are believed to be less injurious, and are very easily obtained any where in India. The fruit when green, is made into proserves and eaten; but when ripe, and given in powdor, anewers the purpose of an emetic, a doee being about half a teaspoonful.

According to Dr. Pereira, the pecnliar property of these seeds depends on the presence of albumen and caseine, whicb act as purifying agents, like those employed for wine or beer. If the seeds be sliced and digested in water, a thick mucilaginoue liquor is obtained, which when boiled, yields a coagulum. A similar application is made elsewhere of otber kinds of seeds. Thus the inhabitants of Cairo render tbe muddy water of tho Nile quite clean by rubbing bitter almonds, prepared in a partionlar manner, on tbe inside of tho earthen jar in which the water is kept. Migbt not this India bean be made a profitable and useful addition to our California products?

Northern Limit of the Oyster.—Oysters, it is stated, cannot be grown in the seas of tbe province of Quebec, the northern limit of the habitation of thie sbell-fish on the east coast of North America being Carraqnette Bay, on the northeastorn point of New Brunswick. Attempts have been made to plant oysters in Gespé Bay, but the culture failed, in consequence of the extreme coldness of tbo water, whicb even in tbe summer is only a fow degrees above tho freezing point.

The oldest woolen cloth factory in the United States is probably that of Mr. Thaddeus Clapp, of Pittsfield, Massachueetts. This manufacturer has in his poseession epecimens of cloth of his own manufacture, selected from the production of each year from 1812 to the present timo. Such a collection is obviously interesting to any one who is curious to observe tbe progrese in the United States of the art of making woolen cloth.

Combining Scents.

The art of tho perfumer is ehown in delicately combining different eeents. When we walk in a garden, tho delicious odors that greet us aro by no meane tho emanations of ono flower. All the blooms of the garden, more or less, add to the general harmony that strikes so gratefully upon the olfactory nerves; they reach ue in sueb infinitely emall particles, that no ono scent overpowers the other. Whon art attempts to imitato the diluting effect of tho broeze, eho has to be more circumspect. Only odors of a similar octava, as a recent writer has pointod out, will agree with each other. Another anthority, indeed, has elaborated this idea, and has composed a perfect gamut of odors, beginning with civet, vorbena, and citronella in the troble clof, and ending with the wallflower, vanilla, and patchouly in the bass clef.

Dealers, on the strength of thoir olfactory nerves, often make purehases amounting to thousands. The tea merehant, tho tobacco dealor, or tho hop merchant takes one sniff at the commodity in which ho deals, and makes his purehase without fault. An experienced perfumer will have two hundred odors in his laboratory, and can distinguieh every one by name. Could a musician, witb an instrument of two hundred notes, distinguish and name every note struck without his eeeing the instrument? Every person, from his own experience, can testify to anotber quality which scent in common with sound possesses; we allude to the power it has of recalling to tbe mind's eye the ecenes of long past years. The mere breath of a perfume will often call up a picturo of an event with all its minutiæ, which had long lain dormant in our memory.

Curious Customs.—An English paper says that among tbe curious local customs still practiced in Derbyshire is one which wae kept up for 140 years at Hilton Hall. On tbe first day of the year the lord of the manor of Essington brought a goose to the hall, and drove it three times round the fire, after whicb he carried it to tbe table, and received a dish of it for bis own use. Tbis droll proceeding wes ouly discontinued when the manors came under one lord. At Wellsall there is an annual adult scramble; for here a custom exists of throwing out apples and nuts from the Town Hall, on St. Clement's day, to be scrambled for by the people. Happy are the boys that are born in Wellsall! At Wichner, tbe eeme custom tbat hes prevailed at Dunmow was once in use, and a wooden flitcb of bacon still hangs in the ball. In tbis case it was John of Gaunt who instituted the cnstom by arranging that the owner of tbe ball should hold tbe tenure in virtue of his keeping a flitch of bacon always ready for any married pair who had been married a year and a day and would take tbe following oath: "Hear ye Sir Philip de Somerville, Lord of Wychenor, mayntennor and gyver of this baconne: I. A. B., sitbe I have wedded my wife, and eitbe I bad ber in my keeping and at my wylle by a year and a day after our marriage, I would not bave changed for none other, fairer ni fouler, richer ni poorer, etc. And if tbe said B, were sole and I sole, I would take ber to be my wyfe before all the wymen of the world. So help me God and all tbe flesbes!"

Preparation of Hides.—The following method is recommonded for preparing leather: Begin by eoaking the hide eight or nine days in water, then put it in lime; take it out, remove the hair by rubbing, and soak again in clear water until tbe lime is entirely out. Put one pound of alum to three of salt, dissolve in a vessel eufficiently large to hold the hide; eoak the hide in it three or four daye; take it out, let it get half dry, and then beat or rub until it becomes pliable. Leather prepared by this prccess will not do well for shoes, but answere for hamstrings, back-bands, and other purposes on tbe farm.

Dark Rooms.—When a room is so situated that tbe windows admit but little light, ae ou a narrow lane or alley, their illuminating effect may be greatly iucreased by placing tbe panes flueb with the outer face of the wall, and using glass which has been roughly ground on tbe outside. The particles of the glaseare thus made to preeent innumerable faces in every direction, and the ligbt thus gathered ie transmitted to all parts of the room, whereas with tbe ordinary windowe only so much light is obtained as is reflected from tbe opposite walls.

Good Health.

The Effect of Light on Smallpox Pustules.

Among the many invostigations now being made of the chemicel action of light, there are none more interesting than those which are directed to tho observation of its effects on the health. It hae been observed by Dr. Webber that the sensibility of the skin is very much increased in those parts of the body which are always exposod to the light, and this difference has evon been measured by that eminent physician. This remarkable fact is especially observable on persons euffering from smallpox, the soverity of the skin disease being visibly augmented if the patient be not confined in a dark room. Dr. Waters has recently published a paper on this subject, in which ho states that if the room bo so darkened that not a single ray can enter it, the effect is to arrest the disease at the papular or vesicular stage; it never becomes purulent, and the ekin between the vesiclce is nevor inflemed or swollen; the *liquor sanguinis* is not changed into pus, nearly all the pain and itching are absent, and the smoll is, if not entirely removed, greatly diminished. Another advantage, important in a therapeutical point of view, ie the assistance given to medicines, the absenco of light increasing the excretory powers of the skin.

Cure of Flatulency.—A writer in the *English Mechanic*, in treating the not unimportant subject of flatulency, eays that of this there are two kinds. In bealtb tbe stomach and intestines alwaye oontain a moderete quantity of gas that is nearly pure nitrogen. This appeare to be secreted by tho mucous membrane of tbe stomach and intestinos, and, in excessive amonnt, is one of the most troublesome kinds of fietnlence. The other kind arises from fermentation or putrefactive cbanges of the food, and conteins carbonic acid, end sometimes sulphureted hydrogen, as well as nitrogen. Botb these forms of flatulence are best treated by using pure vegetable charcoal finely powdered—teken in tbe first case with eech meal, and in the second as soon as the symptoms appear. Tbe dose mey be a teaspoonful, and its use sbould be continued for eome time. Tbie will usually correct constipation as well as looeness of the bowels, besides relieving the diseese itself.

Decay of the Teeth.—Tbe acids wbich cause tbe decay of the teeth are conveyed in the secretions of the gums and the mucous membrane of tbe lipe and cheeks; and the usual points of attack are in the interstices and the groovee in the facial walls of tbe teeth. Tbe calculary nature of the saliva is antagonistic to tbe acids, and preserves tbe teeth from their dilapidating influence. Teeth are protected from this disease by tbe following conditions: Their regular shape and order, tbat the situetione for tbe deposit of acid be as few ae possible; the conservation of the teetb from noxious influences, by constant brusbing; tbe healthy structure of the tooth itself, and of the moutb generally. Heider observed tbat the yellowish white teeth are lese eubject to the attacks of cariee than those of a bluish shade, the enamel of tbe former being much harder; and the molars have been fonnd to contain more mineral substance than the incisors.

Air-cushion for the Feet in Railway Travel.—A writer in the *Medical Times and Gazette* refers to the fatigue of the limbs produced after a long railway journey as due mainly to the trembling motion of the floor under the feet, and states tbat, having suffered considerably from this cause, he was induced to try the experiment of using the well known air-cusbion as a foot-stool. This answered so well that be has never traveled without using one in this way, and has found tbe effeot to be a remarkable improvement.

Cold Cream.—"B. L." of Sacramento, Cal., eends to tbe *Druggists' Circular* the following formula for making cold cream, which he thinks euperior to anytbing heretofore published: Oil of almonde, (English) 8 oz.; white wax, 1 oz.; spermaceti, 1 oz.; rose water, 6 oz. Put the oil, the wax and spermaceti with 4 oz. of the rose water in a porcelain dish; beat over a wator batb till all is melted. Transfer to a suitablo mortar, and beat constautly till quite cold; then add the balance of the rose water by emall portions, and beat at least ½ bour longer. If rose water is not convenient, use pure water instead, and add 2 drops of oil of roses immediately after the last portions of the cold water. Keep in well closed jars. The selection of the oil of almonds is most important; proeure the best English oil, and beware of the eo-called French oil of almonds; this ie imported here under ite real name—poppy seod oil, and baptised on its arrival "French oil of almonds."

The Agriculture of the Mormons.—Our people wonder much that the Mormons have been able to build a city and find eubsistence for their thousands of people in such a region, but when we learu the qualities of the soil around them, and the nearness and abundanco of mountain springs, the wonder ceases. The labor needed to make their lands fruitful beare no comparison to that the Now England settlers had to expend in order to prepare a place suitable for their crops; and while their soil still retains its rich properties, with no apparent exhaustion, ours has to bo replenished with foreign material every year. They find the earth about them already loose, level and rich; they pour water over them and their vegotables grow abundently, and fruit trees are weighed down with their burdens. It is trne that tbey have to dig long ditches and to construct long sluice ways from the elopes of the hills above them, but thie ie all. There are no forest trecs to be felled, no etumps to dig up, no rocks to remove, no deep plowing to be done, and nb chomical fertilizers to be added, before they can reap rich returns from field and garden. They simply knew twenty yoers ago what the rest of the American people are just discovering, that the greater part of our Centrel desert is in reality no desert at all, but the richest meadow land minus one property—water. And water seems to be the only want of tbe world after we pass the Nebraska pleins. Where brooks and rivers flow, man can live at his ease, wbere tbese are wanting he forsakes the land, sets to work, like the patient Mormons, to lead down the melting snowe of neighboring mountains to water hie crope during tbe rainless midsummer days.—*Cor. Boston Journal.*

A Chiocory Manufactory. — Messrs. Mein & Raab are preparing to establish a chiccory manufactory in this city. Mr. Mein ie a practical manufacturer of the article, and has bad much experience in the business in seme of the most extensive manufecturing establisbments in Pruesia. The experimeut hes been tried by these gentlemen, et a point on the San Joequin river a few miles from this city, but unfortuuately just about the time the machinery was put in successful oporetion and all the necessay apparatus in working order, tbe factory was destroyed by fire. They propose to manufacture chiccory on quite an extensive scale the coming summer, and witb that end in viow have entered into contract with several farmers to supply tbe green cbiccory. It is expected tbat not less than two hundred and fifty acres of land bordering on the San Joaquin and Calaveras rivers will be cropped witb chiccory the present year, aud it is estimated that the yield will range from fifteen to tbirty tons per acre. The yield last year on some land near tbe San Joaquin river averaged the latter amount. Fifteen dollars per ton ie, we understand, the price paid by tbe manufacturee for the green article. Samples of tbe quality manufactured by the gentlemen named have been sent to merchants in New York, Chicago, St. Louis and other large cities in the East for inspection, and the uniform verdict of dealere is that it is far superior in quality to that imported from Prussia, Holland and other eastern countries. The quantity of cbiccory consumed annually in the United States is enormous, and the demand is almost wholly eupplied from abroad. It is probable tbat not less tban a thousand tons will be manufactured by Meine & Raab during the coming summer. *Stockton Independent.*

Deposit of Mineral Paint.—Our attention, says the Indiana *Democrat*, has been called to the wonderful productions of sienna or mineral paint, found in largo quantities upon the farm of John Cessna, in Banks Township, in tbis county. Thie paint comes from a bank of rocks on Straight's Run, and is deposited in large quantities in a dam. It has been pronounced by competent judges a superior article, really better than the sienna imported from France and Italy, for the reason that it is entirely without grit. According to tbe definitions, it is a silicate of iron, and is also called *terra sienna*. It is estimated that tbe deposit is inexhaustible, bundreds of tbousands of tons being expoeed; and this is increased every day by the quantities wbich flow from tbe rocks.

Scientific Press.

W. B. EWER.....SENIOR EDITOR.

DEWEY & CO., Publishers.

A. T. DEWEY, W. B. EWER, GEO. H. STRONG, JNO. L. BOONE.

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San Francisco:

Saturday Morning, Mar. 9, 1872.

Gold and Legal Tender Rates.

SAN FRANCISCO, Wednesday, March 6, 1872.—Legal Tenders buying 91¼; selling, 91¾. Gold in New York to-day, 110½.

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SUGGESTIONS FOR LEVÉE CONSTRUCTORS.—A correspondent. Mrs. Wm. Taylor, suggests as a means of preventing the drying and cracking of the levees, by which the water often finds its way through, that about two feet in width of sand should be filled into the middle of the levees from bottom to top. Such a mode of construction would make them absolutely water tight. Then, to prevent the surface from cracking, it should be covered with six or seven inches of sand as soon as the work has become hard enough to bear the weight of a horse and cart. The sand will act as a mulch to exclude the coöperative action of the sun. A sand or soil suitable for such a purpose can generally be found about 2½ feet below the surface. This remedy only calls for a little more patience and labor, and it is thought that it will be found much more effective and practical, than using the levee as a thoroughfare, for driving stock upon it, as has been suggested

METEOROLOGICAL REPORTS.—The practical value of meteorological reports has been satisfactorily demonstrated by the results accomplished by the U. S. Signal Service during the past year. A comparison between the marine disasters of November and December of 1870 and 1871, shows a falling off from 366 in 1870 to 233 in 1871, and last year was noted for severe and sudden storms. We are glad to see that this important branch of science is properly appreciated in this State, and a bill has been introduced in the Legislature by Mr. Minis providing for the establishment of a meteorological station in every county in the State.

ARTESIAN WELLS IN LOS ANGELES COUNTY.—We learn from an article in the *Star* that there are now about 100 wells in that county, but that half of them are running. One of the best is only 27 feet deep; two are 29 and one 39 feet. These are the shallowest artesian wells in the State. These four shallow wells—a fifth of 92 feet, and a sixth of 135 feet deep—are situated within a radius of four miles, and, together throw up 1,000,000 gallons daily. The average bore of these wells is seven inches.

Our Mining Prospects.

We hear from all parts of the Coast of the prospects of more than an average prosperity in the various gold and silver mining districts. The great scarcity of water that has prevailed during the past two years has had a very serious influence on the mining as well as the agricultural products of this State, and the wonder is that we are able to show such a goodly array of figures in summing up the bullion yield as we have. However, our miners will have no cause to find fault with any scarcity of water this year.

The placer mining interests have suffered more materially than any other, though many quartz mills have been compelled to lie idle or run a limited number of stamps. Now we hear from all parts the good tidings that water is plenty, new mills are going up or are projected, old ones being resuscitated and improvements added, new and improved furnaces being erected in the base metal districts, and ditches being built to supply camps where a scarcity of water has retarded operations, and business prospects look bright everywhere.

California.

In California a number of placer mines which have been abandoned for want of water will be worked to advantage by means of newly introduced ditches. Old districts are being filled with miners who are locating new leads or re-locating old ones which will pay by the processes now in vogue for the extraction of metal. Distant and out-of-the-way places in the State are producing their quota, and localities little known are coming into notoriety. As far north as Siskiyou the placer mines are yielding a goodly quantity of gold and at the extreme southern end, in San Diego county, the two districts located a few years since, bid fair to prove valuable, and that too on their own merits,—little capital being invested there.

Nevada.

The recent rich developments on the Comstock lode in Nevada are calculated to strengthen the idea that this wonderful vein is the best and most permanent fissure vein in the world. It has made for itself a world-wide reputation and is sustaining it well. The metallurgical experience acquired by explorations on that one vein has done more to further the mining interests on this coast than any other one thing. The Washoe process with all its intricacies is well known all over the world The machinery, the results of the labor of inventive genius called for by the requirements of the large bodies of ore of varied character produced by this vein, now enters largely into the metallurgical processes of older countries. A number of new districts have been struck in Nevada, some of which but await the opening of spring to receive a large influx of mining pioneers who seem to be lying in wait for just such chances to "cast their lines in new places" and make a "home stake."

Utah.

In Utah, mining matters, although in their infancy are progressing favorably. She already ranks third in the scale of mineral wealth—California and Nevada only surpassing her. Until the past few years the geological characteristics of that Territory have been but little known, but since the discovery of lead and silver within her borders, the country is covered with nomadic bands and parties of prospectors eager in their search for hidden riches. By the time that this hardy crowd have roamed about for half the time that those of the same class have in California and Nevada we may expect to hear of new and wonderful discoveries and developments that seem to be warranted by present prospects. Utah has already added more than her quota of new districts, during the past year, the accounts from most of which are flattering for future prosperity.

Arizona.

Arizona sends words of cheer intermingled with those of sorrow. Her mines are proving rich beyond expectation; new discoveries are constantly being made and the miners themselves are filled with hopes of future success. But all the news that comes from that remote and half civilized section of this enlightened Republic, contains statements to the effect that not only mining but all classes of industry are seriously hindered by the atrocities of the murderous Apaches. There is no safety for life, limb, or property. Prospecting has to be done in hands or not at all. Peaceable miners in the pursuit of their vocation are shot down, pick and shovel in hand, and no protection is vouch safed by the general Government. The inhabitants saw a glimmer of hope in the arrival of General Crook, whose policy is to exterminate the Indians entirely as the most efficient means of making peace with them, a plan kindred to the sentiments of the residents of the Territory who ought to know what its necessities are. Now, we hear that more "Peace Commissioners" are to be employed and the General's benevolent intentions are sadly interfered with. Well, the authorities know best, of course, but the Commissioners, even after they have made the "most successful and binding treaties" with the fiendish Indians, generally consider it advisable to send requisitions to the officers of the posts for a numerous and well-appointed escort which a private citizen cannot get. This is sufficient evidence of the opinions they themselves entertain of said "treaties."

But how is it with a few poor miners, those pioneers of civilization, many of whose bones lie bleaching on the alkali plains, the result of their unwise prospecting trips. We will hope that some day the Territory will be in a fit state for the entrance of a large number of men who want to go there, but who hear of the enormities committed there and conclude to wait a while. Meantime a few brave and fearless individuals, bronzed and burned by the fierce Arizona sun, contend at the muzzle of the rifle with their wily foes, for the possession of their rights. These are the men who will carry anything through, no matter what, and we expect ere long from the promises she has already given, to see Arizona high up in the list of mineral-producing regions.

Idaho is progressing rapidly; so also is New Mexico. Montana still holds her well-won reputation as a gold-producing territory, and Washington Territory and Oregon furnish a share to swell the general bullion product of the Coast.

Increased Interest.

As soon as the snow is gone from the mountains, parties will be out prospecting, and we may hear of new strikes all over the country. In the older countries in this State, capital is being introduced and developing properties which would otherwise lie idle. The new increased interest in mining affairs is due to recent developments, abundance of water, more efficient management, increased facilities for transportation, improved processes for the extraction of metal and the introduction of both foreign and home capital. Thousands of miners who have valuable mines which have heretofore lain idle will be able to have them developed by this powerful aid, capital.

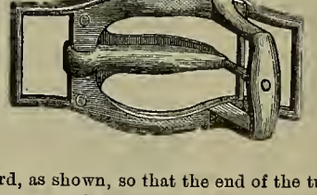
The Coming Year.

The present year will doubtless be the most important one for the mining interests that we have ever had in this country, and with the opening of spring we may look for lively times. This is an acknowledged fact and our capitalists and business men should look to it. San Francisco as the great money center of this Coast should foster this branch of industry as much as possible. Gold and silver must come and mines must be worked to get them. We ought to have the full benefit of all the trade which this industry requires. More attention should be paid to it by affording in this place ample facilities for treating the ores and prevent this wholesale shipment of ore and minerals to Chicago, St. Louis, and Europe. In most of these places, especially in Europeau towns, capital is abundant and cheap, and energy and enterprise not wanting. All we want here is for the capitalists to be alive to their own interests and all the business connected with an industry which produced last year, $80,000,000 in solid coin, will be ours. Hard times are now no excuse; the whole Coast was never so prosperous as when we were distinctly a mining community; the time has come again and let us take advantage of it. The mining interest has been too long in abeyance, and to mining men and mining operations no cold shoulder should be given. There is no pursuit which offers such great inducements and pays as well as mining legitimately carried on.

Improved Tug Buckle.

Any one who has ever had much to do with harness will appreciate the improvement in tug buckles, which our illustration represents. It is sometimes almost impossible to let out or take up a trace, and it can never be done without considerable inconvenience with the old fashioned buckle. If they have been in one place for any length of time they become rusted in, and where the harness is heavy it generally requires some tool to remove the tongue so as to release the trace. The invention represented in our cut is an improved buckle for connecting the trace tug with the hame.

The buckle frame consists of two side bars which are united at each end by rods. One end of each of the bare is turned up-



ward, as shown, so that the end of the tug can pass between the end rod and cross rod which unites the side bars at the point where they are bent. The tongue is loosely attached to another cross bar which unites the two side bars a short distance from the opposite end of the frame, and extends forward towards the cross rod, where it is bent upward so as to pass through the hole in the tug and into a hole in the flat staple plate, between which and the frame the tug passes. A flat spring has one end also secured to the cross bar, and extends forward so as to bear against the under side of the tongue and keep it in place.

The buckle is very strong and can be easily released when desired, in order to change its position. The peculiar construction of the tongue permits the strain to come equare upon the side of the hole in the tug, so that it will last much longer than when the ordinary tongue is employed. A bar provides a fastening for the hame tug so that the two tugs will be connected to the buckle. It will be seen that the tug passes between the two bars without being bent, and is held in that position by the tongue of the buckle. By so doing there is no possibility of the tug getting fixed so as to render it difficult to move. By the tug passing through the buckle without being bent, an important object is accomplished, because it does not wear out so quickly. After a tug has been in one place in the old-fashioned buckle for any length of time, one thickness of the leather is usually worn out, naturally weakening it. By the use of this buckle the harness will last much longer, for this difficulty is entirely obviated, the strain not coming on so small a portion of the leather. This very useful invention was patented through the SCIENTIFIC PRESS agency, by N. D. Fowler, of Valley Ford, Sonoma Co., Cal. Wiester and Co., No. 17 New Montgomery street, are agents.

Our Home Industries.

The Pacific Wire and Wire Rope Co.

The necessities of our community have lately called into existence the above-named company whose efforts to establish a wire manufactory on a permanent basis, have met with successful results. The capital of the company is $100,000, but as yet only $20,000 capital has been called in. The trustees are Jas. B. Stetson (Pres.), J. M. Eckfeldt, Thos. Nelson, Ed. Kruse, J. Gray, A. Furhman and A. S. Hallidie, the latter being Agent of the company.

The works are situated on Brannan street, between Third and Fourth. The main building, two stories high, occupies a space of 35x135 feet. Operations were commenced in October last, since when the weight of wire sold by them has averaged about 20 tons a month. They have 40-horse power available from an adjoining planing mill and give employment to about 20 men. They have at the factory 38 drawing blocks and turn out all kinds of wire from the largest size down to No. 36. The largest made is ⅜ of an inch in diameter and the finest (No. 36 which is four-one thousandths of an inch) would require 250 laid side by side to make an inch.

We saw at the factory a stock of about 100 tons of rods, and there are at the agents about 20 tons of wire, both fine and coarse. There are three annealing furnaces, two large, with a capacity of 3,500, and one small, with a capacity of 1,500 pounds. The drying room is provided with heating apparatus, which enables them to dry about three tons of wire at a time. We saw the process of tinning and also that of coppering wire, the latter of which forms an important branch of the business. The coppered wire is good for making springs for mattrasses, etc., and the tinned wire the broom makers use. The former is run through a bath containing copper in solution, the bundle of wire revolving in it is drawn through the dies two or three times, according to the color it is desired to make it.

All the rods for making the wire are at present imported from England, and one advantage which the company possess is that the import duty on rods is 1¼ cents per pennd while that on wire is 2 cents per pound and 15 per cent. ad valorem. While they import only three kinds of rods, there are 125 kinds of wire used in the trade here. Moreover, the wire is much more susceptible to damage during the voyage than the rods. These rods can be laid down here from 5 to 7⅛ cents, according to quality, while ordinary baling wire sells for about 8 cents per pound, and is made from the cheapest rods. The company are now receiving monthly shipments of about 35 tons of rods.

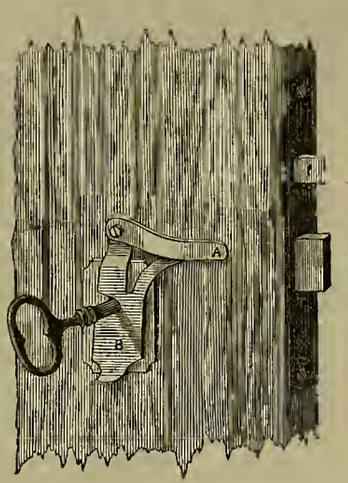
At present they are supplying broom, mattrass, spring, wire rope, and wire cloth makers, and turning out considerable wire for baling and fencing purposes. They propose in time to erect galvanizing works for galvanizing wire. They have so far found more business than their present facilities enable them to meet fairly, and they consequently propose to enlarge the works and increase the capital. At present they have as much to do as they can attend to and find this new home industry a complete success.

AMETHYSTS.—Queen Charlotte's necklace of perfect and well matched amethysts, which was worth $10,000, in her time, would not bring $500 to-day, so rich is the amethyst region of Seven Mountains on the Rhine. May not the increased supply of diamonds, now pouring into Europe from South Africa, and the apparently illimitable supply to come, soon effect a similar depreciation in the value of even that most precious of all gems?

An Improved Bolt-Fastening Attachment for Locks.

The accompanying illustration represents an improved bolt-fastening attachment for locks, which is intended to prevent the possibility of the key being turned from the outside. It may be used on an ordinary mortise door lock. The escutcheon plate, *B*, and the flat spring, *A*, are secured upon the inside of the door, above the keyhole, by the same screw. The spring, *A*, extends at an angle from the keyhole towards the face of the lock, so that its free end will be over the bolt of the lock. On the underside of the free end of the spring, *A*, is a pin which passes through a hole in the door, and also through a hole in the bolt.

The escutcheon plate, *B*, has a spring arm extending upwards towards the spring, *A*, from the side next the face of the lock; and also has a recess cut out of its opposite side which clasps the shank of the key, when the plate is thrown down. When the extremity of the spring arm is pressed down so as to pass under the spring, *A*, the escutcheon plate, *B*, is thrown outward from the key, the extremity or free end of the spring, *A*, will be lifted so as to free



BOLT ATTACHMENT FOR LOCKS.

the pin from the bolt and allow the lock to be operated.

When the escutcheon plate, *B*, is thrown down over the keyhole the spring arm will be freed from the spring, *A*, and stand opposite its edge, thus preventing the removal of the plate, without at the same time pressing the arm downward. The key being clasped in the recess on the side of the plate, cannot be pushed out of the keyhole either when the door is locked or unlocked.

By the use of this device it will be impossible for burglars to open the lock from the outside of the door, as the pin on the end of the spring prevents the bolt being moved either way while the key already secured in the hole prevents the employment of another. The device can be attached to the inside of a door or to the side of a lock and when the bolt is thrown out it will be secured so as to prevent its being turned back to unlock the door by a person on the outside.

The invention is a simple and useful one, and it merits universal adoption, for the key is in no danger of being pushed out and cannot be turned from the outside, while its simplicity and cheapness are also good recommendations. It was patented through the SCIENTIFIC PRESS Patent Agency, by Chas. F. Townsend and A. F. Potter, of Oakland, Alameda County, Cal.

SALES.—Some very valuable mines in Alturas, Idaho, have been sold at good prices to English capitalists, who will immediately put up large mills. It is believed that mining operations will soon be as extensive there as they are now at Owyhee.

British Africa—Diamonds and Gold.

It is now only about two years since authentic information was received of the discovery, in paying quantities, of diamonds in South Africa. Twelve months ago the diamond fields were supposed to be confined to a region of less than 10,000 square miles. Subsequent explorations have already extended them over an area of about 150,000 square miles, or a territory nearly as large as the State of California; and now comes the reported discovery of gold, and that, too, in wonderful quantities!

English Annexation.

The diamond fields were quite outside of the British Possessions proper, or in fact of any other duly established civilized government; but the Cape Colony government claimed a sort of protectorate over the native tribes which inhabited those regions, which soon after the diamond discovery was extended to actual possession. Two colonies of Dutch settlers, engaged in farming and sheep raising, and known as the Orange Free State and Transvaal Republic, were the nearest duly organized European colonies to the diamond fields. A few months only passed before the diamond discoveries were extended to within the jurisdiction of both those colonies, and now, simultaneously with an announced discovery of gold in the latter named colony, we hear that the Cape Colony authorities, acting under instructions from the Home Government, are issuing proclamations (five in number) annexing to the British Possessions portions of both these Dutch Republics—all in fact that is supposed to be valuable for either gold or diamonds. Of the question of right in the matter we know but little; but from papers and documents before us, emanating from these independent governments, we learn that the right is disputed and solemnly "protested" against. Of course the recent discoveries have led to quite an influx of English miners, so much so that they are said to outnumber the Dutch, and may have invited their friends to come in and assume the reins of government. If so, the English rather have the advantage, and will undoubtedly make it another case of "manifest destiny!"

Another California.

It thus seems almost certain that Great Britain has or soon will come into quiet possession of one of the richest and most important regions on earth—another California in fact, worth vastly more than their Australian possessions. The climate of the region is very much like that of California, and it is equally as valuable for the variety and large yield of its agricultural productions. The country is well timbered, and watered by the Orange river—a noble stream larger and longer than the Sacramento, though as yet but little explored. The gold discoveries have been made in the mountains at the head waters of this river and its tributaries; while the diamond fields are located in what corresponds to our foothills. History shows that nothing hastens colonization like the discovery of gold; and with both gold and diamonds, added to a country of unusual climatic and agricultural advantages, we can see nothing but a brilliant future for this latest El Dorado.

The Diamond Fields,

In their geological structure, are very much like portions of the Table Mountain Range of this State—clearly of volcanic drift—pebbly strata intermingled with tufa scoriæ. The diamonds are found in the wash from these deposits, or in the undisturbed deposits where they have been cut through by modern streams.

The "finds" have sometimes been wonderful, and several millions of dollars have already been realized from the diamonds which have been taken to Europe. The precious stones are sometimes found near the surface, but more frequently the diamond-seeker goes down 15, 20 or 50 feet deep to reach the strata in which the object of his search is found. The latter figure is the greatest depth yet opened. The "diggings" are considered quite as good as those of Brazil or even Golconda. The claims—30 feet square—are staked out by government officers, who collect licenses according to the number of hands employed in each claim—about 42 cents for each hand per month. The revenue derived from this source is devoted to maintaining order, which is everywhere preserved. The actual workers are mostly natives who labor for 75 cts. per day or 50 cts. and rations. There is no danger of the natives stealing the diamonds, a very severe penalty is put upon any person buying a diamond from a native, and they can go no where else to sell them.

The strata in which the diamonds are found when first brought to the surface is very hard. It soon, however, "slacks" and is then washed in rockers, similar to "gold rockers." The heavy matter resulting from these washings, and which is saved to examine for diamonds, consists mostly of fine red gravel and variously colored stones, similar to those found upon the the beach at Pescadero, and upon the banks of the Sacramento at Martinez. This matter is dried and spread out upon a table where it is thoroughly examined for diamonds; which is usually done by the claim-holders or members of his family; many of the diamond-hunters being heads of families who have heretofore resided in the vicinity of the mines or in Cape Colony from 300 to 600 mile to the south. The diamonds by working are entirely separated from all dirt, and generally come out bright and clear as drops of water. They however require cutting and polishing to bring out the glitter and sparkle of the true diamond.

At the Mineralogical Museum of Mr. Henry G. Hanks, 649 Clay street, specimens can be seen showing the geological character of the region. At that place may be seen a specimen of the "upper crust" as it is called, which lies immediately under the loose soil; then the material in which the diamonds are found, corresponding to the "cascahalo" of Brazil, which is seen in the siftings or residue of the washing of this substance, showing the minerals with which the diamonds are associated, and which, it will be seen, is identical in character with the well-known Pescadero pebbles. The diamonds themselves, however, are not to be seen—they are rather too valuable for even such a wonderful cabinet as is exhibited by Mr. Hanks. These specimens were obtained from Mr. J. W. Riley, who has recently returned from the diamond fields.

Order and Quiet

Everywhere prevails. No work is done on the Sabbath; the native colonists, who by their number give character to the community have ever been a quiet, industrious, law-abiding people, respecting the laws of both God and man, and always keeping the Sabbath day holy. The English authorities insist upon continuing this custom. The consequence is that life and property is as safe there as in any part of the world.

The Gold Discovery.

As already noted, those discoveries have been recently made and are now confirmed. The gold is found in the Transvaal Republic, along the upper waters of the rivers, above the diamond fields, in a range of mountains quite as extensive and elevated as the Sierra Nevada, and very closely resembling them in direction, position with regard to the sea, and general geological formation. The gold thus far discovered is upon the slope opposite to the sea, or inland. But there is good reason to expect that it will also be found on the opposite or seaward slope. The gold is found in latitude 25 degs. S. and longitude 107 E. from Washington. It is found in both gravel and in quartz. The gravel (surface) is reported very rich and coarse. Several quartz ledges have been found which show rich gold upon the croppings. None, at last accounts, had been explored beneath the surface. About a ton of the quartz and some of the gravel had been taken to Natal for examination and proof of the reality of the discovery; and many persons are leaving for the mines. We gather these facts from extracts from the Transvaal and Natal papers, and from information furnished by Mr. Riley.

How to Get to the Diamond Fields.

There are several well established lines of stages, one or more of which are under Yankee management, with "Concord Coaches," running from the various ports of the Cape of Good Hope Colony, with distances varying from 600 to 750 miles—fare about $75. The Cape ports may be reached by sailing vessels which are frequently leaving Boston or New York, either direct or to touch there. There is also a regular steampship line from Southampton, Eng., to Cape Town and Port Elizabeth—fare $150, time, 50 days. Provisions, clothing, etc., can be purchased as cheap at the Cape ports as in England or New York.

Golden Chariot Mining Co.

The annual meeting of the Golden Chariot Co. was held on the 4th inst., and the following Trustees elected: S. Steinhart, G. L. Bradley, A. J. Bryant, D. Fay, S. Linkton, C. W. Fox, and A. H. Lissak Jr. The Secretary's report shows the following items:

RECEIPTS.

Cash on hand, February 1, 1871	$60,954
Assessment	80,000
Bullion production	396,653
Miscellaneous	5,393
Overdrawn in bank	4,084
Total	$547,084

DISBURSEMENTS.

Dividends to stockholders	$130,000
Golden Chariot Stull Company	20,234
General expenses	11,921
Milling	133,280
Hauling	24,039
Labor	143,871
Supplies	48,205
Freight on treasure	7,167
Miscellaneous	26,548
In the hands of the Superintendent	1,819
Total	$547,084

The miscellaneous disbursements embrace assaying, exchange, freight on supplies, machinery, interest, office rent, etc. The total assets amount to $74,903 against $19,-084 liabilities.

PROSPECTORS from Chico have struck a good lead on the Bidwell road, about 25 miles from that place.

Domestic Economy.

Soup, and How to Make It.

It is, I thiuk, mnch to be regetted that good eoup is unknown in nine houses out of ten; for the wishy-washy, greasy liquid which ignorant cooks, who have no knowledge of the science of cookery, impose upon their employers, is not soup at all; and one might just as well imhibe the water in which the dishes of yesterday's dinner were washed. The unwilling guest is too often forced to partake of a nauscous and indigestihle composition, which annoys the palate, and agaiust which the stomach will revolt. How much better it would be to commence dinner with some plainly dressed but wholesome fish, or a thick soup, which can he achieved by any tolerable cook; but to mako a good clear soup requires experience and skill, and a certain amount of knowledge of the chemistry of gastronomy. A good clear soup is a *chef d'œuvre*, and is infallibly the work of a culinary artist of no mean order. Stock is the basis of all soups; it is the soul of cookery; and it is hardly to be expected that one with but a smattering of culinary knowledge (most cooks knowless of cookery than anything else) should yet be able to uuderstand its vital principle.

Thick soups are useful for luncheon; and when a substatial meal is required they are better calculated to satisfy the appetite; whereas thin soups, to a certain extent, only excite it. Hence, when other things are to follow, and it is not intended to choke off the guest at first, a clear soup tends to stimulate the appetite to further gastronomic delights, whilst a thick soup is calculated to cause repletion, and so to prevent the palate from enjoying those pleasures which the art of cookery, with a lavish hand, presents to its consideration.

The skillful amalgamation of materials, aided by knowledge of the eseential prinplee of culinary chemistry, coustitutee a judicioue combination of subtle esseuces and mysterious flavors, all evident, but none predominating—an harmonious and delicate mixture of vegetable and animal juices, which the enraptured epicure denominates soup. The etock, the cornerstone of the fahric, should be made of good fresh meat; the stock-pot ehould be gradually heated to the boiling point, and vegetables, etc., added; it should be well skimmed and cold water should be occasionally thrown in to facilitate the rising of the scum, as this proces of skimming is essential to the making of ~good soup. The kind of meat should he either leg or shin of beef; the meat should he cut off the bone, and the bone should be chopped. The stock-pot ehould not be allowed to boil again, but should be gently simmered for five or six hours; and by this process the full flavor is extracted hoth from the meat and from the vegetables.

Stock, too, should always he made the day before it is required to be used for soup, as the fat will, when cold, settle upon the top of it in cakes, which are very easily removed. Bones of fowls, game, rabbits, or meat trimmings, may be used in addition to leg or ehin of beef in the preparation of etock; but to make it for white eoupe it must necessarily be white, aud so veal, fowl, aud rabbit only aro admissible in making white stock. I think that soup is worthy of occupying a high place in the scale of culinary education, and a prominent position in the study of dietetics, when it is remombered that the osscnce of meat is rendered more palatahlo and digestible when mixed with other essences aud flavors.—*Ex.*

Cooking Food Below 212° F.—Dr. Jeanel. From a series of experiments, it appears that food (meat as well as vegetahles) hoiled at 200° is more nutritious and of hetter flavor than when boiled at or above 212°. The author illustratee this point by what takes place in mountain localities (every 100 metres' rise above the sea-lovel makes a differnce of 0.6° less in the boiling-point of water); as, for instanco, at Potosi, Bolivia, at 4,061 metres above sea-level, the water hoils at 187°; at Mexico, 2,277 metors ahove sea-level, water hoils at 198°; at Briancon, France, 1,321 metres above sea-level, at 184°, also by the action of the so-called Norwegian cooking apparatus.

A Substitute for Butter.—It may interest many of our readers to know that the demand for clarified hcef suet, as a substitute for hutter for cookiug purposes, is increasing. It is sold in London for half the price of the best butter; and it will keep good much longer, without the admixture of ealt.

How to Trap Rate.—These vermin are often a sore pest to houeekeepers, and any new idea which will lead to their extermination is alwaye of interest. A correspondent of the Germantown *Telegraph* writes as follows: "To keep rats within endurahle bounds is somewhat a difficult matter, for a rat is as cunning as a fox, and as hard to catch; but there is such a thing as working strategy on it. A rat never digs a hole without it has some projection to begin with, eay a stone, a stick of wood, or anything elee that makee an angle with the ground; a cellar wall it likes the heet. If a rat is chased in a cellar, or other room, it will run round by the wall, and is decidely averse to leaving it. From this hahit we have a hint how to out-general it. The common steel-trap is the best article for the purpose. Stand a barrel or box, or other article, within four inches of tho wall, and in that open space set the trap, without anything to hide it. The rat, in following the wall, will go into the trap rather than go round the barrel. When it is caught, emoke the trap with a piece of burning paper, ehift your barrel to another place and eet the trap as before.

Good Fried Cakes.—A correspondent of the *American Rural Home* furnishes that journal the following: Take one-half cup of eugar; one cup of sour cream; one egg; one tea-spoon full of cream of tartar; one tea-spoon full of soda, and a little ealt. First beat the egg, then add the eugar, etirring to a creamy consistency; dissolve the cream of tartar and soda together in a cup of cream and add to the egg and sugar, etirring in the flour until the mass becomes quite stiff. Then flour the moulding-board, turn upon it the dough, work in as little extra flour as possible in getting the mass to a proper consistency for frying. Sweet cream or milk may be uscd when sonr cannot be had.

How to Choose Butter.—Put a knife into the bntter if salt, and smell it when drawn out; if there is anything rancid or uupleasant, it is bad. Being made at different time, the layers in casks will vary greatly, and you will not easily come at the goodness but by unhooping the cask, and trying it hetween the staves. Fresh butter ought to smell like a nosegay, and be an equal color all through; if sour it has not been washed enough; if veiny and open, it has been mixed with an inferior sort.

A solution of three parts of borax and two and a half parts of eulphate of magnesia will render dress fabrics fire-proof.

Mechanical Hints.

Alloy for Joining Brass to Iron.—The difficulty of uniting iron to brass lis created by the unequal rate of expansion in the two metals, which destroyes the unity when the temperature is changed. There is an alloy of copper for which the inventor claime that its expaneion by heat is so eimilar to that of iron and steel, that the eurfaces may be regarded, when joined, as permanently united for all practical purposes. The formula is as follows: Tin, three parts; copper, thirty-nine and a half parts; and zinc, seven and a half parts.

Architectural Competition in Berlin. The German government intends to erect a new Parliament house in Berlin, and architecte of all nations are invited to send in designs for the huilding before April 15th next, appending their names, to the Imperial Chancerÿ in Berlin. A prize, amounting to about $4,250 of our money, will be awarded for the accepted design, and emaller premiume will be given for each of the next four, in the order of merit.

Bronzing.—The red bronze seen on some chandelier work ie produced hy dipping the work in nitric acid, in which old rusty nails or iron must have been put. The work is afterwards dressed with Venetian red and stale heer, and well brushed; wiping the mixture off from the most prominent parts. The operation secms simple, but it requires no mean ekill to securo good results and tasteful effects.

French silver lac consiets of very finely divided tiu precipitated from its solutiou by means of zinc. Applied by eome adhesive substance to wood, paper, and metals, it communicates to them a metallic silvery appearance.

Damp walls may ho prepared for paiuting by applying with a brush, while hot, a mixture composed of one pound of glue diesolved in a gallon of water and thickened with red lead.

Desilverizing Black Copper.

A correspondent of the *Mining Journal* describee the process of desilverizing black copper, by a cold salt solution, as practiced at the Tajovaer copper works, as follows: The metal treated at these works consiste of the Altgebirg black copper, free from lead, containing 80—84 p. c. copper, 0.0003—0.00036 grammes silver and 3.7 per cent. antimony; and the plumbiferous roasted copper from the silver works contaiuing 70.80 per cent. copper, 0.0002—0.00025 pounds eilver, and 9.15 per cent lead. Also the cement copper from the mint at Vienna containing 40.60 per cent. copper and 0.0005 — 0.0023 grammes silver.

After having been reduced to a proper condition of fineness, the copper is subjected to a chloridizing roasting in a furnace having a double hearth. The precautione being observed in mixing the ores that the percentage of lead in the copper must not exceed 7 per cent.; that tho subordinate products added shall he divided equally among the different charges to the furnace, and that the differont charges to be roasted are made as uniform as possible. The preliminary roasting is carried on in the upper hearth, and this lasts 5.7 houre, a dark red heat being maintained and the charge continually worked over. Lumps of ore must be prevented as far as possible, as hindering the formation of argentic chlorides. The charge is then removed to the lower hearth where the silver is entirely converted to argentic chloride at a high red heat. At this period those portions rich in silver (e. g. cement copper) are added, which it is desired to roast as ehort a time as possible.

In order to decompose the antimoniates and arseniatee formed and to volatilize the antimony, about 4 per cent. of coal dust is added in three charges, at intervals of half an hour. The last roasting ie intended in part to change the salte and chloride of copper aud iron to basic salts and oxides. After the roasting has been completed the fire is withdrawn and the charge gradually cooled for half an hour, heing continually raked over; after which it ie formed into a pyramid and left to the action of the chlorine for auother half hour. After this the charge is withdrawn from the furnace, having gained 30.33 per cent. in weight by oxidation and chlorination, and is spread out on iron plates. After becoming cold the ore is passed through a rotary sieve to separate the lumps formed. The silver is extracted by a sodium chloride eolution, having a density 22° B., and temperature of 12°—20° C., in order to entirely dissolve the argentic chloride, which temperature must be maintained in the room for the workmen in the winter, so that the solution requires to be heated but very seldom. The silver is precipitated by granulated copper aud the copper by iron. The eodium chloride dissolves most of the silver within the firet two hours, which gradually decreases so that in the thirtieth to the thirty-third hour it contains but a trace of it.

The Wine Interest.

The Napa *Register* collatee the following touching the wine interest: "The product of the principal wine districts of the south of Europe—the south of France—the Rhine and Moselle in Germany—is largely deficient, both in quantity and quality. In Portugal and Spain, including their depeudencies, the Azore and Madeira islands, the quantity is ehort and the quality poor. In Hungary the quantity is fair, but quality very poor. In ehort, the vintage of 1871 is almost a failure in all these districts from which our country has hitherto drawn its supplies. As a natural result of this failure, our California winee will be in demand. The foreign market being short, we mnst supply the demand in the Eastern States; hence, the prices of native wines muet rapidly and materially advance. Indeed, we learn that speculatore are now paying thirty-five cente per gallon for Mission wines, which have heretofore commanded no more than twenty-five cents; and wines of foreign variety are advancing accordingly."

The engineer of the Alexandria, Va., hydraulic steam fire-eugine, while cleaning out his apparatus a few days ago, found three live fish in the pumps. They had undergone some rough treatment since they left the street mains, having lost all their ecales, and a portion of their tails, but othorwise were apparently in good conditiou.

Miners, mechanics, write for yonr paper.

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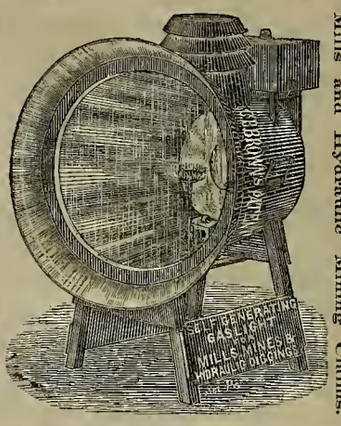

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☞ For rapidity pulverizing and amalgamating ores, they have no equal. No effort has been, or will he spared, to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam hottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the apperture and between the grinding surfaces.—Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Settlers made on the same principle excel all others They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

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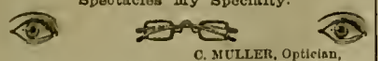

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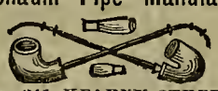

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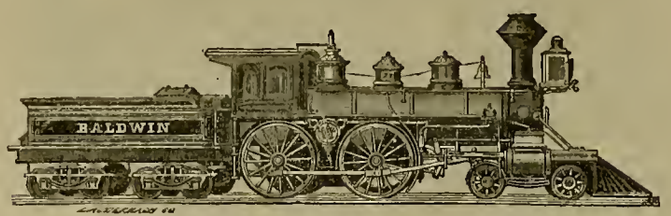

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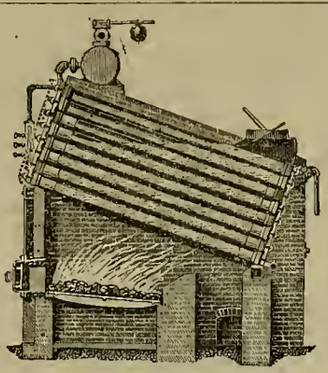

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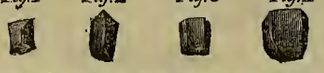

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Dupont's Blasting Powder, in air-tight corrugated Iron Kegs, C-F-FF-FFF.
Dupont's Celebrated Brand, Diamond Grain, Nos. 1, 2, 3 and 4, in 1 lb. and ½ lb. canisters.
Dupont's Unrivalled Brands, Eagle Duck and Eagle Rifle, Nos. 1, 2, 3, in half kegs, qr. kegs, 5 lb. tins, and in 1 lb. and ½ lb. canisters.
Dupont's Standard Rifle, Fg-Fg-Fg, in kegs, half kegs and qr. kegs, and in 1 lb., ½ lb., and ¼ lb. canisters.
Dupont's Superior Rifle, F-FF-FFF, in kegs, half kegs, qr. kegs, and in 1 lb., ½ lb. and ¼ lb. canisters.
Dupont's Cannon, Musket, Meal and Fuse Powder.
WINCHESTER REPEATING ARMS (Henry's Improved) and FIXED AMMUNITION.
A large and complete stock of these celebrated arms constantly on hand, to wit:
Repeating Sporting Rifles—Oiled Stocks.
Repeating Sporting Rifles—Varnished Stocks.
Gold, Silver and Nickle-plated Rifles—beautifully Engraved.
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Muskets—Angular or Sword Bayonets.
Full stock constantly on hand of all the different parts of these Arms.
Cartridges in cases (Brand H), manufactured by the W. R. A. Co. expressly for their arms.

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Above Named Merchandise
Always on hand and for sale by
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The California Powder Works
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Manufacturers and have constantly on hand
SPORTING,
MINING,
And BLASTING
POWDER,
Of SUPERIOR QUALITY, FRESH FROM THE MILLS. It being constantly received and transported into the interior, is delivered to the consumer within a few days of the time of its manufacture, and is in every way superior to any other Powder in Market.
We have been awarded successively
Three Gold Medals
By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others.
We also call attention to our
HERCULES POWDER,
Which combines all the force of other strong explosive now in use, and the lifting force of the NEST BLASTING POWDER, thus making it vastly superior to any other pompound now in use.
A circular containing a full description of this Powder can be obtained on application to our Office.
16v20-3m JOHN F. LOHSE, Secretary.

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All kinds of Lamps altered to burn Patent Oil with or without chimneys. Gasoline and Patent Oils for Stoves and Lamps for sale. County Rights for sale.
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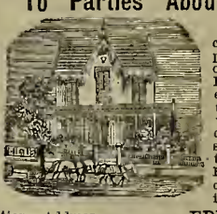
To Parties About Building.



A person who is competent to prepare plans and take charge of the construction of Dwellings, Mills, Bridges, or other architectural improvements, will make favorable engagements with persons or corporations in the city or the interior. Has had full experience on this coast, and can insure good satisfaction. Address EDW. W. TIFT,
5-v24-8a No. 807 Howard street, San Francisco.

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For any case of Blind, Bleeding, Itching, or Ulcerated Piles that DE BING'S PILE REMEDY fails to cure. It is prepared expressly to cure the Piles and nothing else, and has cured cases of over 20 years standing. Sold by all Druggists. Price, $1.00.
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Cor. Clay and Sansome streets, San Francisco, Cal.

Notices of Recent Patents.

Among the patents recently obtained through Dewey & Co's. Scientific Press American and Foreign Patent Agency, the following are worthy of mention:

Device for Steadying Wagon Poles.—Reuben Seadens, San Francisco, Cal. This invention relates to a device for steadying the poles of wagons and more particularly of heavy trucks, to prevent them from striking the horses when passing over cobbles, or uneven surfaces, and it consists in the employment of two cylinders containing elastic springs. A rod from the hames on the harness of each horse passes through one of these cylinders so that the elasticity of the spring shall be utilized by any strain brought upon it. The other end of the cylinder is connected with a bar upon the top of the pole by means of a rod and link or ring and the horses are thus much relieved from the successiou of blows from the pole.

Metallic Filter.—E. J. Fraser, San Fraucisco. This invention cousists in the employment of a series of screws of amalgamated wire cloth or other suitable substance which are cut into the form of the containing vessel into which they are packed, one above another, until they have a considerable thickness. The tailings or slum containing the float gold are then passed through this filter which detains the gold and can be cleaned up in the usual manner at any time.

Air-Exhausting Apparatus for Preserve Cans, Etc.—D. N. Phelps, San Leandro, Cal. This invention relates to an improved apparatus to be employed in connection with an air pump for the purpose of exhausting the air from cans, jars and other vessels. And it consists mainly in so constructing and arranging the receiver or covering vessel, that the orifice through which the air is extracted from the jar, can he closed before removing the receiver from over it.

New Incorporations.

The following have filed certificates with the County Clerk, San Francisco.

Keystone Quartz M. Co.—March 1. Location: Sierra county. Capital stock, $1,000,000, in shares of $100 each. Trustees—H. Scammon, H. D. McCarty and L. F. Harris.

Pacific Proprietary Medicine Co.—March 2: Capital stock, $1,000,000, in 50,000 shares. Trustees—Mark Brumagim, J. H. Fish, R. Goodwin, J. P. H. Wentworth, J. C. Dixon, L. Lanszweert and Wm. A. Coggeshall.

Calaveras Hydraulic M. Co.—March 2: Location: Calaveras county. Capital stock, $3,000,000, in 30,000 shares. Trustees—J. P. Shear, Henry C. Lee, W. H. Knight, Ahram Shear and Geo. R. Eckley.

Alaska Consolidated M. Co.—March 2. Location: Coleman Mining District, Lyou county, Nevada. Capital stock, $1,500,000 in 15,000 ehares. Trustees—H. T. Wheeler, H. P. Wakelee, H. C. Kibble, C. Coats, J. H. H. Williams.

Constitution Tunnel M. Co.—March 4. Location: Ely District, Nevada. Capital stock, $150,000, in 15,000 shares. Trustees—J. B. Cavallier, John Cahill, E. J. Baldwin, Richard O'Neill, C. N, Fox.

Lehigh S. M. Co—March 5. Capital stock, $3,000,000, in shares of $100 each. Location: Pioche District, Lincoln county, Nevada. Trustees—George W. Smiley, Charles M. Chase, M. G. Gillette, George D. Roberts and Maurice Schmitt.

An Explanation seems due from us in regard to a failure to correct a mistatement occurring in an advertisement of Messrs. Treadwell & Co., in the Press, which notice affirmed that the Blake Patent Steam Pump received the first premium "at the *last* Mechanics' Institute Fair." After the advertisement appeared in the Press, Messrs. Treadwell & Co. sent to our advertising compositor direct (instead of to our business office) quite a number of corrections in pencil marks, together with the word *last* in the above quotation blotted out in colored ink. Not being marked in usual printer's style, but in a different, although conspicuous color, the intended erasure was not noticed by the compositer, and the change consequently not made. Mr. A. L. Fish, agent of the Knowle's patent pump, visited us last week with his card, which was published in our last issue, (and which will partly explain the uecessity of this paragraph) and asked us if such correction had been sent to our office, and we iuuocently and confidently asserted the negative. While we do not consider our compositor reprehensible for the omission to make the intended correction, we must say we sincerely regret the unpleasant occurrence, which was unquestionably brought about hy the above misuuderstanding.

The Giant Powder Question in Grass Valley.

Our readers will learn the coudition of the giant powder question in Grass Valley hy reading the following, which we condense from the G. V. *Union* of the 5th inst:

Sunday evening last, the miuers working under ground in the Eureka mine concluded to strike. The idea was to stop the use of giant powder in the mine. Mr. Watt, the Superintendent, talked to his men, and tried to show them the unreasonableness of such demands. He gave them until yesterday to consider the matter and asked them uot to act hastily on the suhject. The men went to the dry house and talked the matter over. A majority concluded at once to quit work. Some, however, saw the justice and the reason of Mr. Watt's position, and voted against the strike. The majority ruled, however, and the men were paid off and left. Yesterday morning several who left on Saturday went into the mine as usual. All who went down were distinctly iuformed that they did so with the full and perfect understanding that the mine must always be worked as the Superintendent directed.

Suhsequently the men who went underground concluded they were not safe in workiug. Some of them remarked that they were afraid of the Miners' Union. On going outside they met four men who represented themselves as a committee, duly authorized hy the Miners' Union, to have all work stopped in the Eureka mine. Some of the workmen who had just oome out of the mine remarked to the committee that they wauted to work, and the committee replied that if any one worked in that mine it would he the worse for such workers. In other words, the Committee said that the Miners' Uniou would not allow men to work in a mine where giant powder was used.

This committee may not be empowered to act for the Miners' Union but they pretend to do so. The Miners' Union must repudiate the act of the committee of four, or the Miners' Union endorse the same. The citizens of the town are prepared to meet all emergencies. There will he no Amador war in this case. That sort of a war requires a great deal of red tape. This war will he shorter and very much sharper than the Amador affair. The men who want to work can go into the mines with perfect safety. The country will protect them.

Mechanics' Institute.

The quarterly meeting of the members of the Mechanics' Institute was held on 2d instaut. President Hallidie submitted his report and said that the committees to whose charge the various interests of the society were committed had fulfilled their duties satisfactorily. A new catalogue of the library is being made out, large additions haviug been made to it.

Patent Office Matters.

The commissioner of Pateuts has designated the Mechanics' Institute as the place of deposit, in the city of San Francisco, for the Patent Office weekly reports, and through the efforts of John O. Hanscom, one of the Trustees of the Institute, a large number of models have been presented to the Society hy the Commissioner, and will shortly be received and displayed for the benefit of all concerned. From the British Patent Office the Society has received the complete abridgement of specifications from 1542 to 1867; also complete indices and other documents of valne to the inventor. The Trustees are still making an effort to ohtain the British Patent Office Reports in full. These reports cover the whole ground of patented inventions in Great Britain from the earliest time, and consists of ahout 2,500 folio volumes.

The affairs of the Institute are in a satisfactory condition. The library is hereafter to he open on Sundays from 2 until 9 P.M.

There is considerable excitemeut in Carrsville, Ky., over the discovery of rich deposits of lead aud other ores at that place.

On File.—Communication "from L. P. Mc.;" letter from "W. M. E."

Daily Weather Record,

By the U. S. Army Signal Service, for the Week Ending Wednesday, March 6, 1872.

Place of Observation.	Date.	Hight of Barometer.	Thermometer.	Rel. Humidity.	Direction of Wind.	Vel. of Wind. Miles per Hour	Force of Wind. No. Beaufort's Scale.	Amount of Lower Cloud.	Rainfall since last Report.	State of Weather.
San Fran'co.	Thu...29	30.21	47	77	Calm			4-4		Cloudy
	Fri....1	30.24	51	86	Calm			4-4		Threat'g
	Sat....2	30.31	50	93	Calm			4-4		Cloudy
	Sun...3	30.18	51	86	N.W.	15	Brisk	4-4		Cloudy
	Mon...4	29.95	53	95	Calm			1-4		Fair
	Tu....5	29.88	55	62	Calm			3-4	.55	Cloudy
	Wed...6	30.18	50	99	W.	8	Fresh			Clear
San Diego.	Thu..29									
	Fri....1									
	Sat....2	30.17	48	77	N. E.	2	Light			Clear
	Sun...3									
	Mon...4									
	Tu....5									
	Wed...6									
Virg'a, M.T.	Thu..29									
	Fri....1									
	Sat....2	29.78	29	78	Calm			4-4		Lt. Snow
	Sun...3									
	Mon...4									
	Tu....5									
	Wed...6									
Cheyenne.	Thu..29									
	Fri....1									
	Sat....2	30.21	36	80	S. E.	5	Gentle	2-4		Fair
	Sun...3									
	Mon...4									
	Tu....5									
	Wed...6	29.78	41	72	N. E.	12	Fresh	1-4		Fair
Cheyenne.	Thu..29									
	Fri....1									
	Sat....2	29.95	25	77	N.W.	7	Brisk			Clear
	Sun...3									
	Mon...4									
	Tu....5									
	Wed...6									
Denver.	Thu..29									
	Fri....1									
	Sat....2	29.99	35	54	N.W.	4	Gentle	1-4		Fair
	Sun...3									
	Mon...4									
	Tu....5									
	Wed...6	29.85	46	53	W.	9	Fresh	3-4		Cloudy
Omaha.	Thu...29									
	Fri....1									
	Sat....2	29.94	27	88	Calm			3-4		Cloudy
	Sun...3									
	Mon...4									
	Tu....5									
	Wed...6	30.18	28	77	S. E.	7	Fresh	1-4		Fair
Davenport, I	Thu..29									
	Fri....1									
	Sat....2	30.11	33	74	Calm			3-4		Cloudy
	Sun...3									
	Mon...4									
	Tu....5									
	Wed...6	30.47	24	88	E.	2	Light			Clear

Rainfall at Turlock, San Joaquin Valley.

Eds. Press:—The amount of rain for the season to date in this portion of San Joaquin Valley is as follows:

To January 1st	8.52 inches.
For the month of January	2.22 inches.
For the month of February	2.42 inches.
Total for the season	13.16 inches.

To compare with former years:

Total rain to March 1st, 1869	9.93 inches.
" " " " 1870	6.35 inches.
" " " " 1871	4.80 inches.
" " " " 1872	13.16 inches.

It may he well to mention that all measurements of rain at this point have been made with the same gauge each year, and that the instrument used is the brass cylinder gauge of the Smithsonian Institute at Washington. The same instrument having been used constantly here, we are enahled to compare faithfully the past four seasons in our locality. It is seen that to date we have had nearly three times as much as fell to this date last year; more than twice as much as in 1870, and nearly one-third as much again as fell in 1869 to March 1st. Between five and six inches fell after thie date in the spring of 1869; hence we have good reason to expect not far from 20 inches as our total rainfall here for the present season—certainly something hetween 17 and 22 inches. Indeed, everything continues to indicate just such an average season as has followed our dryest years for three succeeive periode since '49. The effect of these excellent rains, whose distribution is all we could have asked on our sandy soile, is evident in the fine appearance of our grain fields. By the common consent of our oldest settlers, never has the prospect for first-class crops been more promising in San Joaquin Valley

Turlock, Stanislaus county, March 1, 1872. J. W. A. W.

Scientific Press.—The Press has heen one of our best exchanges as a mining journal, and is considered by all as the hest practical mining journal in the United States. It is a finely illustrated, mechanical and industrial newspaper, and the only one of that kind on the Pacific Coast. It is puhlished hy Dewey & Co., who are reliable patent agents for inventors. We can recommend it to our readers. —*Eureka Sentinel.*

RICHARD H. BUEL, Consulting Mechanical Engineer, 7 Warren Street, New York. Advice and assistance given to those who deeire to invest funds in meritorious and valuable Patent Rights. Machinery of all kinds bought and sold. Unusual facilities for testing engines, boilers and other machinery. I refer particularly to Professor R. H. Thurston, of the Stevens Institute of Technology, who has conented to associate himself with me in consultation on matters of special importance. 10v24-13t

The Evangel, Office, 414 Clay street, San Francisco. Terms, $4 per year, in advance. The Evangel is the organ of the Baptist Denomination for the Pacific States and Territories. All efforts on the part of brethren and friends to extend its circulation will be gratefully appreciated. $3, for one year's subscription, will be received from new subscribers, strictly in advance. Address "Evangel, San Francisco, Cal." Sample copies furnished free. 4v3-1ambptf

University of California.—The Preparatory Department is under the charge of five Professors of the University, and six tutors.

Besides the studies of the public schools, Algebra, Geometry, Latin, Greek, German, French, Spanish and Book-Keeping are tanght.

Terms: Board and tuition, 4 weeks, $30. Students received at any time. George Tait, Oakland, Master Fifth Class. se9hptf

$5 to $20 per Day and no Risk.—Do you want a situation as salesman at or near home to introduce our new 7-strand White Wire Clothes Lines, to last forever. Don't miss this chance. Sample Free. Address Hudson River Wire Works, 75 William street, N. Y., or 1 Dearhorn street, Chicago, Ill. 23v1-12mbp

A Package of Flower Seeds will be sent free to every applicant enclosing two stamps for W. B. Dimon Jr., & Co.'s Catalogue of Vegetable and Flower Seeds, Budding Plants and Flowering Bulbs; Brooklyn, N. Y. mar2-4t

Continental Life Insurance Co., 302 Montgomery street, corner of Pine.

ELECTRO-CHEMICAL

Dry Amalgamation.

THE PAUL PROCESS.

This system is now brought to a complete degree of practicshility, aa well as cheap, simple and thorough in operation, and I am prepared to furnish all machinery requisite for working the process from three tons to 100 per day, aud offer my services to the mining community for the overcoming, by this process, of all the difficulties connected with the amalgamation of the precious metals from milling ores—no matter how fine the gold combined, the silver, or rebellious the ore, the bullion always ranging from 950 to 980-1000 fine. Pamphlets explaining process can be had, free of expense, on receipt of address. For furthrr particulars apply to

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SUCCESSOR TO
F. MANSELL & CO.,
House and Sign Painters,
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With Punctuality, Cheapness and Dispatch.
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Miners Using Powder

Containing Nitroglycerine, giving off deleterious odors, should read the description, in the Scientific Press, August 5, 1871, of the patented process for instantly dispelling the noxious gases; and for further information address Dr. A. Blatchley, patentee, at Scientific Press Office, S. F. 8v24tf

Phelps' Patent Animal Trap,

FOR GOPHERS, SQIRRELS, RATS, COYOTES, and other "Varmints."

This Trap, as may be seen, is of simple construction and not likely to get out of order, and very durable.

It is Very Efficient

and can be used conveniently hy women or children. THE CHEAPEST AND BEST YET INVENTED. Price 50 cents. By mail, prepaid (to places where express charges are high), $1. A liberal discount to clubs or dealers who huy by the dozen. Address the inventer and manufacturer, D. N. PHELPS,
al-1y-awhp San Leandro, Alameda County, Cal.

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MANUFACTURER OF TOOLS
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Molding, Turning, Carving, Etc.
Mortise Chisels, Blind Chisels, Crotchet Chisels, and also all kinds of Screws for Stair Work and Sash Joints on hand and made to order.
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25v23-tf

STEAM POWER.

The second and third stories of the west half of the Mechanics' Mill, corner of Mission and Fremont streets, to let, with Steam Power. Frontage about 70 by 127 feet, but the rear half is only about 40 feet wide. To be let in whole or in part, to one or more tenants.

For further particulars apply to

FRANK KENNEDY,
mar9-2t 604 Merchant street, San Francisco.

Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the Scientific Press we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

Mining Companies

Should advertise their Meetings, Assessments, and Sales, in the SCIENTIFIC PRESS. Rates more than one-half less than daily publications. Stockholders should take the hint and request their managers to truly economize by advertising in a MINING JOURNAL, where all notices may be seen by cheaply purchasing and examining a weekly. You will thus save money and uphold a journal which upholds your interests.

Kincaid Flat Mining Company—Location

of works, Tuolumne County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 14th day of February, 1872, an assessment of three dollars per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at his office, No. 220 Clay street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 18th day of March, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 8th day of April, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

R. H. CORNELL, Secretary.

Office, 220 Clay street, San Francisco. fe24-td

Pocahontas Gold Mining Company—Location

of works, Mud Springs, El Dorado County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 26th day of February, 1872, an assessment of Five Dollars per share was levied upon the capital stock of said company, payable immediately in United States gold coin, to the Secretary, at the office of the company, Room No. 26, Hayward's Building, No. 419 California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on Saturday, the 6th day of April, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before will be sold on Monday, the 6th day of May, 1872, to pay the delinquent assessment thereon, together with costs of advertising and expenses of the sale.

D. A. JENNINGS, Secretary.

Office, Room No. 26, Hayward's Building, 419 California street, San Francisco, Cal.

February 26, 1872. mar2-5w

Quail Hill Mining and Water Company---

Location of works, Salt Springs Valley, Calaveras County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 15th day of February, 1872, an assessment of $5 dollars per share was levied upon the capital stock of said Company, payable immediately in United States gold coin, to the Secretary, at the office of the Company, No. 409 California street, up stairs, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 26th day of March, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 16th day of April, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. T. F. CRONISE, Secretary.

Office, 409 California street, San Francisco, Cal. fe24-td

Silver Wave Mining Company----Location

of works, White Pine Mining District, White Pine county, Nevada.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the twentieth (20) day of January 1872, the several amounts set opposite the names of the respectives shareholders as follows:

Names.	No. Certificate.	No. shares.	Amount.
Armstrong, C, Trustee	420	20	$ 20 00
Barton, W H, Trustee	352	200	200 00
Barton, W H, Trustee	376	10	10 00
Breed, H L, Trustee	394	20	20 00
Cahill & Co., E, Trustee	163	50	50 00
Cathcart, A B, Trustee	372	722	722 00
Cathcart, A B, Trustee	408	100	100 00
Cathcart, A B, Trustee	409	100	100 00
Cathcart, A B, Trustee	456	1000	1000 00
Cathcart, A B, Trustee	455	673	573 00
Edwards, L B	393	100	100 00
Eyrs, E E, Trustee	184	100	100 00
King, W F, Trustee	457	50	50 00
Loveland, L F, Trustee	217	50	50 00
Martin, M S, Trustee	199	100	100 00
Minturn, Chas	453	300	300 00
Miller, H R, Trustee	269	50	50 00
Montagnio do la, J E	333	100	100 00
Parker, C H	171	100	100 00
Prichard, W P, Trustee	341	100	100 00
Tibbey, E S, Trustee	385	50	50 00
Williams, W J, Trustee	244	50	50 00
Whits, Jas T	399	12	12 00
Woods, F H, Trustee	375	22	22 00
Woods, F H, Trustee	380	8	8 00
Woods, F H, Trustee	434	10	10 00

And in accordance with law, and an order of the Board of Trustees, made on the Twentieth day of January, 1872, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the office of said Company, on Tuesday the Nineteenth day of March, 1872, at the hour of 2 o'clock P. M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

J. W. CLARK, Secretary.

Office: 418 California Street, San Francisco. ma2-2w

South Gulch Gravel Mining Company.

Location of Works, Brushville Mining District, Calaveras County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 7th day of February, 1872, an assessment of one dollar and fifty cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary at the office of the Company, No. 409 California street, up stairs, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the thirteenth day of March, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the third day of April, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. F. CRONISE, Secretary.

Office, 409 California street, San Francisco, Cal.

Tecumseh Gold, Silver and Copper Mining Company.

Location of Works: Gopher District, Calaveras County California.

NOTICE.—There are delinquent upon the following described stock, on account of Assessment levied on the 23d day of January, 1872, the several amounts set opposite the names of the respective Shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Charles Osmer	5	10	$ 40 00
Charles Osmer	31	2	8 00
Charles Osmer	32	2	8 00
Charles Osmer	33	1	4 00
Charles Osmer	132	35	140 00

And in accordance with law and an order of the Board of Trustees, made on the 23d day of January, 1872, so many shares of each parcels of said stock as may be necessary, will be sold at public auction, by Maurice Dore & Co., at No. 327 Montgomery street, San Francisco, Cal., on Saturday the 16th day of March, 1872, at the hour of 12 o'clock M., of said day, to pay said delinquent Assessment thereon, together with costs of Advertising and expenses of sale.

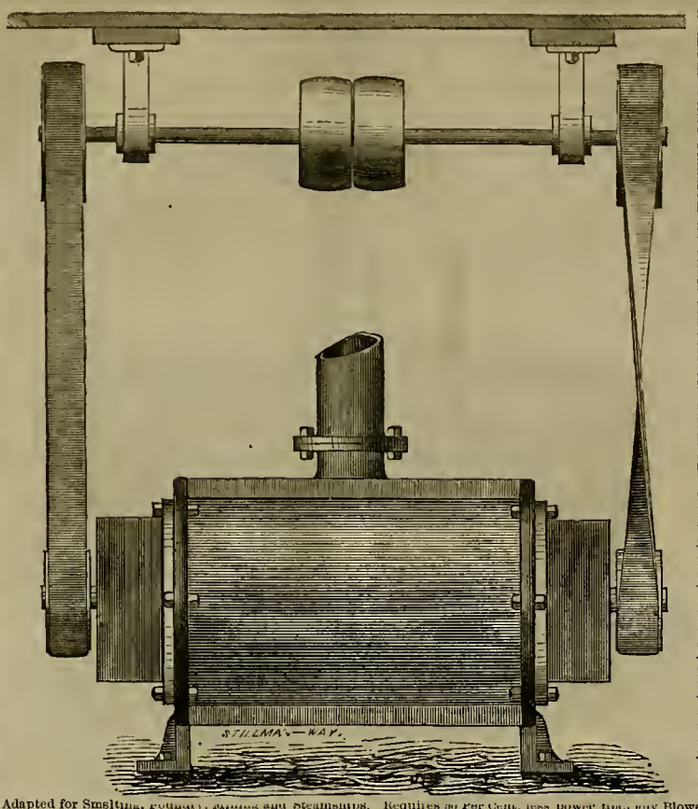
F. J. HERRMANN, Secretary.

Office—516, Kearny st., San Francisco. msr2-3t

ROOT'S PATENT FORCE BLAST ROTARY BLOWER.

AWARDED FIRST PREMIUM AT PARIS EXPOSITION—PATENTED NOV. 1, 1864; JULY 21, 1865; OCT. 3, 1865.

MANUFACTURED BY THE GLOBE IRON WORKS, STOCKTON, CAL.



Adapted for Smelting, Foundry, Mining and Steamships. Requires 30 Per Cent. less power than any Blower now in use. A Blower may be seen at W. T. Garratt & Co.'s Brass Foundry, San Francisco; Gould & Curry and Savage S. M. Co.'s, Nevada; and at C. P. R. R. Co.'s Works, Sacramento; and other places on this coast.

CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

QUARTZ, SAW AND GRIST MILL, IRON, STATIONARY AND STEAMBOAT ENGINES, HORSE-POWER AND PUMPS, OF ALL SIZES.

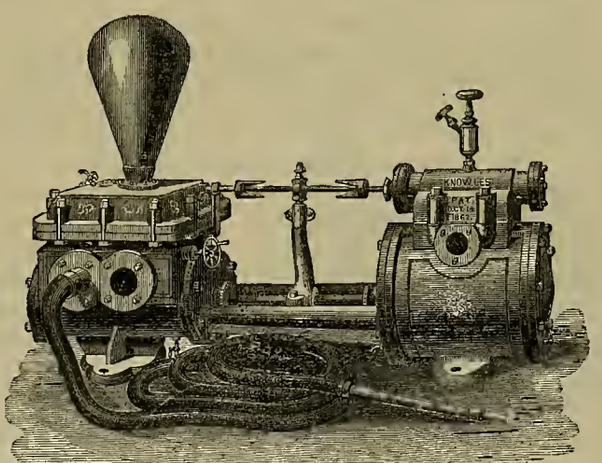
For Circulars and further information, Address

4v2itf GLOBE IRON WORKS, STOCKTON, CAL.

KNOWLES' PATENT STEAM PUMP.

Received the Highest Award---A Diploma---

Over all Steam Pump Competitors, at Mechanics' Institute Fair of San Francisco, 1871; also Special Medal and Diploma at State Fair.



It has no Cranks or Fly-Wheel, and has no dead points where it will stop, consequently it is always ready to start without using a starting-bar, and does not require hand-work to get it past the center. Will always start when the steam cylinder is filled with cold water of condensation.

The trial of Steam Pumps at the Eighth Industrial Fair in San Francisco, by a Committee of Five of the most thoroughly practical mechanics on this coast, showed the Knowles Pump to lose but 11⅓ per cent., while others lost as high as 40 per cent., showing great difference in economy.

CENTRAL PACIFIC R. R., OFFICE OF THE GEN'L MASTER MECHANIC,
SACRAMENTO, Cal., April 14, 1871.

A. L. FISH, Esq., Agent of the Knowles' Steam Pump, San Francisco—Dear Sir: In reply to your inquiry as to the merits of the Knowles' Steam Pump, in use upon this road, I will say that we have nineteen of them in use on this road as firs engines, and pumping water for shop and station use. I consider the Knowles Steam Pump the best in use, and prefer it to any other. Yours truly, A. J. STEVENS, General Master Mechanic.

WE BUILD AND HAVE CONSTANTLY ON HAND

THE LARGEST STOCK OF PUMPS IN THE WORLD,

And for Every Conceivable Purpose.

A. L. FISH, Agent.

No 9 First Street, San Francisco, Cal.

P. S.—All kinds of new and second-hand Machines on hand. 3v24-eow-bp

Piermont Milling and Mining Company---

Location of works, Piermont District, White Pine county, Nevada

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the 25th day of January, 1872, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Am't.
Briggs, Chas A	15	583½	$466 67
Briggs, Chas A	47	111	88 80
Flint, Benj	6	1750	1400 00
Flint, Benj	27	2525	2020 00
Flint, Benj	44	814	651 20
Perkins, J E, Trustee	32	1500	733 33
Perkins, J E, Trustee	40	286	129 83
Perkins, Jas E	4	1750	1400 00
Perkins, Jas E	42	719	575 20
Perkins, Jas E	34	2025½	1620 26

And in accordance with law, and an order of the Board of Trustees, made on the 25th day of January, 1872, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the said Company, on Saturday, the 23d day of March, 1872, at the hour of 2 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

J. W. CLARK, Secretary.

Office, 418 California street, San Francisco, Cal. 2w

Wm. Penn Consolidated Gold and Silver

Mining Company—Location of works, Storey and Lyon Counties, State of Nevada.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the 26th day of January, 1872, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. of Certificate.	No. of Shares.	Am't.
George Stead	18	25	25 00
George Stead	19	25	25 00
George Stead	20	25	25 00
George Stead	21	21	21 00
H J T Scheel	25	50	50 00
H J T Scheel	26	50	50 00
H J T Scheel	27	25	25 00
H J T Scheel	28	25	25 00
H J T Scheel	29	2	2 00
B J Scheel	30	50	50 00
B J Scheel	31	50	50 00
B J Scheel	32	25	25 00
B J Scheel	33	25	25 00
B J Scheel	34	2	2 00
Frank Kruyer	35	30	30 00
Frank Kruyer	36	25	25 00
Frank Kruyer	37	25	25 00
H F Rice	42	50	50 00
H F Rice	43	50	50 00
H F Rice	44	50	50 00
H F Rice	45	10	10 00
S D Prescott	49	24	24 00
John W Work	53	25	25 00
Henry R Reed	15	6	6 00
Henry R Reed	16	6	6 00
Henry R Reed	17	4	4 00
John F Sears	13	2	2 00
Alfred Dennoe	3	5	5 00
W P O Stebbins	1	28	28 00
Gregory Yale	4	17	17 00
E H Doty	8	10	10 00
E H Doty	10	12	12 00
E H Doty	11	10	10 00
E H Doty	12	10	10 00
W E F Krauso	9	1	1 00
E F Stone	5	88	88 00
E H Doty	unissued	165	165 00
Henry Tomey, Trustee	unissued	155	155 00
George Hearst	unissued	46	46 00
L M Pearlman	unissued	94	94 00
Jacob C Clark	unissued	52	52 00
H F Cutter	unissued	106	106 00
Thos. McNamara	unissued	50	50 00
W H Bremer	unissued	50	50 00

And in accordance with law and an order of the Board of Trustees, made on the 26th day of January, 1872, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the auction house of John Middleton & Son on the 21st day of March, 1872, at the hour of 1 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of Sale.

ma3-3t HENRY TOOMY, Secretary.

Office, No. 338 Montgomery street, Rooms 3 and 4.

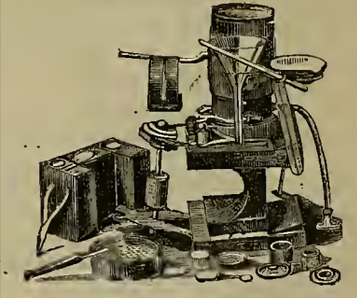
J. S. PHILLIPS, M. E.,

Examiner of Mines, Consulting Engineer, Mineral Assayer, Analyst, Etc., Etc.

Author of "The Explorers', Miners', and Metallurgists' Companion."

Inventor of the Explorers', Miners', Millers', and Smeltors' Friend, the Prospectors' "WEE PET" Assaying Machine, etc., which obtained a Gold Medal at the San Francisco Mechanics' Institute Fair of 1869.

Patented September 7, 1869.



Arranged for the general purposes of the Analyst and Assayer.

Price, with instructions, tools and fluxes, $100.

Practical Instructions in all kinds of Assaying, Discrimination and Analysis.

24-v23-tf

Important to Miners.

FREY'S IMPROVEMENT ON

Evans' Under Current and Sluices.

For Saving Fine Gold and Floating Quicksilver.

For particulars address

WATERS & CO., Assayers, Agents,

NO. 54 J STREET, SACRAMENTO.

3v24-3m

Machinists and Foundries.

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO

IRA P. RANKIN, A. P. BRAYTON,
GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS

Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

☞ Particular attention paid to Jobbing Work and Repairs.

N. B.—Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR.

18v20-3m GODDARD & CO.

FULTON
Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

E. corner of Tehama and Fremont streets, above Howe street, San Francisco. 8-qy

GEORGE T. PRACY,
MACHINE WORKS,

109 and 111 Mission Street,

SAN FRANCISCO.

These Works have lately been increased, by additional Tools, and we are now able to turn out any kind of work, equal to and cheaper than any establishment in the State; that is to say:—

STEAM ENGINES,
Flour and Saw Mills,
QUARTZ MACHINERY
Printing Presses,

AND MACHINERY MADE OF EVERY DESCRIPTION.

Improved Safety Store Hoists,

Fitted with Cutting's Patent Cams, unequaled for safety, convenience and cheapness. This Hoist can be built for about half the price of any other in use. To be seen at HAWLEY & CO.'S.

ALSO, MANUFACTURER AND SOLE AGENT FOR

Pracy's Celebrated Governor.

TURNING LATHES, Etc., constantly on hand.
4v23tf

UNION IRON WORKS,
Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR
WILCOX'S PATENT WATER LIFTERS.

Dunbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,

SACRAMENTO CITY

PACIFIC
Rolling Mill Company,

SAN FRANCISCO, CAL.

Established for the Manufacture of

RAILROAD AND OTHER IRON
—AND—
Every Variety of Shafting,

Embracing ALL SIZES of

Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames
—ALSO—
HAMMERED IRON

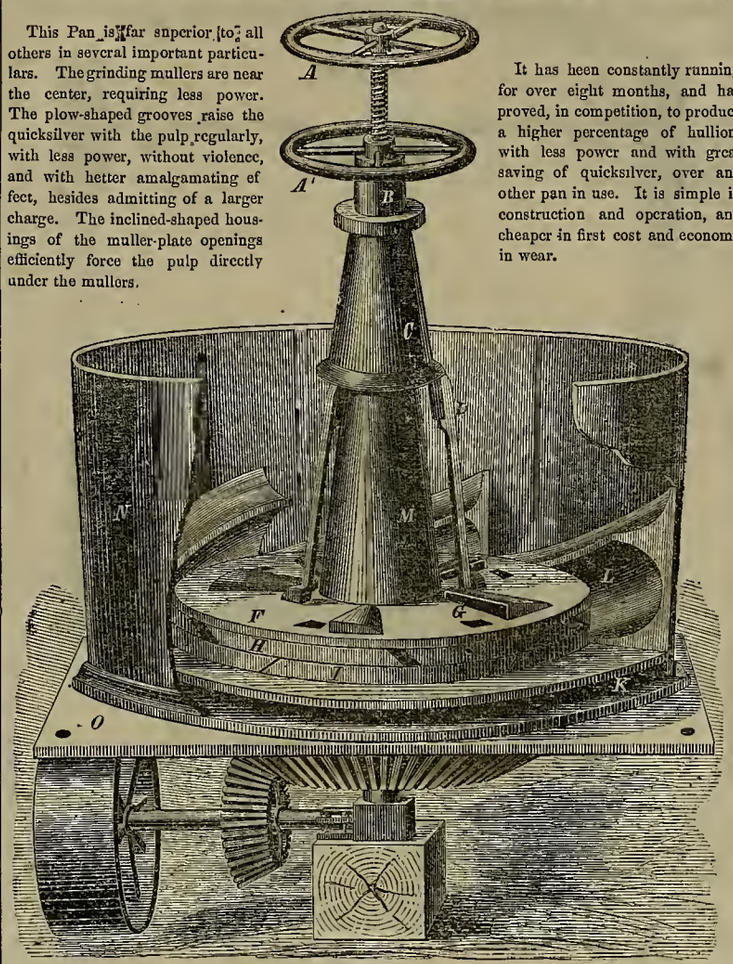
Of every description and size.

☞ Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention

☞ The highest price paid for Scrap Iron 9v143m

STEVENSON'S PATENT MOULD BOARD AMALGAMATING PAN.

This Pan is far superior to all others in several important particulars. The grinding mullers are near the center, requiring less power. The plow-shaped grooves raise the quicksilver with the pulp regularly, with less power, without violence, and with better amalgamating effect, besides admitting of a larger charge. The inclined-shaped housings of the muller-plate openings efficiently force the pulp directly under the mullers.



It has been constantly running for over eight months, and has proved, in competition, to produce a higher percentage of bullion, with less power and with great saving of quicksilver, over any other pan in use. It is simple in construction and operation, and cheaper in first cost and economy in wear.

Manufactured at the Golden State Iron Works (Co-operative), 19 First street, S. F.

Where it can be examined and further particulars be learned; or persons may apply to the inventor and patentee, Mr. C. C. STEVENSON, at the Douglas Mine, GOLD HILL, STATE OF NEVADA, where the Pans have long been in constant operation. 15v20-1mr,1amtf

To Coal Operators, Miners and Railroad Corporations.

YOUR ATTENTION IS INVITED TO

THE GRICE & LONG LOCOMOTIVE WORKS,

1340 Beach Street, Philadelphia, Penn.

Patentees and Builders of Mining and other Locomotives;

☞ Also, Patent Traction Engines for Suburban and NARROW GAUGE Roads, Furnaces, Quarries, Contractors, Etc. Now extensively introduced and indorsed by many of the Largest Coal Operations and Furnaces in Pennsylvania and elsewhere—and adapted for gauges of two feet and over, and weighing from four to nine tons.

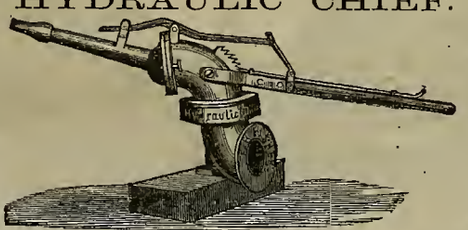
Messrs. G. & L. were the PATENTEES AND BUILDERS of the FIRST COLLIERY LOCOMOTIVE introduced into the Mining District of Pennsylvania.

SEND FOR CIRCULAR AND PHOTOGRAPHS.

23v22-3m

HYDRAULIC CHIEF.

FISHER'S KNUCKLE JOINT AND NOZZLE IS THE Cheapest and Best Hydraulic Machine in use.



MACHINES Manufactured TO ORDER, to throw from One to an eight-inch STREAM.

The only reliable party in the Hydraulic business who protects his patrons.

9v23-tf Address F. H. FISHER, Nevada, Cal.

HYDRAULIC MINERS, TAKE NOTICE—I hereby caution Miners and Manufacturers against making, buying, selling or using a Hydraulic Machine or Joint known as the Little Giant, manufactured and sold by R. R. & J. Craig and Richard Hoskin, as the same is an infringement upon the invention of the machine known as FISHER'S HYDRAULIC CHIEF, secured by Letters Patent, No. 110,222, dated Dec. 20, 1870. All parties participating in such infringements will be rigorously prosecuted. Nevada, Jan. 13th. F. H. FISHER.

THOMPSON BROTHERS,
EUREKA FOUNDRY,

129 and 131 Beale street, between Mission and Howard San Francisco.

LIGHT AND HEAVY CASTINGS,

of every description, manufactured 24v16qr

SAN FRANCISCO
SCREW BOLT WORKS,

PHELPS BROTHERS, Proprietors,

MANUFACTURERS OF ALL KINDS OF

Machine Bolts, Bridge Bolts, and Ship or Band Bolts,

13 and 15 Drumm Street, San Francisco. 4v241y

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,

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ALL KINDS of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch

☞ PRICES MODERATE. ☜

J. H. WEED V. KINGWELL.

WM. M. BETTS & BROTHER,
CARRIAGE SPRING WORKS,

213 Fremont street, bet. Howard and Folsom, SAN FRANCISCO.

LOCOMOTIVE, CAR,

And all kinds of Carriage and Wagon Springs made to Order and Warranted.

3v24-3m

H. J. BOOTH & CO.,
UNION IRON WORKS,

(The Oldest and most Extensive Foundry on the Pacific Coast).

Cor. First and Mission Sts.,

SAN FRANCISCO.

Marine, Locomotive and Stationary Engines, Quartz Crushing and Amalgamating Machines, Mill Irons and Brass and Iron Castings, of every description, made to order.

Steamboat Repairing, Boiler Making, Turning and Finishing,

EXECUTED WITH DISPATCH.

Beet Sugar Machinery complete in every part—made a specialty.

OIL MACHINERY.

A complete set of Machinery of our own design and patent for extracting oil from Castor Bean, dispensing with Hair Cloth. Also Machinery for Flax Seed Oil, Mustard Seed Oil, and Sun Flower Seed Oil.

MARBLE MACHINERY

For sawing Marble of any thickness or size.

Irrigating Pumps. Steam Pumps.

Plans, Estimates, and Advice promptly supplied.

H. J. BOOTH. GEO. W. PRESCOTT. IRVING M. SCOTT
4v24-1yslamr

COPARTNERSHIP NOTICE.

We have this day admitted Mr. William R. Eckart as a member of our firm, the business of which will be hereafter conducted under the firm name of Prescott, Scheidel & Co. PRESCOTT & SCHEIDEL.

Marysville, Jan. 8, 1872.

MARYSVILLE FOUNDRY.

Referring to the above, we respectfully solicit the patronage which has for the past twenty years been enjoyed by our predecessors, pledging our best attention to the wants of all who may so favor us.

Quartz and Amalgamating Machinery,

SAW AND GRIST MILLS,
STEAM ENGINES,
HYDRAULIC MACHINES,
HOUSE FRONTS, ETC.

Repairs upon all kinds of machinery promptly made and at moderate charges. Having unrivalled facilities, we are prepared to make to order, at short notice, everything required in our line.

Specimens of our work may be seen in all the mining regions on this coast.

5v24-3m PRESCOTT, SCHEIDEL & CO.

THE RISDON
Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1868.
CAPITAL.....$1,000,000.

LOCATION OF WORKS:
Corner of Beale and Howard Streets,
SAN FRANCISCO.

Manufacturers of Steam Engines, Quartz and Flour Mill Machinery, Steam Boilers (Marine, Locomotive and Stationary), Marine Engines (High and Low Pressure). All kinds of light and heavy Castings at lowest prices. Cams and Tappets, with chilled faces, guaranteed 40 per cent. more durable than ordinary iron.

Directors.

Wm. Alvord,	C. J. Brenham,	C. E. McLane,
Wm. Norris,	Wm. H. Taylor,	Lloyd Tevis,
	James D. Walker.	

WM. H. TAYLOR.....President.
C. E. McLANE.....Vice President.
JOSEPH MOORE.....Superintendent.
LEWIS R. MEAD.....Secretary.
24v17-qy

OCCIDENTAL FOUNDRY,

137 and 139 First st., near the Gas Works, San Francisco.

STEIGER & BOLAND,

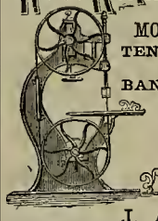
IRON FOUNDERS.

IRON CASTINGS of all descriptions at short notice.

NOTICE.—Particular attention paid to the making of Superior Shoes and Dies. 3v24-3m

Machinery.

WOOD WORKING MACHINERY



MOLDING, MORTISING,
TENONING AND SHAPING MACHINES,
BAND SAWS,
SCROLL SAWS,
Planing & Matching MACHINES, ETC.,

For RAILROAD, CAR, and AGRICULTURAL SHOPS, Etc., Etc.

☞ Superior to any in use.

J. A. FAY & CO.,

11v23-6m CINCINNATI, OHIO.

POWER, TAINTER & CO.,

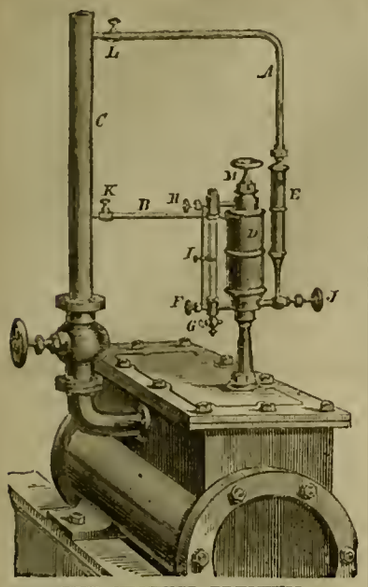
MANUFACTURERS OF

WOOD-WORKING MACHINERY,

3003 Chestnut street (West end Chestnut street Bridge) PHILADELPHIA.

☞ Woodworth Planers a Specialty. 2v23-1y

N. Seibert's Eureka Lubricators.



THE HIGHEST PREMIUM

Awarded by the Mechanics' Institute Fair, San Francisco, and State Fair, Sacramento, 1871.

These Lubricators are acknowledged by all engineers to be superior to any they have ever used; feed constantly by pressure of condensed water, supplied by pipe A, regulated under the oil by valve J, and forced out through check valve and pipe B into the steam pipe C; it then becomes greasy steam, passes to all the valves and cylinder at every stroke of the engine; glass tube I indicates amount used per hour. Packing on rods and stems lasts longer, and the rings on the pistou will not corrode. One piut of oil will last from three tn six days, according to speed and size of eugiue: I, sllding gauge; K, valve to shut off when engine stopps; H, F, valves to shut off in case of frost; steam does not enter the cup; it is always cool; warranted to give satisfaction. Patented February 14, 1871. Manufactured by California Brass Works, 125 First street, S. F. 24v23tf

California File Manuf'g Co.

Potrero, Solano street, bet. Tennessee and Minnesota streets, SAN FRANCISCO.

Manufacturers of New Files.

Old Files re-cnt and warranted equal to new.

REAPER AND MOWER SECTIONS, BARS AND KNIVES COMPLETE,

at a saving of 50 per cent. Orders from the country promptly attended to. 9v19-by

Notice is hereby given, that the copartnership heretofore existing between A. J. Severance, Charles W. Randall and J. Ous. Burt, nnder the firm name of "Severance, Holt & Co.," is this day dissolved by mutual consent. A. J. Severance, having purchased all the interest of his late partners, will continne the business of mannfacturing and selling Diamond Drills, as before, under the style of A. J. Severance & Co.

Dated San Francisco, Nov. 24, 1871.
Office, 315 California street.
A. J. SEVERANCE,
CHAS. H. RANDALL.
J. OUS. BURT.
22-v23-4f

JOS. THORNHILL,

Bricklayer and Contractor.

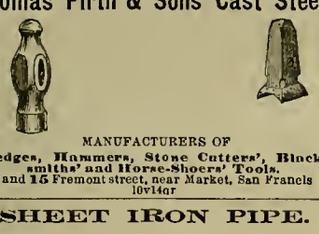
Particular attention paid to all kinds of Fire Work, such as Boilers, Furnaces, Ovens, Orates, Ranges, etc.

Orders left with C. W. WHITE, 47 Clay street, JOS. THORNHILL, 1612 Mason street, near Green, will be promptly attended to. 24v21-3m

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.



MANUFACTURERS OF

Sledges, Hammers, Stone Cutters', Black smiths' and Horse-Shoers' Tools,

13 and 15 Fremont street, near Market, San Francis
16v14ar

SHEET IRON PIPE.

THE

Risdon Iron and Locomotive Works

Corner Howard and Beale Streets,

Are prepared to make SHEET IRON AND ASPHALTUM PIPE, of any size and for any pressure, and contract to lay the same where wanted, guaranteeing a perfect working pipe with the least amount of material.

All kinds of CAR WHEELS, AXLES and RAILROAD WORK made to order. Standard sizes of Wheels constantly on hand. Wheels bored and pressed on, Axles turned, etc., at Reasonable Rates.

☞ All kinds of Machinery made and repaired.

24v22-3m JOSEPH MOORE, Superintendent.

THE

Gutta Percha and Rubber Manufacturing COMPANY,

118 Front street, SAN FRANCISCO.

Patent Combination Carbolized Steam Fire Hose, Steam and Petroleum Oil Hose,

Suction Hose, Hydrant Hose, Conducting Hose, Engine Hose, Round Packing, Rubber Belting, Packing, Valves, Caskets, Pure Vulcanized Sheet Rubber, Fire Buckets.

12 v23-3m J. W. TAYLOR, Agent.

BLAKE'S PATENT STEAM PUMPS.

WHAT IS SAID BY THOSE WHO USE THEM.

SALEM, Oregon, January 16th, 1872.

MESSRS. BERRY & PLACE, San Francisco—Gentlemen: In answer to your query regarding the working of the large Blake Steam Pump, our company purchased of you, we would say in all sincerity that the pump has *exceeded our expectation*. It has been in use since the 7th of September, 1871, and has thus far given the most perfect satisfaction. It does its work with ease, does not get out of order, and requires but little or no attention to run it. It is SIMPLE, DURABLE, and PERFECT in its construction. We have found it entirely satisfactory and just the pump *in every respect* needed for our work.

Yours, respectfully, W. F. BOOTHY, Pres't Salem Water Works.

PHŒNIX MINE, Napa County, January 10th, 1872.

MESSRS. BERRY & PLACE, San Francisco—Gentlemen: The No. 8, Blake Steam Pump we bought of you last fall is doing good service. We are having a large amount of water to contend with during this stormy weather; but the pump throws it all out of the main shaft (160 feet deap) with perfect ease, and is only working from 60 to 80 strokes a minute. It is a complete pump and no mistake. We are well satisfied with its working, and if you wish to use the name of our company, as a reference, you are at liberty to do so. Very resp'tly, GEO. FELLOWS, Supt. Phœnix Quicksilver M. Co.

OFFICE STARR MILLS, VALLEJO, Cal., January 13th, 1872.

MESSRS BERRY & PLACE, San Francisco—Gentlemen: We are pleased to state that the No. 3 Blake Pump purchased of you, has constantly supplied our three boilers for the past year, with water heat to above boiling point with one of Armstrong's Patent Heaters. It has given us no trouble nor expense, and has in fact fully come up to your recommendations. Yours, Etc., STARR BROS. & CAMPBELL.

OFFICE S. J. WOOLEN CO., SAN JOSE, January 29th, 1872.

MESSRS. BERRY & PLACE, San Francisco—Gentlemen: We have used a No. 6 Blake Steam Pump now for about two years, both as a Tank Pump and as a Fire Pump in case of need: and it has given excellent satisfaction. *It suits us in every respect.* Very respectfully, R. F. PECKHAM, Pres't San Jose Woolen Co.

BELMONT, Cal., February 6th, 1872.

MESSRS. TREADWELL & CO.—Gentlemen: In reply to your inquiry concerning the large Blake Steam Pump, purchased of Berry & Place, by Mr. Ralston, I will say, that it gives ENTIRE *satisfaction*, even working as it now is, where no other Pump could; for it is *at present six feet under water*, yet it does its work PERFECTLY.

Yours, Etc., J. E. BUTLER, Supt. Water Works and Engineer at W. C. Ralston's.

BLAKE'S PATENT STEAM PUMP.

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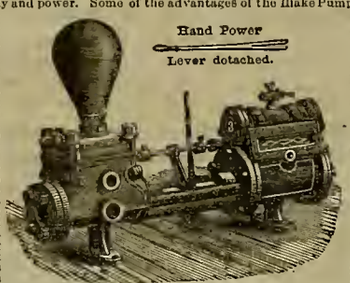

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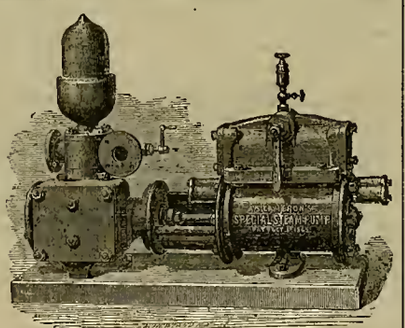

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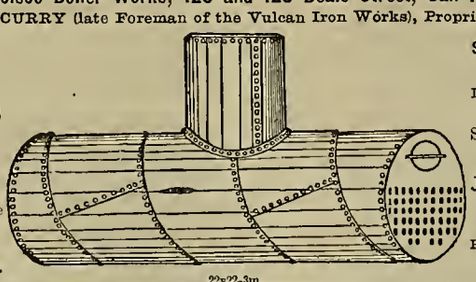

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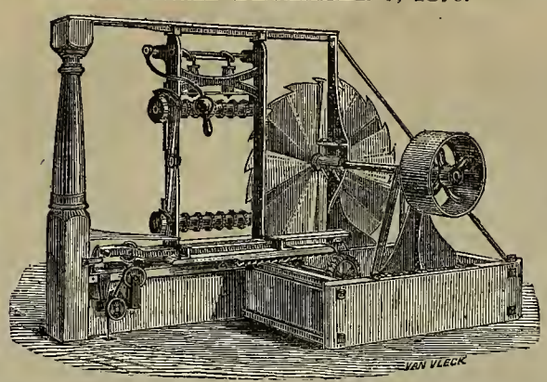

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Leave going East.				Arrive from East.	
*4.00 P M	7.00 A M	San Francisco		8.30 P M	*2.20 P M
4.35 P M	7.35 A M	Oakland		8.00 P M	1.50 P M
4.10 P M	7.50 A M	San Jose		8.30 P M	2.30 P M
5.35 P M	8.35 A M	Niles		7.05 P M	12.45 P M
8.25 P M	11.28 A M	Lathrop		4.43 P M	9.45 P M
8.48 P M	11.50 A M	Stockton		4.07 P M	9.07 P M
10.45 P M	1.45 P M	Sacramento		2.20 P M	7.15 A M
Arrive from West.				Leave going West.	

San Francisco & San Jose.

Leave going South			Arrive from South	
.....	3.00 P M	San Francisco	10.40 A M	.....
.....	4.40 P M	Niles	8.35 A M	.....
.....	5.30 P M	San Jose	7.40 A M	.....
Arrive from North.			Leave going North	

Stockton, Lathrop & Merced.

Leave going South			Arrive from South	
.....	7.35 P M	Stockton	10.20 A M	.....
*9.45 A M	8.25 P M	Lathrop	9.30 A M	*8.20 P M
11.35 A M	9.45 P M	Modesto	8.13 A M	6.45 P M
2.40 P M	12.15 A M	Merced	5.45 A M	3.30 P M
Arrive from North			Leave going North	

Sacramento, Colfax, Reno & Ogden.

Leave going East.			Arrive from East.
	2.00 P M	Sacramento	2.00 P M
	5.40 P M	Colfax	10.20 A M
	1.00 A M	Reno	2.10 A M
	9.10 A M	Winnemucca	4.15 P M
	12.00 M	Battle Mountain	1.25 P M
	4.40 P M	Elko	8.45 A M
	6.20 A M	Ogden	5.20 P M
Arrive from West.			Leave going West.

Sacramento, Marysville & Red Bluff.

Leave going North			Arrive from North	
*8.45 A M	2.35 P M	Sacramento	1.05 P M	*4.45 P M
10.25 A M	3.25 P M	Junction	12.15 P M	3.25 P M
1.50 P M	5.15 P M	Marysville	10.20 A M	12.00 M
8.00 P M	8.35 P M	Tehama	6.50 A M	5.30 A M
.....	9.30 P M	Red Bluff	6.00 A M	.....
Arrive from South			Leave going South	

San Francisco, Vallejo & Calistoga.

Leave going North			Arrive from North	
*4.00 P M	7.30 A M	San Francisco	8.00 P M	*12.15 P M
5.30 P M	9.00 A M	Vallejo	6.05 P M	10.30 P M
7.28 P M	10.40 A M	Napa	4.50 P M	9.30 P M
9.10 P M	1.00 P M	Calistoga	3.00 P M	8.00 A M
Arrive from South			Leave going South	

San Francisco, Vallejo & Knight's Landing.

Leave going East.			Arrive from East.	
†7.30 A M	*4.00 P M	San Francisco	*12.15 P M	8.00 P M
9.35 A M	6.35 P M	Vallejo	10.30 P M	6.05 P M
12.05 P M	10.10 P M	Davis	7.10 P M	3.3 P M
1.00 P M	11.45 P M	Knight's Land'g	5.30 A M	2.30 P M
Arrive from West.			Leave going West.	

San Francisco & Healdsburg.

Leave going North			Arrive from North.	
.....	*2.00 P M	San Francisco	*11.00 A M	.....
*7.10 A M	4.35 P M	Donahue	8.45 A M	*5.35 P M
8.20 A M	5.00 P M	Petaluma	8.29 A M	5.00 P M
9.45 A M	6.00 P M	Santa Rosa	7.30 A M	3.30 P M
10.20 A M	6.45 P M	Healdsburg	6.45 A M	2.00 P M
Arrive from South			Leave going South	

Stockton, Milton & Oak Dale.

Leave going South			Arrive from South	
.....	*11.25 A M	Stockton	4.25 P M	.....
.....	11.52 A M	C.P.R.R. Depot	3.52 P M	.....
.....	12.42 P M	Peters	3.02 P M	.....
.....	1.32 P M	Milton	2.12 P M	.....
.....	1.48 P M	Oak Dale	2.00 P M	.....
Arrive from North			Leave going North	

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Leave going East.			Arrive from East.	
*4.00 P M	*4.00 P M	San Francisco	*10.00 P M	*8.00 P M
6.00 P M	.....	Vallejo	.....	6.00 P M
7.00 P M	6.00 P M	Benicia	8.00 P M	5.00 P M
.....	2.00 A M	Stockton	2.00 P M	.....
2.00 A M	.....	Sacramento	.....	12.00 M.
Arrive from West.			Leave going West.	

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For trains running "from" San Francisco, take the left hand columns and read downwards.

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LEAVE OAKLAND, *5 40, 6 50, 8 00, 9 10, 10 00, and 11 10 a. m., 12 00, 1 40, 2 50, 3 50, 5 05, 6 20, 7.50 and 10 20 p. m.

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BY DEWEY & CO., Patent Solicitors.

SAN FRANCISCO, SATURDAY, MARCH 16, 1872.

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The Proposed New Land Policy.

The new land policy, as shadowed forth by the bills lately introduced by Assemblyman Barker, ought to meet the approval of every sincere friend of the industrial and commercia interests of the Pacific Coast. These bills provide briefly as follows;

First, we have a Joint Resolution asking Congress to resume public lands in California for actual settlers only, under the homestead and pre-emption laws. The effect of that action by Congess would be to stop the wholesale entries of lands and conceutration of whole townships in speculative hands—a policy discouraging to immigration and the material development of the State.

Next we havo an Act reserving all lands belonging to this State for settlers only—a measure like the one asked from Congress, and intended to place a check upon the wholesale absorption by speculators of State, School and Swamp lands.

Then comes an act requiring parties who have bought State lands on credit, and who are not actually living upon and cultivating the same, to pay over to the State the balance due within a certain time on pain of forfeiture. The law under which such sales were originally made authorizes this special legislation.

The fourth and last bill introduced by Mr. Barker, provides that copies of maps and records of State and United States lands, now lying open to preëmption, or unimproved and not paid for, shall be furnished to all County Recorders, for the benefit of the people at large, together with any other attainable information which may become the means of guiding settlers to the selection of desirable land for improvement.

This last bill is a very important matter to the settler, who has neither the time or experience in such matters to properly inform himself, or the means to employ attorneys to do that which the sellers, (in this case, State or National Government) under other circumstances, always do to effect a sale of their property. These bills, together, present a land policy which must commend itself to every well-meaning citizen, who has the welfare of the State at heart, or who is willing to unite in any proper effort to discourage unwholesome land monopolies, and thereby encourage that class of immigration which the State most needs.

QUICKSILVER FUMES.—We hear much complaint with regard to the deleterions influence of quicksilver fumes both from retorting the precious metals and from furnace operations in treating the ores of cinnabar at the quicksilver mines. Mr. William Kringel, who has been for some time employed at the Redington Quicksilver mines, at Knoxville, Napa county, informs us that many are severely troubled in that way at that mine.

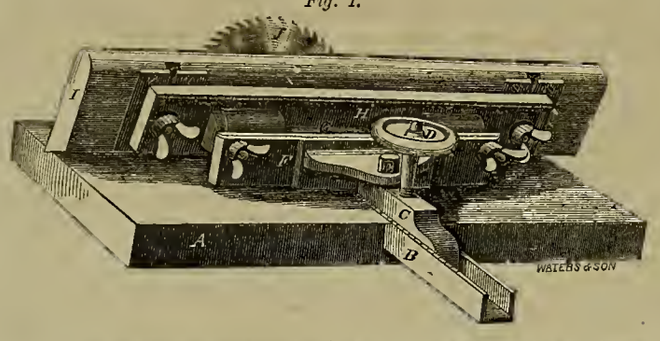
Much care should be taken by firemen and laborers engaged in the furnace operations about a quicksilver mine. One of the great "dangers is in drawing the charges;" which is often done when the ore is red hot, and before it has been fully freed from its cinnabar. The danger of such a practice, to say nothing of its wastefulnesss, ought to be carefully avoided. Mr. K. informs us that men while "drawing," often find so much mercury deposited on their hats that they can shake the globules together and *pour* the quicksilver off. Even if workmen can be found who are willing to stand such an exposure, the interest of the company ought to prompt superintendents and others having responsibility, to see that charges are more thoroughly reduced and cooled down before the furnaces are opened.

Wright's Improved Saw Gauge.

The accompanying cuts represent L. Wright's improved saw gauge for gauging the width of stuff for circular saws, which from its peculiar advantages commends itself to all having use for such an article. It supplies a want long felt by sawyers, the old method being defective in many respects.

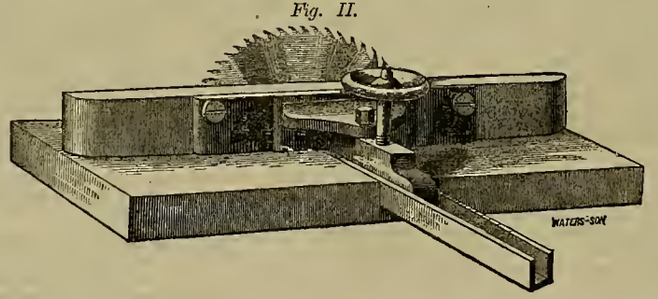
Fig. 1 represents the gauge with the bevel attachment, which can be set at any angle, and is indispensable for moulding mills, and other places where bevel sawing is desired. *A* represents the circular saw table. *B* is a grooved way, which

Fig. I.



is let into the table, flush with the top. *C* is the portion of the gauge to which the fastening arrangement is attached, and slides perfectly free in the grooved way, and can be removed from the way, at any point between the saw and the edge of

Fig. II.



table; thus presenting a perfectly clear top for other purposes. The screw, *D*, terminates with a taper, which when the wheel is turned, forces itself between two pieces let into the slide, *C*, and which presses against the inside of the way, thereby perfectly fastening the gauge to the bench. A single quarter-turn of the wheel releases the pressure, and allows the gauge to slide perfectly free in the way, or to be removed at pleasure. This is the great feature of this gauge, and renders it the most adjustable fixture ever offered to sawyers. The plate *F* is hinged at the end of *C*, so that the face can be adjusted in perfect line with the saw; when once adjusted it is secured in position by set-screw. *E*, *G*, *H* and *I* are the bevel arrangements; the wood *I* can be tilted at any angle, and then secured by the thumb-screws The plain gauge is formed by attaching the fence to the plate *F*, and is shown in Fig. 2. The machine may be seen at the Pacific Saw Manufacturing Co., No. 17 and 19 Fremont street, in this city.

THE SUBMARINE TELEGRAPH cables in China are suffering from the attacks of some minute crustacean, so small as to be scarcely perceptible to the naked eye. Various breaks have been traced to the agency of these animals who imbed themselves in the gutta percha.

Mining Discoveries

Specimens of coal and copper have been brought into Visalia, Tulare county, recently and created no little excitement. A gold ledge has been discovered near there, in Yokall Valley, about 35 miles distant; it is narrow but rich. A silver lead has been found on Smith's mountain at the head of King's River, the ore from which is expected to pay not less than $400 per ton.

The Winnemucca *Register* chronicles the discovery of a rich gold mine, about 10 miles from that place. The claim shows good prospects, some of the rock being covered with fine gold.

The Unionville *Silver State* has seen some very rich silver ore from a recent discovery near that place.

Reports of the discovery of rich deposits of gold in the Black Hills continue to be received. A gentleman who had lately arrived at Sioux City, Iowa, brings rich specimens of quartz and says the Indians have large quantities of gold.

ARIZONA.—A small party of miners who have some time been working in Black Cañon, about 50 miles southeast of Prescott, have been compelled to leave their claims owing to fears of an Indian attack.

Too Wet to Plow.

In several districts of the State where adobe lands abound, the continued rains have made the lands too wet to admit of plowing for wheat at present, and it is becoming a question of great importance to know how late it will do to defer seeding and still hope for a fair crop. Many doubtless will sow wheat much later than they would otherwise have dared, but for the unusual and almost continued rainfall since December. It has so long been the great staple crop of the majority of our grain farmers that they find themselves in difficulty and doubt as to what is best to do.

How late can the common California varieties of winter wheat be sown and mature a crop? Of course very much depends upon the quantity of rainfall between this and the first of May. But, are we to have as abundant late spring rains as heretofore, following close upon our long-continued and almost unprecedented winter rains? These are questions which time alone will determine; it becomes the farmer, therefore, to look around for some avenue of escape from the dearth of pocket likely to occur, if he fails of a fair amount of acres of fully matured and marketable wheat.

In all the Northern States of the Atlantic they sow wheat which is know as spring wheat, as late as they sow oats, or in April to the very last week, and still harvest excellent yields of wheat. It is not too late for our farmers to send for this variety, which can be sown and fully mature its grain, at a season so late that the ordinary wheat of California would be nearly a total failure. It is a wheat so entirely distinct from the other varieties, that it takes its peculiar rank and place in the markets of all the great grain depots of the Northwest. It can be procured in Chicago in any quantity. The only question is, can it mature here, subject to our almost rainless months of June and July?

Buy the Right Fruit.

A subscriber, A. C., writing from Stony Point, Sonoma county, attributes the dissatisfaction felt by the consumers of fruits with the article they purchase, to a want of knowledge of the best varieties; that if they would give more attention to this, and then buy none but of good quality or condition, when put upon the market, very little trouble would ever be felt. He recommends among the apples for family use, the Red Astrachan, Gravenstein, Baldwin, Bellflower; Smith's Cider, Esopus Spitzenberg, R. I. Greening and Yellow Newtown Pippin.

Then he makes the following suggestion on another matter:—"A good way to make dry tough timber more servicable, such as whip stock, axe handles, etc., is to soak them in water for six hours and then use them until dry; by this means you bring the spring into the wood before breaking. Try it!"

GOLD IN THE COLORADO.—Extensive placer diggings have been struck on the Colorado river, above the mouth of the Virgen. A correspondent of the Salt Lake *News* says that half an ounce a day has been made to the hand. Various places have been visited along the river and fine gold has been found at most of them. People seem satisfied that the Colorado will be lined with mining camps before another winter sets in. A number of parties are out prospecting.

CORRESPONDENCE.

Notes of Travel in Yuba County.

[By our Traveling Correspondent.]

Marysville.

The county seat of this county, is situated about 40 miles distant from Sacramento city *via.* rail, not the shortest, but the only routs hy which your city is reachsd at thie writing; the railroad *via.* Knight's Landing and Davieville, hsing completely suhmergsd in places. This city contains about 6,000 inhehitauts, hae two first-clase hotele, the "Western House" and "Dawson House," and in a menufacturing way, is second to none of ite eize, in the State.

Best & Brown's "Separator"

Ie manufactured at thie place, the patent upon which wes obtained through your office. The proprietors of this separator are at present only manufacturing modele, for the purchasers of county rights; 14 men are regularly employed and $20,000 worth of county rights have been disposed of within the last 30 days. It is a portahle machine, costs $500, and has a capacity of cleaning 60 tons of grain, or eeed of any description, daily; it is especially adapted for cleaning harley for hrewers, castor heans, etc,; if a half dozen kinds of grain be mixed, it will separate each, in a different sack. So highly pleased were the Japanese with it, (whsn they visited this city a few wesks since) that they propose to introduce it into Japan to clean rice with. I am satisfied it is a fortune to its owners.

Eureka Gang Plow.

Hill's patent ie enother of the important manufactured articles of this city. Messrs. Hill & Knaugh, proprietors, ere at present working a force of 20 men in the manufacture of some half dozen kinds of single gang and sod-plows. The Eureka eulky plow, a douhle gang, all iron except the pole, is manufaotured at $95 each; with chilled cast-iron points at $85; the Champion deep-tilling stubhle plow at from $85 to $90. They also manufacture a sod or tule plow on trucks, with seat for driver, at from $80 to $90. Several I saw in use, gave entire satiefaction; their plows for gravelly ground (especially made) are a great succees.

Doors, Windows and Blinds.

One of the largest establishments of this class of articles anywhere in the interior of the State, ie carried on at this place hy Messrs. Swain & Hudson; they do a general turning and ecroll-sawing hueiness in addition, and at present are employing 50 men. Their manufactory is situated on the corner of Firet and D etreets.

Guns, Rifles, and Pistols.

Some of the most extraordinary, and I am credihly informed, the most effective weapons, manufactured on this Coast, emanate from the estahlishmont of B. Biglow, 95, D. street, Marysville. Thc celehrated "Kit Carson" carries a seven shooter repeating rifle, made hy Mr B. siuce his residence here. As it may be of eome interest to the eporting, and target shooting readers of the PRESS, I will mention a few kinds of weapcus made hy Mr. B.—together with the prices charged. Common hunting rifle from $25 to $100; target rifles, from $45 to $200; eeven shooter repeating rifles from $100 to $200, after the Billinghurst patent, with rifled cylinder; douhle-barrelled rifle, one above the other, from $65 to $150; ehot gun and rifle comhined, from $50 to $120. He fits new harrels iu Henry rifles, and manufactures a rifle warranted to ehoot through a half-inch of solid iron, carrying 8 grams of powder.

Scirpus Lacustris.

S. D. Baldwin, jeweler, of this place, has lately patented through your office, and claims the right of manufacturing paper and other fabrics from the ahove named suhstance, which is common tule; it grows from 3 to 12 feet high, has an outer fibre, and an inner pulp. The specimens ehown your correspondent, have a staple equal to the best cotton. With the immense acreage of tule in California—should this enterprise prove what is claimed for it, cotton will no longer he "King."

Buckeye Flouring Mill,

At this place, A. D. Starr & Co., proprietors, is run hy a steam engine of 120 horse power; it has 6 run of burrs, a etorage capacity of 1,500 tons, and a capacity of making 250 barrels of flour every 24 hours; 15 men are regularly employed; the machinery used is cog-gearing, and to prevent "backlash," one of Logan's patent Ruhber Backlash Springs is attached to the hurrs; it gives perfect satisfaction at this mill, and they inform me, completely takes off all "backlash."

Business Men.

The principal dealer in stoves, tin, sheet-iron, pumps, copperware, hardware and glassware, is E. L. Rose & Co., No. 66 D strest.

Messre. Bell & Garrett, are the wholesale and retail grocere of this section, and deal in everything appertaining to that line of trade, making it the chief head quarters for farmers for milee around.

Nevada Stage Co.,

Running betwcen Marysville and Nevada, daily (Sundays excepted) is satisfactory to the traveling puhlic; thc distance is 40 miles, fare $5. On the route you pass Timbuctoo, Sucker Flat, Smartsville, Rough and Ready and Grass Valley. Messrs. Chas. Sherman and John Bordwell are proprietors.

L. P. MC.

Our Pacific Coast Islands.

EDITORS PRESS:—In your issue of Dec. 23d you asked for information releting to the islands and other lands on the eouthern coaet of California. I have waited until now in the expectation that some one, better informed on thie eubject, would have given the information desired.

There are Six Islands

South of Point Concoption; three of which, Santa Cruz, Santa Rosa end San Miguel, lying south of and ncar the coast of Santa Barbara county, varying in length from ten to thirty, by an average width of about five miles. Further eouth, on the coaet of Los Angeles county, are Santa Catalina, San Clemente and San Nicoles, about equal in eize to the three above mentioned. All of theee islands are fully etocked with sheep and are, I believe, held by verious parties under Spanish grante. They are all hilly and even mountainous, with little or no land suitable for cultivation. Some of the larger ones have eprings and small streams of fresh water; but moet of them have no fresh water upon them at all; hut all are stocked with sheep, which are not herded, hut permitted to take care of themselves except when they are corralled for the purpose of ehearing or drafting for sale.

It is a singular fact that the eheep do juet as well on the islande dostitnte of water, es upon the others; the fogs and dews eupplying all the moisture they receive. Although the expense of herding is avoided, the sheep become eo wild that a large force ie required to corral and handle them upon the occaeione when it is necessary to do so, and it ie quite prohable that when herded on good pasturee on the main land, the profit is greater; end certainly persons who wish to breed fine eheep and make fine wool, would infinitoly prefer the latter.

On the Main Land,

The quality of our pasturee ie much euperior to that on the islande, and investments there will increase more rapidly in value, as there is always a considerable proportion of the lande on our lerge ranchos euitable for cultivetion, which as the population increases will become valuahle as farming lands. Some large fortunes have already been made in thie way from ranchos purchased originally for sheep ranges; and there are yet many valuahle tracte for sale, at from one to four dollars per acre, varying in eize from five to fifty thousand acres. To give an idea of

The Quality of Our Winter Pastures,

I will state that at the present time the grase on the hills and uplands ie from one to two feet high, and will continue green and growing until May and June, after which it driee into the finest natural hay in the world, and is then far hetter for fattening stock than when green.

There are thousands of acres of valley lands on the Stearns ranchos, near this town, that if eown with alfalfa would enpport ten sheep to the acre, fnrnishing abundance of green feed throughout the year *without irrigation*, ae these lands are underlaid hy an unfailing snpply of water at a depth of from four to eight feet from the eurface, a depth easily reached by all strong rooted plants.

These are the lands upon which the eemi-tropical fruits flonrieh, and although now selling at from $15 to $25 per acre, will in a few yeare become immensely valuahle. Eight inchee of rain has this season completely saturated these lands with moisture. Early eown grain is growing so rank that it has fallen flat upon the ground, and is being mown to allow it to grow up again. With eight inches of rain any other pert of the world would be a desert; ten with us is a full enpply.

Yours truly, WM. R. OLDEN.

Anaheim, Feb. 28, 1872.

Continuation of Veins in Depth.

[Extracts from Warrington Smyth's Lectures.]

It cannot he expected that small strings will penetrate to any great depth, or, as a rule, that small veine will he found largely productive under euch circumstencee. In the olden hooks much was said about what are called "gash veine," which are V-like openings from the eurface, hut which gradually tend to a point where they come to an end. Some of these in the last century were described without due care, as after descending some distance, no thicker than a feather edge, they were found to widen out again, and become wide and important like a reversed A. Some excuee might he urged for the mistake, as explorations cost money, and the veins became eo very attenuated that it wes not wonderful an adverse conclusion should be drawn. Thess, however, are exactly the conditious under which veins have been opened to as great depths of ae from 2,000 to 3,000 feet. For instance the copper lode of the Trasavean mine, is worked through to the solid granite to a depth of 340 fms.; the Samson mine of Andreasherg, is 410 fms. deep. The lodes were never more than 14 or 15 in. in breadth, and eometimes very much less; and yet they were followed to this enormous depth with wondsrful perseverance and success, although one of them is now no longer worked.

A still more remarkahle case is that of the mine of Kongengruh, in Norway, in which a little vein, only two or three inches in thickness, is followed to a depth of 266 fathoms. Facts like these must fill the miner with conetant hope, and that, too, not based on mere theory. Nothing can he a greater fallacy than to eet out on e mining adventure, and finding the vein to be small and poor, to conclude that it is not worth working. On the contrary, a narrow vein may bo found to open out downwards and enlarge for a coneiderahle dietance. Without kuowing the general character of a district, it ie impossihle to eay whether a vein which commencee small is likely to open out; and, therefore, it will all depend on the intrinsic value of the metal sought for whether it will pay for descending through, it may be, very hard rocks to such great depthe.

Somewhat eimilar depthe have heen attained in other countries. In the Hartz, the Clausthal Minee are worked to a depth of 300 fms., on veins of very moderate thicknese, producing eilver ore and argentiferoue galena. In Saxony, the Freiherg Minee afford an interesting example of silver veins, retaining their character and richnees at considerable depthe, many of them now exceeding 230 fathome. At Schemnitz, in Hungary, 220 fms. ie not an uncommon depth; hut, perhaps, the most remarkable deep mine in the world ie that of Przihram, to the weet of Prague.

Veins Variously Affected In Passing Through Different Stratas.

At the end of the last centuiy there was a case in which it wes believed a vein came to a total end, and a great numher of miues have been abandoned in conseqence of a belief that the vien would not widen out, and on eccount of the difficulty of going down to such great depths. The case I have alluded to was that of Llewgyrog, in Montgomeryshire, where, after enormoue expenses had beon incurred, the vein wedged out in the deep. A very singular case occurred eome years since in Scotland. On one of the mountains eouth of the Tay, the late Marquis of Breadalhane discovered a vein of argentiferous lead ore, and a good deal was extracted from it. All at once tho veiu disappeared, and it turned out that the summit of the hill was capped with fluor limestone, and that the veins did not penetrate further, hut when they reached the material helow their ore-bearing character at once ceased. In another case a lode was rich while it was in the greenstone, but heyond that it could only he traced as a film of calcareous epar through a bed of hlack shale, and passing again into a bed of greenstono it resumed its former size and ore-bearing condition.

In the north of England veine are treced through a succeseion of clearly and distinctly stratified bede, while in the west of England and parts of Walss it is difficult to make out their direction under such circumstances. In the north, they have the advantage of seeing what is done when the vein pasces from one hed to another. These hede set downwards regularly, through limestone, shale, and grit or sandstone; and it ie found that when the vein cheeks against the limestone on hoth sides it is likely to be rich, when only on one side not so rich, when in the others it ceasss altogether to yield ore.

These are conclueions which have beeu arrived at all over a large area which has been worked for many years, and that, too, under tho observation of meu of undoubted ability and reputation. It is an exceedingly interesting and inetructive study to follow the phenomena of auy district, and compare them with what is found in other parts of the country. Ae a general rule, in all parts of Europe, when you get a black shale the lode ceases to yield ore iu any quantity, and hecomes not only greatly impoverished, hut pinched as to size. A lode may, in passing from one class of limestone to another, or from one rock to another, lose eome of its ore-bsaring excellence; hut, on the other hand, it is just as likely to improve, whereas in shale it always goes off. Thus, if a veiu comes to a bed of chert, a herd flinty material, it is quite notorious that it will hecome exceedingly rich, and then, when it passes to the shale beneath, exceedingly poor.

Professor Wheatley hae pointed out that in the west of Scotland, veine, while passing through beds of the Lower Silurian Limestone, contain large quantities of lead ore, while in others, eomewhat different in composition and color, they yield none whatever, or next to none. Another case may be cited from the Lake Superior district of the United Statee, famous for its vast masses of native copper. There the veins, when found coursing through hard dolomitic and amygdaloid heds, are richsr in some qualitiss of ore, and poorer in others, than when passing through rocks of a different character.

Lodes on the clay-slate rocks of the west of England are not always easy to follow up, hut their moet productive portions are those which are nearest the contact of this rock with granite. When slatestone is favorahle for roofing and other huilding purpoees, ite motalliferoue character disappeare, and it ie only when comparatively eoft that it seems fitted for the reception of metallic ores.

MINING INVESTMENTS. — The mining *World* (London) in an editorial on mining matters says: Whatever may be said of foreign mining, the *bonafides* of promotere, and the truth of representatione made respecting richness of deposits and estimated yield, the genuine facts of home mining are heyond suspicion. It is imperatively necessary that persons invited to invest in mining adventures thousands of milee away ehould exercise the utmost caution, and neglect no means availahle to ohtain reliable information. Yet to regard all foreign undertakings iudiscriminately, and without enquiry, as hollow and deluaive, is a mietake few iuvestors are likely to commit. The ever-increasing spare capital of this country ie conetantly seeking inveetments of a productive nature, and while mining offers fairer chances of larger profite, it is only natural that it should claim a large ehare of attention.

SEWING MACHINE.—Probahly no one invention hes come into so general use as the sewing machine. The businese of manufacturing and eelliug them has grown up mainly within the past fifteen years, but during the last teu years has increased rapidly. There are now made and sold annually in the United States ahout 750,000 sewing machines, and in every city, town, village and hamlet the useful machines are more or less in uee. Some of the largest manufactories are now running extra houre to keep up with ordere, and even then are frequently unable to eupply the demand.—*Am. Manufacturer.*

THE ship-building trade on the Clyde, near Glasgow, Scotland, during 1871, has heen very proeperous, the total numher of veesels launched having heen 231, with an aggregate meaeurement of 196,200 tons. Among the ahove mentioned vessels were eix war steamers of 10,900 tons; and one hundred and twenty-five screw steamers of 158,000 tons. The sailing vessols were twenty-five of 12,720 tons.

A BILL hae been eent to Congress eetting apart as a public reservation an area of ahout forty miles square, including the Yellowstone lake and cañon, and the famous Geyeer Basin.

Mechanical Progress.

Contact of Belts with Pulleys.

Until a comparatively recent date the practice has been general of pntting the rongh side of a belt to the pnlley and, the suggestion that tho smooth side would give more capacity for transmitting power has heeu received as an innovation of donbtful ntility. Recent experience has shown that, aside from the iucidental circumstance that tho bolt will be less liablo to crack if the grain side is applied to the pulley—the strain heing thus thrown upon the outer or flesh side, which has the greater elasticity—tho difference in tho amount of availahle tension ohtained is so great as to he very distinctly manifest when the two methods aro compared in actnal trial.

The fact has also been dcduced that a leathor belt, with tho dreseed eide to the pulley will eustain one-third more tension without elipping than if the flesh sido is applied. If the helt is required to tranemit the utmost amount of power which can be applied without causing it to slip, this differenoe becomes an important item; and in a certain degreo it will always have its effect upon tho working capacity of the machinery.

Thore has long prevailed in some qnartors an impression that the rough side of the helt will take a firmer hold upon the pulley. Bnt it is not only important that the helt shonld hold snngly to the pnlley while in contact—it ie equally essential that it should he released with perfect ease when it leaves the pulley—there shonld he no impediment to the passing off of the helt. This difficulty has often heen exemplified in attempts to improve the action of the belt by applying adheeive suhstances which canse it to etick to the pulley. The "traction," it is true, is increased hy this means, bnt the stioking of the helt is an obstacle to its free motion, and it is found to have less effective power than hefore.

What is wanted to secure the best resnlts in the nse of helting ie the greatest possihle smoothness both of pnlley and helt, resnlting in the closest attainable contact between their snrfaces; and to this end it is ohviously expedient to put the dressed side of the helt to the pulley. The effect is still fnrther and very greatly improved by covering the pulley with leather, the increase of the resistance to slipping thus ohtained heing stated hy some experimenters as high as fifty per cent.

It is said that a belt will sometimes carry so mnch air with it when in very rapid motion that it actually *rides* the air instead of the pnlley—in other words, that a continuous cnrrent or helt of air is drawn in and interposes itself hetween the pulley and the hand, the latter losing its contact and hecoming entirely detached from the pulley. This is advanced ae the reason why a helt running at high speed requires greater tension to prevent it from slipping than when the speed is less. But the air theory is not a tenable one, except, perhaps, in a very limited sense. The canse of the separation and elipping of the helt on the pulley is nothing else than the centrifngal force of the helt which tends, of conrse, to throw it outward, and requiree to be checked by a corresponding degree of tension.—*Condensed from Leffel's.*

German Prizes for Improvements.—The "Verein zur Befoerderung des Gewerbefleissee" offere several prizes for a durable plaster on brick walls; for a method to determine the valuahle conetitnents in aniline oil; for an opaque red enamel oh gold, eilver, and copper; for a method to make lenses for optical purpoees withont grinding or polishing; for a treatiee on the composition of cements; for treaties on the mannfacture, formation, and constitution of coralline (aurine, pronine, rosalic acid) for the preparation of a eoft yellow solder.—*Dingler's Poly Journal.*

Steel-Headed vs. Steel Rails.—The chief engineer of the Philadelphia and Reading railroad condemns the use of the so-called steel-headed rail, on the ground that the eteel head is found to eeparate from the body—a difficulty not yet overcome by a pecnliar arrangement of the pile in rolling, which had heen intended to obviate it. Of all this class of rails laid on the main track of this railroad since March, 1869, over 25 per cent. have heen removed. The solid steel rails, on the contrary, have uniformly proved satisfactory, showing but little wear, after a service of about four and a half years.

Hooping Boiler Flues.

A practice was introduced in England some ten years since, nndcr the sanction of the Manchester Steam Users' Association for the application of encircling hoops to the furnace tuhes and flues of hoilers originally made withont such hoops. The object is either to admit of their working pressure hoing increased, or to render them safe at the one to which they have been snhjected.

The association after carefully noting the effect and utility of such practico for somo year, at a late meeting issued a circular fully confirming their ntility, and offering some suggestions as to the mode of application, etc., which are so thoronghly practiced that we give the substance of the circular as follows:

Mods of Application.

The greatest caro ehould be taken in their application. The hoope should not he made of flat, but of angle iron. About 3 in. by 3 in., hy ⅛ in. is recommendcd. Thcy ehonld he made in halves so as to be passed in at the man-holes, and riveted to the tuhes or flueo in positiou.

The hoops should he eecnred to the flues hy rivets, but not brought into direct contact with the plates of the flues. A epace of an inch should he left hotween the hoop and flue for the free circulation of water, else the plate will hocome overheated and crack at the rivet holes. Thie ie accomplished by ineerting between the hoop and flue a short piece of tube or ferrule, through which the rivet may pass loosely. Blocks of iron with holes punched in them, forming a clumsy washer, have sometimes been used, but they are objectionable. The ferrules are hest made of these—sixteenth iron cnt end welded. They should be placed about six inches apart, and nicely adjusted so as to give a solid ahutment for the riveting.

The use of these ferrrnles or washers has sometimes been avoided hy constructing the hoope of two pieces of angle iron placed back to back; but they are not found to work well. The opposite helves of the hoop shonld he carefully welded and drawn together and connected hy hutt-strips, riveted to their ends on the backs; much depends on the hoops heing made one with the flue. They should not be allowed to touch the shell of the hoiler, or the flnes may hecome etrained and leekage be induced—ae the furnace tuhes rise and fall with the varietione of the temperature, and thus grind against the eides of the hoiler or one another, if allowed to como in contact. Where space requires it, a portion of the flange of the angle iron may he cut off to prevent contect. It is recommended that in every hoiler of ordinary dimensions at least one hoop should be placed upon the flue about five feet from the front, to guard the flue against strain from the action of the fire. If two are used, the second should he placed a little heyond the middle from the front. With inoreasing numbers always bear in mind that the amount of strain decreases as you approach the rear of the hoiler.

In cleansing out the boilers the annular spacos bctween the hoops and flues ehould always he carefully attended to.

Conveying Power over Telegraph Poles. The large establishment of James Richmond, at Lockport, N. Y., the well known maker of grain cleaners, is driven hy water power from the waste of the Erie canal. Mr. R. also supplies a considerahle amonnt of power to other establishments, some of which are over half a mile from his water wheels. This he does by means of endless wire cables, *carried on telegraph poles*, to neighboring factories and mills. A very simple arrangement of coge enahles any numher of endles wire cahles to run to central points in the city, and thence in all directions. In this way, the printing presses of the *Journal*, the *Times*, and the *Union* are run at a small cost per annum. Mr. Richmond also furnishes power to a whip factory, a cahinet shop, a glass factory, 2,500 feet away, a ehirt factory, 2,000 feet in the opposite direction, a foundry, and a machine shop. He has some valuahle patents in connection with this distrihution of power, and has lately fitted up a serios of distributing wires at Fulton, in Oswego county.

The Danks Furnace.—Much interest continues to he felt in the euccess of this invention on hoth sides of the Atlantic. The Cleveland people are very much excited over it; and if the reported enccess is maintained, it will soon do away with all ordinary puddling furnaces in that vicinity. It hids fair to rival in importance even the Bessemer steel process.

Scientific Progress.

Do Plants Derive Their Carbon From the Earth?

This is a question of as much practical value to the agriculturist as of scientific interest to the student of Nature; and Messrs. Laws & Gilhert, the eminent agricultural experimentalists of England have quite satisfactorily solved the question in the negative. They have discovered that, taking the averago of seventeen years, the gross amount of produce removed from one acre of continuously nnmanured laud, in the case of wheat, was 2,434 lbs., and that when from this gross produce they suhtracted the amount of water it coutained, and of ash which it yielded, there remained 1,963 lbs. of dry organic matter; and when they came to analyse these 1,963 lbs. of dry organic matter, they found them to contaiu 880 lbe. of carbon. And this, it ehould he horne in mind, ie the average produce of seventeen years' continuous growth of wheat on land to which nothing whatever was added.

Now to a similar etrip of land the same experimentalist added every year a certain quanty of mineral matter, corresponding to the ashes yielded hy each euccessive crop removed; and on the etrip so treated, the amount of gross produce was found to be increased from 2,434 lbe. to 2,912 lbs. the amonnt of dry organic matter to he increased from 1,963 lbs. to 2,347 lbs., and the amonht of carbon to he increased from 884 lbe. to 1,052 lbs.

To another slip of land they added year hy year exactly the same quantity of mineral matter, and in addition a considerahle quantity of ammonia salts—the ammonia ealts end mineral matter heing alike ahsolutely free from carhonaceone orgenic metter. And in the case of this strip, they found that the amount of gross produce was increesed to the surprising extent of 6,394 lbs., while the amount of dry organic matter was increased to 5,149 lbs., and the amount of carhon to 2,308 lbs.

These results are fully ae high—in most cases, indeed, somewhat higher—than are results ohtained on a fonrth strip of land, eupplied year by year with an abundance of ferm-yerd manure, containing not only the mineral matter, and ammonia added to the third strip, hut rich also in carbonaceous organic matter.

Professor Odling says it is inconceivable, then, that the plant should acquire ite carhon from these organic mattere of the soil, seeing that the amount of carhon in the crop may he increased twofold, and in some casee nearly threefold, hy adding to the eoil suhstances, such as mineral selts and ammonia, which are entirely free from orgenic metter. Is is inconceivable, too, that the originel humus in the soil could furnish the carbon contained in a succession of crops for seventeen years consecutively.

Rupture of Iron Wire by a Blow.—As the result of a series of investigations upon the rupture of iron wire by a hlow, Mr. John Hopkiuson comes to the following oonclusions:

1. That if any physical cause increase the tenacity of wire, hut increase the product of its elasticity and linear density in a more than duplicate ratio, it will render it more liahle to break under a blow.

2. That the fracture of a wire depends on its length, its support, and the method of applying the hlow.

3. That in cases such as surges on chains, etc., the effect depends more on the velocity than on the momentum or *vis viva* of the surge.

Sulphide of Bismuth.—Bismuth in the prosence of or in comhination with sulphur, yields a beautiful red coating, when passed before the blowpipe on a large piece of charcoal, up the addition of a little pulverized iodide of potassium. A finely pulverized mixture of equal parts of eulphur and iodide of potassium is best kept for euch purpose and makes an excellent test material for bismuth. In making these investigations, V. Kohell met a green mineral whioh occure associated with joseite at St. José di Madureira, Brazil, and which proved to be biemuthite, not previously noticed at that locality.

Printing on Glass.—Type made of an elastic material is used, and printing ink, with which is mixed fluoride of calcium. The glass thus printed on is then heated, to a suitable temperature with eulphuric acid, and, having heen washed with water, it exhibits in indelible engraving the figures of the type.

On the Melting and Regelation of Ice.

Professor Bottomley, of Glasgow Univorsity, descrihes in *Nature*, some onrions experiments of his on the apparent plasticity of ice. In a recent leotnre to his class, he placed a lump of ice as large as an apple on a piece of wire gauze, and on this a hoard, weighted with 12 pounds. Before tho conclusion of the lecture, a considerahle quantity of ice was found on the lower side of the gauze, firmly united to that ahove, though apparently forced through the meshes, in a room at 15° C. In a second experiment he placed a block of ice on two parallel boards near together, passed a loop of wire over the ice and hung weights on the ends. Various sizes of wire were tried, and in the final experiment, a wire 0.1 inch in diameter was used, weighted with 56 pounds. It passed entirely through the hlock of ice, and fell upon the floor; but this block of ice, though the plane of passage wae clearly marked, wae not divided, nor could it he split in thie plane with a knife and chisel.

This remarkahle result he explains to he a consequence of Jamee Thomson's theory of regelation, as follows: The etrese npon the ice, due to the pressure of the wire, givee it a tendency to melt at the point in contact with this wire, and the ice, in the form of water intermixed with fragmente and new crystals, moves so as to relieve itself of pressure. As soon as any portion of the mass is thns relieved, freezing takee place throughout it, because its temperature is redneed helow that of the freezing point of water at ordinary pressures, hy melting of contiguous parts. The obvious tendency of the ice under the pressure from ahove is thue hy a seriee of meltinge and refreezings to allow the paeeage of the wire and yet remain a solid hlock.

Temperature of the Sun.—Various theories have heen adduced to determine the temperature of the sun. Zöllner has recently suggested the following:—"Starting from the fact of the eruptive nature of a certain class of eolar protuherances, thinks that the extraordinary rapidity with which these red flemes ehoot forth proves that the hydrogen of which they are mainly composed must have hurst out from under great pressure; end if so, the hydrogen must have been confined by a zone or layer of liquid from which it hreaks loose. Assuming the existence of such a layer of incandescent liquid, thon applying to the prohlem the principles and methods of the mechanical theory of gases, he arrives at the conclusion thet the difference of pressure needed to produce an explosion capable of projecting a promiuence to the hight not unfrequently noticed, is 4,070,000 atmospheres. This enormous pressure is attained at a depth of 130 geographical miles under the eun'e surfece. In order to produce this gigantic pressure the difference in temperature hetween the inclosed hydrogen and thet existing in the solar atmosphere amounts to 74,910° C. In a similar way Zöllner calculetes the approximate ahsolute temperatnre of the eun'e atmosphere, to he 27,700° C. —a tempereture about eight times as high as that given hy Bunsen for the oxyhydrogen flame, and one at which iron must exist in a permanently gaseoue form."

Manufacture of Brandy from Sawdust.—Some years ago Braconnat discovered that grape sugar could he ohtained hy hoiling cellulose with dilute acids, but Professor S. Steuherg was the first to introduce the manufacture of braudy on a practical scale in this way. In February last C. G. Zetterland, of Hulda, made several experiments in preparing brandy from the sawdust of fir and pine. We condense his description in the *Arbeitgeber:* Nine cwt. sawdust (holding considerahle water) were boiled with 0.6 cwt. hydrochloric acid (ep. gr. 1.18) and 30.7 cwt. water. After 8¼ hours the mass held 3¼ per ct. grape sugar and after 11 hours 4.38 per ct. A larger percentage than the latter was not obtainahle. The acid in the mass was neutralized with lime, the mash cooled to a temperature of 30°, and the yeast from 20 lbs. malt was added. The fermentation was finished in 96 hours. After distilling there were obtained abont 15½ gals. (English) of hrandy of 50 per ct. at 15°, free from any smell or taste of turpentine and of good flavor. The experimenter thinks it probahle that the manufacture of hrandy can he carried on snccessfully on a large scale after experiments have ehown the proper method of the details. As air-dried saw dust contains about 80 to 85 per ct. cellulose, if it were possihle to traneform all this cullulose into grape sugar, each cwt. of air-dried sawdust would yield at least 7 gals. of 50 per ct. hrandy.

MINING SUMMARY.

THE following is mostly condensed from journals published in the interior, in proximity to the mines mentioned.

California.

ALPINE COUNTY.

GLOBE.—Monitor *Miner*, March 2: During Feh. a little over 60 ft. of main tunnel was made hy 3 men. An assay of the gray copper ore from the bottom of the shaft gave 33 8-10 per cent. copper and $1.25 silver per ton.

WHITE'S furnace at the Tarshish mill is nearly ready for work. The mill will he ready to get np steam next week.

AMADOR COUNTY.

SPEOIMEN.—Amador *Ledger*, March 9: A piece of quartz rock from the shaft of the State of Maine mine, left at our office a few dsys ago, literally sparkles with fine gold, and is well charged with sulphurets.

GOLD BRICK.—We have heen shown a gold hrick weighing 389 ozs., the proceeds of 16 days run on rock from Kennedy mine in a 20-stamp mill. As work progresses the rock in the mine hecomes richer in free gold and snlphurets. That heing taken out will average $25 per ton hy ordinary mill process.

VOLOANO. — Cor. Amador *Dispatch*, March 9: The Markley mine pays from $80 to $100 per ton.

Another lead has heen fonnd 2 miles from it, known as the Rodgers Lead, that hids fair to he equally as good. At present it is not heing worked on account of the weather. The placer mines are paying well. The Robinson claim, near Foster's, is doing "hully" It pays from $5 to $8 to the hand per day. Still higher up, on the same range, have been found diggings that are paying well—among them are some near Tarr's mill.

BUTTE COUNTY.

FOUR-IN-HAND.—Chico *Review*, March 8: This is the name of the newly-discovered claim and district located 25 miles from Chico.

CALAVERAS COUNTY.

CALAVERAS HYDRAULIO M. Co.—Calaveras *Chronicle*, March 9: The Co. will soon be in readiness to commence operations in their mine near Worth's Hill, 1,900 ft. of iron pipe are to he used in conducting water for hydraulic purposes, 1,400 ft. of which are completed.

HUDSON.—Three shifts of men are employed in sinking the main shaft, which is 60 ft. deep showing a 9 ft. ledge. A whim, whim-house, hlacksmith shop and other hnildings have recently heen erected, and every preparation made for workiog the mine in good shape.

GWIN.—The mill on the lower Gwin mine—36 stamps—is kept constantly running, the ore crushed, however, not being fist-class. The shaft in the npper mine is cleaned out down to the water, hut it will he some time yet hefore rock can be taken out. The sinking of a new shaft between the two mines has been commenced.

SAN ANDREAS.—Cor. same: The Sciffard ledge is 8 ft. in width, but ahout 2 ft. on the hanging wall is allowed to remain. They are sinking a shaft on the ledge.

The Garnet mine is heing operated and continues to "give out" in the good old way.

EL DORADO COUNTY.

CLARKEVILLE.—Cor. Placerville *Republican*, March 1: There is considerable prospecting going on, and we have 2 hydraulio Co's. driving away near Screech Owl Ravine.

INYO COUNTY.

COMMENCED OPERATIONS.—Inyo *Independent*, March 2: Jimmy Sharpe and Clastine have gone to work on the Blue Bell ledge, in the Inyo range, opposite this place, to take out ore for shipment.

LOS ANGELES COUNTY.

SHIPMENT.—Los Angeles *News*, March 2: The Orizaba will take to-day the largest shipment of hullion that has ever heen made from this place to S. F. It consists of over 3,000 hars.

MINING.—The Pah Ute Co. in Clark dis. own 75 ledges from some of which very rich rock is heing taken, the ore yielding aa high aa $800 a ton.

SAN GABRIEL RIVER.—Mining on the San Gabriel river is progressing favorably. The Roberts-Matfield Co. have completed their first cleaning up, with a satisfactory resnlt. The San Gabriel Co. have let out a contract for the completion of their ditch, for $10,000. One mile of the ditch has been constructed, and there remains 3 yet to be done.

MARIPOSA COUNTY.

HORNITOS.—Mariposa *Gazette*, March 1: Rumor has it that Spanish Tom & Co. have taken out $20,000 during the past week. One pocket after another is found, varying from $3,000 to $8,000. I have heard of several strikes heing made in this vicinity lately. Men and boys can he seen in every direction with pick and pan searching for the hidden treasure. Jack Moseman took out $400 from a pocket in his claim, one day last week, and has more of the precious metal in sight.

NAPA COUNTY.

QUICKSILVER.—Vallejo *Chronicle*, March 2: The Whitton Co., on the divide hetween Santa Rosa and Napa valley, have run a tunnel into the mountain ahout 250 ft., with a depth from the surface of 150 or 200 ft , and have a hody of ore diffused throngh the rock which will assay from 25 to 90 per cent. The Oakville Co. is lower down on the mountain, and has heen working 40 or 50 men. Geo. Cornwell & Co. have run a prospecting tunnel with splendid indications, and propose to run a main tunnel 300 ft. helow the summit.

NEVADA COUNTY.

SLIOO QUARTZ LEDGE.—Nevada *Transcript*, March 9: Lord & Co. have heen at work a short time taking out eurface rock, and they have a splendid prospect.

BUCHANAN MINE.—The mine, ahove this city, is turning out some splendid rock. There is a streak of yellowish quartz running through the ledge, which shows free gold in large quantities.

RED JACKET.—The Red Jacket Co., near the Anthony House, have struck some splendid looking gravel. The Co. has heen engaged in running a tunnel for ahout 5 years and during the entire progress the gravel has improved. An English Co. have been examining it and it is thought they will purchase the ground.

REDAN MINE.—Stiles & Co. have commenced the erection of a quartz mill on Little Greenhorn creek, for crushing rock from the Redan mine. The rock prospects well, and the ledge is large and well defined.

NORTH STAR. — Grass Valley *Union*, March 8: The mine has shipped for the 4 weeks, ending yesterday, gold to the value of $19,000. The shipment yesterday was 900 ozs.

PLACER COUNTY.

DUTCH FLAT.—Cor. Auhurn *Herald*, Msrch 9: The Dutch Flat Blue Gravei M. Co. is on the north side of this town. Its claims consist of 20 acres. Some of the surface has been washed away, and the present Co. is trying to wash the hlue gravel to the hedrock. The ground is pretty hard.

The Self Rising Co., on Grass Hill, had a good clean up.

The Plug-Ugly Co. cleaned up ahout $500, the result of 6 days' work. This Co. is washing night and day.

The Backer Co. had a dividend of $1,000. The ground is rich, but very hard.

PLUMAS COUNTY.

QUINCY *National*, March 2: The Black Hawk Co. recently cleaned up some $1.200, the result of 2 months' run of top dirt.

LA PORTE.—Cor. same: The contractors in the Bordwell tunnel are going ahead finely, making from 6 to 8 ft. per day.

MEADOW VALLEY,—Cor. Oroville *Record*, March 9: The claim of Rohert Grace, on Spanish Creek, at Green Flat, is being worked advantageously, with a full set of men. Nelson & Hanson are progressing finely, on adjoining ground. At Red Hill, Folsom & Messer are preparing for a spring gang. Morris Smith, on Badger Hill, is working with good success. Andrews & Kennedy have almost completed their exsive tunnel at Devil's Elhow.

SAN DIEGO COUNTY.

BULLION.—San Diego *Union*, Feh. 29: The shipment of bullion to S. F. yesterday amounted to $3,750—all from the San Diego mines.

SAN DIEGO MINES.—Affsirs are in a very encouraging condition. All the mills are busy at work and the development of the different mines is going on vigorously. The Redman Mill has just cleaned up after running upon a lot of ore from the Golden Chariot lead which yielded handsomely. It is now engaged upon rock from the Ready Relief. The mills of De Frees & Co., and Gunn, Reynolds & Co., are both crushing rock from the Owens lead. The Stonewall Jackson and Antelope Mills are both running upon ore from their own leads. The new mill of Wilson & Co. started up a few days since and is husy crushing ore from the Helvetia.

SIERRA COUNTY.

KANAKA.—Mountain *Messenger*, March 2: Otto Rey & Co. are working the Kanaka. They are putting up chlorination works.

TRINITY COUNTY.

LEWISTON.—Cor. Trinity *Journal*, March 2: Bolt's Hill is fast going away. Olney Phillip's claim is fast losing its breadth of ground. There are several men employed in it. Mat Trask and Squire Ross have washed off the side of one large mountain, and in doing so struck a channel which prospects finely. All the rest of the miners are doing well.

Nevada.

ELKO COUNTY.

COPE.—Elko *Independent*, March 9: The hullion shipment for Feh. was $22,041. A prosperous seasou is anticipated.

EUREKA DISTRICT.

ANTELOPE DIST.—Eureka *Sentinel*, March 5: The mines are looking well and the prospects are excellent for an important camp at an early day. Donald McMurchy, in company with the two McIntyre boys, have a fine mine with 50 or 60 tons of ore on the dump, which will prohably mill $60 per ton.

PHŒNIX Co.—This Co. have shut down their furnaces for the purpose of making many needed improvements. The Redmond Co. have also shnt down for repairs.

SHIPPED.—Supt. Mowry, of the Lemon Mill, informs us that one of the furnaces of the White pattern has heen shipped from S. F., and will arrive here within 2 weeks from now.

ELY DISTRICT.

BULLION.—Ely *Record*, March 3: W. F. & Co. shipped since the 29th ult., bullion valued at $84,425.05.

RED CLOUD.—The shaft is down 75 ft. At about 60 ft. down a small strata of very rich yellow cloride ore was struck, which has continued down to the present depth, showing that the real ledge has been struck. The rich streak of pay ore is about 1 ft. wide.

VULTURE.—The shaft is 12 ft. deep. The ledge is nearly perpendicular with a slight pitoh to the north, and the walls of solid quartzite. The ore in the bottom of the shaft is fully 5 ft. wide.

PIOCHE.—At the 400-ft. level good ore has been struck.

WARD BEECHER.—The incline is down 185 ft. and the ledge is beginning to show signs of improvement.

BOWERY MILL.—Gen. Page is rushing work on the mill with a full force of men, and hy the 10th of March it will be started on ore from the Bowery mine. The mine is looking well, a fine hody of ore has heen struck in the esst drift, and the ledge shows well in the same shaft. At the depth of 100 ft. the shaft cnt a rich body of ore.

PEAVINE.—Mr. Cavallier has started men to work sinking the shaft deeper, and also to grade off a placo for a shaft house. The ore on the dump is heautiful and rich, the ledge shows in the shaft from the surface down, the walls are perfect.

PAOE AND PANACA.—There is a full force engaged in timbering the works. The machinery is all ready to put up, and the hoisting works will be ready as soon as the timhering is completed.

HAHN & HUNT.—The mine is looking very well, and the character and extent of the ore is improving.

RAYMOND AND ELY is as good as ever, and the ore continues everwhere. The ledge is extensive, solid, and rich in free milling ore.

INOOMAR.—The hoisting works are nearly completed, and the whistle will blow at noon to-day. Ledge looking well.

HAVANA.—At 40 ft. the ledge is growing softer, and wider. All the indications are good.

ALPS continnes to improve. The east and west drifts are still in good ore, and everything looks well.

MEADOW VALLEY.—A fine hody of ore has heen struck in No. 3. From the 17th to the 19th ult., their shipments aggregated $55,343.

CHIEF DIST.—This Dist. is some 20 miles south of Pioche. Samples of very fine ore have heen shown to us from some of the mines just opened there. Parties interested speak very highly of the prospects of the Dist.

HUMBOLDT.

BULLION.—Unionville *Silver State*, March 9: Amount shipped from the Arizona mine, since our last issue, was $5,986.

SACRAMENTO DIST.—Encouraging reports reach ns. The Silver Queen ledge promises to be a valuable mine. At a depth of 120 ft., ore of the richest quality is developed. The ledge is 14 inches wide.

PIONEER AND INSKIP Co.—The Co. contemplate the erection of a chlorination furnace of the Stetefeldt pattern, near the Pioneer mill this spring.

UTICA MILL, at the outlet of Humholdt Lake, will start up ahortly on ore from the Almaden mine, Desert Dist.

GALENA.—Cor. same: The Battle Mt. mine is within ¼ mile of Galena. A tnnnel has heen run ahout 200 ft. and the ledge tapped 100 ft. helow the surface. There is a large body of mineral in sight. The Trenton mine, 7 miles west of here, has heen honded to an English Co. for $100,000.

REESE RIVER.

BULLION.—Reese River *Reveille*, March 7: W. F. & Co. shipped from this city during Feh., 57 hars, 4,408 lbs, valued at $39,288.40. All from the Stetefeldt mill of Belmont, Ellsworth mill of Mammoth, and the Metcom mill of this dist.

RICH.—A specimen from the "Lida Belle" ledge at Lida valley, hrought in assayed $12,592.24, and one from the Brown Henry assayed $12,661.37.

WASHOE.

CHOLLAR-POTOSI.—Virginia *Enterprise*, March 7: The Co. are again taking out ore. They are extracting 100 tons per dsy from the Piute and Blue Wing stations. A large amount of prospecting is heing done in the mine, chiefly at the first and second stations of the new shaft and in the South Belvidere and Piute sections.

SILVER BARS.—We yesterday observed on the counter of the Bank of Cal. silver hars to the value of $37,000 from the Crown Point, Belcher and Savage mines.

ARIZONA.—The Arizona Co., American Flat, have opened out their old tnnnel and are working npward from it to prospect their ground.

SUTRO TUNNEL.—The tunnel was yesterday in 2,764 ft.; the ground is hard and no water is coming in at the face.

SAVAOE.—The ore hody recently developed at the lowest level, althongh not of a high grade, is reported to he over 30 ft. wide.

THE Sierra Nevada mine is looking well, hut as yet, outsiders are not allowed to examine the new development.

AUBURN MILLS.—Reno *Journal*, March 9: The Auburn mills are running to their full capacity on rock from the Co's. mine at Rye Patch. Their ore yields well and the mine looks hetter than ever hefore.

WHITE PINE.

BULLION.—White Pine *News*, March 9: W. F. & Co. shipped to-day, to London, for Eherhardt & Aurora M. Co. 2 bars, 166 lbs., valued at $3,113.54.

ST. GEORGE—Situated 400 ft. south of the main Eherhardt shaft, is taking out from 20 to 25 tons of average-grade ore per day, and working 12 men.

YOUNO CHIEF.—An increased force has been placed in the southwest chamher. Taking out 5 tons per day of mediumgrade ore. Miue looking well, and masses of ore in sight.

FROZEN ZONE.—A new location shows a mass of high-grade ore a number of tons of which will be tested this week.

SILVER PLATE.—Looking well and widening. Working 24 men. Seventy tons of ore worked from this mine yielded $75 to the ton.

THE "Truckee," "Caspian," and "Mammoth" are working with uniform results. An average of 5 tons per day are extracted from each of these locations. Working 4 men each.

GEN. LEE.—Drift from the main ore chamher is in 20 ft. on the spar seam, and opened in a lsrge body of ore, varying in assay value from $50 to $500 per ton. Drift will be followed to prove the extent of this extensive ore hed recently found.

EAST SHEBOYOAN.—Same number of men employed, principally prospecting. Indications are favorable of meeting the ledge of ore running at right angles from the original tunnel.

NORTH AURORA.—The body of ore has improved since last week.

SAN JUAN DEL RIO.—The mine is improving as depth is gained.

SILVER WAVE.—Perkins shaft down 105 feet.

Arizona.

MINES AND MINING.—Prescott *Union*, Feb. 24: They have "struck it" richer than ever in the Tiger. It is now open to a depth of 180 ft., by shafts, besides hy cuts and tunnels. The ore will be shipped to S. F. and perhaps to Europe, for treatment.

Beantiful coils and threads of native silver, heavy black snlphurets and ruhy ore constitute the product of the mine. The drift is in one lode 160 ft.; shaft down about 122 ft.

The Lorenna, 'Benton, and other lodes near the Tiger are not far behind it in richness.

In Pine Grove Dist., the Del Pasco is yielding plenty of rich free gold rock. T W. Brooks started over a day or two ago, with 5 or 6 men, to work at mine and mill.

On Lynx creek, there are between 50 and 60 placer miners.

Parties of men are at work in Black Cañon creek, with results as yet unknown to us. In Walnut Grove Dist., J. White and others are erecting a furnace and taking out ore. In Wickenburg Dist., the Vulture mill is pounding away.

THE VULTURE.—The manager reports as follows: "We are working a length of ground about 300 ft. and have sunk 320 ft. In this length of about 300 ft. and to a depth of 250 ft., the mine has been well opened and in this area, are millions of tons of ore.

WALLAPI DIST.—Cor. same. The Lone Star Co. has been furnishing rock for 2 weeks. Last Sunday I was shown a quantity of bullion amounting to over $2,000, the result of a 50-hour run of Hardy and Meachman's 5-stamp mill, upon Lone Star ore. A drift is being run from the bottom of the shaft, eastorly, and the ore taken out is richer than herotofore. Mr. Hardy left here yesterday with the intention of making arrangements for the erection of smelting furnaces.

Considerable interest was awakened here by a rich strike in the Keystone. Yesterday as the prospect was gloomiest, one of the workmen came down street, bunting the owners, and exhibiting specimens of ruby and horn silver, which they had struck in the bottom of the shaft. The value of the rock was $4,838 per ton. A vein of this ore, about 7 inches in thickness and running along the hanging wall was soon discovered. It widens out gradually as it goes down. The Keystone shows very fine carbonate ore on surface, and in the shaft exhibits sulphurets.

The rock being taken from the Fairfield looks better than usual.

The Alama is a new ledge, just opened. It is free carbonate ore, and assays a little over $100 per ton.

The preparations for Mr. Coover's furnaces, at Chloride Flat, have been commenced, and work is being pushed right along.

PINAL MOUNTAINS —San Diego *Union*, Feb. 29: A gentleman just arrived, brings specimens of silver which he intends to have assayed in S. F. The discovery of this ore caused considerable excitement some 3 months since. The discoverers of the Silver Queen, have been working steadily on their claim ever since.

CHANGE.—A change will shortly take place in the proprietorship of the Vultnre mine, by which it will pass into the hands of an English Co. Preparations are being made to lay a railroad track to the mill.

Colorado.

ITEMS.—Colorado *Miner*, Feb. 29: C. H. Utter is shipping on account of owners, large quantities of smelting ore to Black Hawk. Baily & Nott shipped during Feb., 80 tons on account of owners, of more than ordinary rich smelting ore. Campbell & Clark during Feb. have shipped on account of owners, 40 tons of very rich smelting ore. Since our last report Palmer & Nichols have shipped 2 silver bars, valued at $2,684.48. A good body of ore has been struck in the Cashier, east from the discovery.

OUR MINES.—Csrihou *Post*, March 2: In the Caribou mine there is a steady improvement, the vein having widened to over 6 ft.

The Carihon mill, is running steadily and successfully.

The Potosi is producing a good articlo of silver ore in considerable quantities.

The Trojan has been in operation during the winter, and furnished the stamp-mill of Hetzer & Hines with plenty of ore. The Boulder Co., Mt. Vernon, Wabash, and several other lodes, are being worked with more or less activity.

LEAVITT.—Central *Register*, Feh. 28: The product of the stamp mill ore from the claim on the Leavitt lode, leased from Bela S. Buell by Mr. Mellor, for the first fifteen days of this month, was 740 ozs. of gold, worth about $18 per oz., aggregating $13,320. There is little doubt that the lessee will raise, during the last 2 months of this lease, stamp mill ore to the value of $50,000.

A good report comes from the Victor lode in Idaho Dist. on the divide between Virgina Cañon and Gilson Gulch. Eight tons of ore have been hauled to the B. and C. smelting works, which assayed 119 ozs. of silver per ton.

The purchasers of the Stalker & Standley property, on the California lode, in Nevada, are raising some very fine ore. Work on the Bobtail tunnel is being energetically advanced. Work is to be resumed immediately upon the Cons. Gregory, the Bobtail and Fisk properties, which have been non-productive for a year past, owing to water in the shafts.

Idaho.

PAYETTE MINES.—Idaho *Statesman*, Mar. 4: B. S. Warrinsr is mining in the hills south of the Payette river, about 6 miles below Horseshoe Bend. He came over here the other day with his first clean-up for the season, 62 82-100 onnces gold dust with $19.37 per ounce.

GOLDEN CHARIOT. — Silver City *Avalanche*, March 2: Supt. Pheby has commenced sinking a winzo in the 8th lovel, opposite the shaft, where he finds a fine looking vein of ore. The Owyhee mill has been shut down this week, but will start up again in a day or two. Fine looking ore continues to come from Knott's mine on Florida Mt., and is being worked at the Cosmos mill.

Lower California.

SAN RAFAEL.—San Diego *Union*, Feb. 18: Since the erection of McKoan's quartz mill about 1,500 tons of low grade ore have been crushed. This ore averaged about $13 per ton.

Montana.

TEN-MILE LODES.—Helena *Gazette*, Feb. 26: Among the argentiferous galena lodes on Ten Mile, is the Mitchagomma, near the month of Beaver Creek. The vein is well defined, about 7 ft. wide, and filled with mineral in veins and masses, mixed with a white earthy matter. Five tons per day can easily he taken out of the upper tunnel, and it is expected that this can be increased to 10 tons as soon as the lower tunnel taps the vein. Below the Mitchagomma, Symes & Corbin are working the Corbin lode, while about 1,000 ft. up the creek, the famous Lee Mt. lode is situated. About 6 miles still further up, the Travis Boys are working a very rich argentiferous galena lode.

REDUCTION WORKS. — One furnace is running and producing base bullion at a rate of something over 100 pounds an hour. Preparations are being made to put a second furnace in blast.

ARGENTA. — Bohm's Reduction Works are running and smelting with excellent results. There a number of persons engaged in taking out ore here at present. Harry Griffith recently discovered a 3 ft. vein of carbonate of lead. Longhridge & Barber have struck a good body of ore on the Queen ledge. Bray & Wing are preparing to take ont ore from the Legal Tender lode. C. Fletcher & Co. are rolling ore from the "Dictator." The "Ferdinand," Bohm & Co.'s lode, looks well. The recent news with regard to the mines from Bannack, Blue wing, and Vipond's, is very gratifying.

BEAVERHEAD Co.—Cor. same: The smelting works here (argenta) run steadily and smoothly. There are a few men engaged on the lodes, about Argenta, and a good many in the Blue Wing dist. and most of them are doing well. The Huron shows a fine vein of very rich ore. There will he at least 1,000 tons of rich ore on the dumps in Blue Wing dist. by Spring.

Utah.

BULLION.—S. L. *Tribune*, March 8: W. F. & Co. received from the 28th ult. to the 8th inst., from the Meadow Valley works 41 hars, valued at $53,817.18, and from Raymond & Ely 36 hars, valned at $59,-682 15.

SHIPMENTS.—The Emma mine Co. has shipped 34 car loads of ore within the last week for Liverpool. They still have on hand ready for the cars 1,000 tons in sacks. About 30 tons being raised daily.

EAST CANON.—G. M. Gerrish has charge of the Old Ophir Smelting Works, and has already made a successful run. The furnace will start again in a few days, when it is expected to rnn right along.

The Pioneer mill will start to-day. A Mr. Fawcett is preparing to start—by water—a 5 stamp mill and 2 furnaces for an Eastern Co. The English Co. have a furnace about ready to run. Mr. Aikin's furnace is completed and thoroughly dried, awaiting the pulp from the hatteries.

The Jupiter is on Chloride Hill, about a quarter of a mile from town. The arastra has been reduoing about ½ a ton per day but it has the capacity of reducing 5 tons.

The Peck arastra made a start this morning. Messrs. Thompson and Blair are building one about 2 miles above town. It is anticipatad that all the reduction works will start up very soon, including all the smelters.

EMMA.—A shaft has been sunk 70 ft. below all levels, and the same body or vein of ore continues with a moderate increase in value. It is estimated that there is ore enough in sight to pay 18 per cent. on the value of the mine ($5,000,000.

S. F. Stock Exchange Board.

SAN FRANCISCO, March 14, 1872.

Stocks have been active during the week, and prices have been generally firm for most kinds. The North Star mine shipped during the month to this city $17,500. The sales at the Board for the week ending on the 6th inst., amounted to $3,867,600. The last weekly report of the Chollar-Potosi shows 700 tons of ore extracted, assaying $42,37 per ton. The special meeting of the Halo & Norcross Co.. on the 18th of April, is to take into consideration the subject of increasing the capital stock from $1,600,000 to $3,200,000, making 16,000 instead of 8,000 shares as at present.

The *Stock Report* of Tuesday, says that the last weekly report of the Crown Point mine shows 1,700 tons of ore extracted, valued at $76,635; Hale & Norcross, 1,000 tons ore; Savage, 1,200 tons ore, assaying $32.05 per ton; on the 9th, $32,000 were sent from Raymond and Ely from Meadow Valley mine, $26,600, received on March account; ore shipments increasing at the Belcher.

At the annual meeting of the Hale & Norcross Co., held on the 13th inst., the following Trustees were re-elected: J. C. Flood (Pres.); W. S. Obrien, C. O'Connor, J. W. Mackay, John Harrold, W. O. Hoff, and Jas. French, J. F. Lightner is still Secretary, and J. G. Fair, Supt. The Secretary's report gives the total receipts at $1,118,328 of which $862,702 was from hullion. The disbursements were $1,181,328, of which $80,000 were paid to stockholders as dividends.

Comparative Prices—Extremes, Advance and Decline.—S. F. Stock and Ex. Board.

	Feb. 7.	*Highest.*	*Lowest.*	March 14.	*Adv.*	*Dec.*
Alpha	$31	37	31	38	7	—
Amador	—	—	—	—	—	—
Belcher	595	600	570	—	—	—
Buckeye	—	4⅞	4¼	4⅞	—	—
Chollar-Potosi	58	64	55½	61	3	—
Caledonia	18	18½	16⅝	18¼	½	—
Cons. Virginia	34	38	32	40	6	—
Crown Point	720	795	705	—	—	—
Daney	3¼	3¼	2¼	2¼	1	—
Eureka Cone	26	29	24⅜	29	3	—
Eureka	16	16⅜	16	—	—	—
Exchequer	—	18	18	18	—	—
Gould & Curry	185	205	175	205	20	—
Golden Chariot	13¾	20¼	13¼	—	—	½
Halo & Norcross	252½	285	238	290	37½	—
Imperial	92½	117½	90	117½	25	—
Ida Elmore	14	15	13	—	—	—
Kentuck	—	262½	230	262½	—	—
Mammoth	—	—	—	—	—	—
Meadow Valley	20¾	24½	19¾	23½	2¾	—
Mahogany	16	18	13½	—	—	—
Ophir	53	66	51	61½	8½	—
Orig. Hid. Treas.	8¼	8¼	8	—	—	—
Overman	51	52	49	52	1	—
Phoche	14	15	13	15	1	—
Raymond & Ely	137½	137½	130	132	—	5½
Savage	217½	237	212	230	12½	—
Sierra Novada	27½	29½	26	29½	2	—
Succor	5¼	5½	4¼	5½	—	—
Wash. & Gpole	6	7¾	5¼	8	¾	—
Yellow Jacket	72	88	68	80	8	—
St. Patrick	20½	20½	20	—	—	—
Seg. Belcher	55	60	55½	58	3	—

Latest Prices—Bid and Asked.

	BID.	ASKED.		BID.	ASKED.
Alpha Cons	35	36	Ida Elmore	—	—
Amador	—	—	Imperial	140	105
Belcher	—	—	Kentuck	225	260
Chollar-Potosi	63¼	64	Meadow Valley	23	23½
Crown Point	780	800	Ophir	65	66
Caney	—	—	Orig. Hid. Treas	—	—
Eureka Cons	27	27¼	Overman	50	62
Eureka	—	—	Savage	230	231
Golden Chariot	—	—	Raymond & Ely	131½	132
Gould & Curry	202½	105	Sierra Nevada	29½	30
Halo & Norcross	230	235	Yellow Jacket	—	—

San Francisco Metal Market.

Corrected weekly by Hooker & Co., 117 and 119 Cal. street.]

PRICES FOR INVOICES

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

THURSDAY, March 14, 1872

IRON.—			
Scotch and English Pig Iron, ₱ ton	$55 00	@	60 00
White Pig, ₱ ton	45 00	@	—
Refined Bar, bad assortment, ₱ lb	— 05	@	— 05½
Refined Bar, good assortment, ₱ lb	— 05½	@	— 06
Boiler, No. 1 to 4	— 05	@	— —
Plate, No. 5 to 9	— 07½	@	— 08
Sheet, No. 10 to 13	— 06½	@	— —
Sheet, No. 14 to 20	— 06	@	— —
Sheet, No. 24 to 27	— 06	@	— —
Horse Shoes	7 50		
Nail Rod	10		
Norway Iron	8		
Rolled Iron	5		
Other Irons for Blacksmiths, Miners, etc.	5	@	6
COPPER.—			
Sheathing, ₱ lb	— 24	@	— 26
Sheathing, Yellow	— 24	@	— 25
Sheathing, Old Yellow	— 11	@	— 11¾
Composition Nails	— 24		— —
Composition Bolts	— 24		— —
TIN PLATES.—			
Platee, Charcoal, IX ₱ box	12 00		— —
Platee, I C Charcoal	10 00		10 50
Roofing Platee	11 00		— —
Banca Tin, Slabs, ₱ lb	— —		— 45
STEEL.—English Cast, ₱ lb	— 16		— 17
Drill	16		17
Flat Bar	17		20
Plough Points	3 75		
Russia (for monid boards)	12½		
QUICKSILVER.—₱ lb	— —		— 85
LEAD.—Pig, ₱ lb	— 05½		— 06½
Sheet	— 08		— 8½
Pipe	— 9		— 10
Bar	— 08		— 09
ZINC.—Sheets, ₱ lb	— 10		— 10½
BORAX.—Refined	— 25		— 30
BORAX, crude	— 5		— —

IRON SHIPS.—A large iron ship-building yard has been fitted up at Wyandotte on the Detroit river and a steamer is in course of construction. All the necessary appliances for this kind of work have been added to the Wyandotte Iron Works.

THE OPEN SEA navigated in 1871 below the 78th parallel by the Austrian Expedition is more than 500 miles in extent longitudinally and of indefinite breadth.

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

ASSESSMENTS.

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT	DAY DELINQUENT.	DAY OF SALE.
Alps S. M. Co. Nev., March 1, 75c	April 9	April 30
Bloomfield Gravel M.Co, Cal., Feb. 23, $3.	Mar. 27	Apr. 13
Caledonia S M. Co., Nev., Feb. 1, $4	Mar. 8	Mar. 29
Daney G. & S. M. Co., Nev., Feb. 1, 65c.	Mar. 4	Mar. 25
Emerald Hill M. Co., U.T., Jan 11, 25c.	Feb. 19	Mar. 14
Golden Age & Empire M.Co. Feb. 9, $2.50.	Mar. 12	Apr. 3
Gould & Curry, Nev., Jan 30, $15	Mar. 4	April 26
Golden Chariot, I. T., Jan. 31—$2 50,	Mar. 9,	Mar. 30
Grand Duke M. Co., U. T., Mar. 5, 25c.	April 16	May 15
Ida Elmore, Idaho, March 6, $3	April 11	May 10
Kincaid Flat M. Co., Cal., Feb. 14, $3.	Mar. 18	April 18*
Mahogany G. & S. M. Co, U.T. Jan. 26, $1.50	Mar. 6	Mar. 23
Marcelina S. M. Co. Mar. 8 10c	April 15	May 7*
Noonday S. M. Co. White Pine, Feb. 1, 20c.	Mar. 5	Mar 25
Nuestra Senora de Guadelupe, May 12, $2.	Ap 16	May 8*
Pacific Borax Co., Nev. Feb 23, 15c.	March 28	April 16
Piermont M. & M. Co., N., Jan. 20, 80c.	Mar. 1,	Mar. 23*
Pocahontas O. M. Co., Cal., Feb. 25, $5.	April 6	May 6*
Quail Hill M. & W. Co., Cal. Feb. 15, $5,	Mar. 26	April 16*
San Buenaventura Co. Cal., Jan. 19, $1	Feb. 29	Mar. 29
Silver Wave, Nev., Jan. 30, $1	Feb. 26	Mar. 19.*
South Chariot M. Co., I. T., Feb. 8, $1	Mar. 9	April 1
South Eureka, Nev., Mar. 2, 15c	April 4	April 24
Spring Mt. Tunnel Co., March 12, 15c.	April 22	May 13*
St. Patrick M. Co. Placer co. Cal. Feb. 8, $4	Mar. 13	Apr. 2
S. Gulch Or. M. Co., Cal., Feb 7, $1.50.	Mar 13	April 3*
Tallulah M. Co., Nev., Jan. 30, $1	Mar. 5	Mar. 26
Tecumseh, Cal., Jan. 23, $4	Feb. 27	Mar. 16.*
Washington & Creole M. Co. Feb. 16, 50c.	Mar. 15	Apr. 11

MEETINGS TO BE HELD.

Alps S. M. Co	Annual Meeting Mar. 18
Buckeye M. Co	Annual Meeting Mar. 29
Central Hydraulic M. Co	Annual Meeting Mar. 22
Chapman M. & M. Co	Annual Meeting Mar. 14
Eagle Quicksilver M. Co	Special Meeting, Mar. 26*
Oranite M Co	Annual Meeting Mar. 23
Hale and Norcross	Special Meeting April 18
Jackson M. Co	Annual Meeting Mar. 25
North Oro Fino	Annual Meeting Mar. 25
Oro Fino M. Co	Annual Meeting Mar. 25
Phœnix S. M. Co	Annual Meeting April 1
San Marcial S. M. Co	Annual Meeting Mar. 19
Siempre Viva S. M. Co	Annual Meeting Mar. 18
Starlight O. & S. M. Co	Annual Meeting Mar. 20

LATEST DIVIDENDS—(Within Three Months).

Belcher, $15	Payable March 9
Chollar Potosi, $1	Payable Feb. 10
Crown Point, $15	Payable March 15
Eastport, Coose Bay, Coal M. Co. 1 per ct.	Payable Feb. 12
Eureka Gold M. Co., $1	Paysble March 11
Keystone M. Co., $1	Payable Feb. 10
Meadow Valley M. Co., $1.50	Payable March 18
North Star S. M. Co., $3	Payable Feb. 10
Raymond & Ely, $5	Payable March 8

—*Advertised in this journal.

Leather Market Report.

[Corrected weekly by Hollister & Bro., No. 109 Post st.]

SAN FRANCISCO, Thursday, March 14, 1872.

SOLE LEATHER.—The demand is still equal to the supply, and prices still continue firm.

City Tanned Leather, ₱ lb	26@29
Santa Cruz Leather, ₱ lb	26@29
Country Leather, ₱ lb	25@29

French skins are firmer with an advance in some grades. Heavy California skins are firm, with an upward tendency.

Jodot, 8 Kil., per doz	$80 00@
Jodot, 11 to 13 Kil., per doz	16 00@ 90 00
Jodot, second choice, 11 to 15 Kil. ₱ doz	60 00@ 76 00
Lemoine, 16 to 19 Kil., ₱ doz	85 00@
Levin, 12 and 13 Kil., per doz	68 00@ 70 00
Cornellian, 16 Kil., per doz	70 00@
Cornellian, 12 to 14 Kil., per doz	60 00@ 68 00
Ogeran Calf, ₱ doz	64 00@
Simon, 18 Kil., ₱ doz	65 00
Simon, 20 Kil., ₱ doz	68 00
Simon, 24 Kil., ₱ doz	72 00
Robert Calf, 7 and 8 Kil	35 00@ 40 00
French Kips, ₱ lb	1 00@ 1 30
California Kip, ₱ doz	65 00 to 80 00
French Sheep, all colors, ₱ doz	15 00
Eastern Calf for Backs, ₱ lb	1 15@ 1 25
Sheep Roane for Topping, all colors, ₱ doz	8 00@ 13 00
Sheep Roane for Linings, ₱ doz	5 50@ 10 50
California Russett Sheep Linings	1 75@ 5 50
Best Jodot Calf Boot Legs, ₱ pair	5 25
Good French Calf Boot Legs, ₱ pair	4 50@ 5 00
French Calf Boot Legs, ₱ pair	4 00
Harness Leather, ₱ lb	30@ 37½
Fair Bridle Leather, ₱ doz	48 00@ 72 00
Skirting Leather, ₱ lb	34@ 37½
Welt Leather, ₱ doz	30 00@ 50 00
Buff Leather, ₱ foot	18@ 21
Wax Side Leather, ₱ foot	18@ 20

DIAMOND DISTRICT.—A correspondent of onrs in Diamond City, Confederate Gnlch, one of Montana's richest placer oamps, says that everything is flourishing there and everybody bnsy. The district is situated about 38 miles east of Helena. Rankin's claim has a shaft 60 feet deep with a douhle whim over it. The pay streak is 100 feet wide. The claim is well timbered and capped and looks as if it might stand for ages. It has been well drained at a great expense and is psrfectly dry. The work shows that the coin is there however. There are 20 men employed. Magill & Co. are doing well. Further down the gulch is King and Gillet's flume, whioh is 4,000 feet long, 4 feet wide and 30 inches deep, with a grade suffioient to oarry houlders as hig as a horse. The guloh is 7 miles long and all of it being worked with good pay. The depth to the hedrock is ahout 33 feet.

A STRIKE.—The Gold Hill *News* of the 6th inst. says that the famons mule which has heen hauling the oars on the 1,100-foot level of the Belcher and Crown Point mines all winter has had to be hauled out. It got so lazy and obstinate that it refused to work—made a strike, as it were, all hy herself. Another mule has heen sent down to fill her place. Kellogg, the foreman has named this new mule "Susan B. Anthony."

The Hunt & Douglas Process for the Extraction of Copper from its Ores.

No. 4.

[Concluded.]

Peroxyd of Iron.—The precipitated hydrated peroxyd of iron, holding more or less oxychlorid and basic persulphate, is in part retained hy the gangue, hut the greater portion of it accumulates in the settling-tank. When suspended in water and heated with an excess of sulphurous acid gas, it is converted into a mixture of insoluhle protosulphite and soluhle protosulphate of iron, which latter may he used for the copper hath†. The oxyd may also he dried and used as a pigament, or reduced to metallic iron to be employed for the precipitation of copper. To this end it may he mixed with one-fourth its weight of carbonaceous matter and heated to redness in suitahle vessels, by which means it will he converted into iron sponge; or else compressed into cakes and smelted, with the addition of lime, in a small blast furnace, yielding thus cast iron.

Working of the Process.

Preparation of the Ores.—The new method ahove described is now in use at the Harvey Hill mine in Leeds, near Quebec. The ores there treated are a mixture of yellow and purple sulphurets of copper, dressed for the purpose to 15 or 20 per cent., and ground so as to pass through a sieve of forty meshes to the linear inch. The roasting is at present effected on a small scale in a muffle furnace thirty feet long, with a wood fire, the heat passing in flues beneath the floor of the muffle only. With this arrangement, however, only ahout two tons of ore can be roasted in twenty-four hours, and it is proposed to erect, at once, larger and more convenient furnaces. A proper arrangement for roasting, though an indispensable preliminary to the treatment of sulphuretted ores, constitutes no distinctive part of the new process which has for its object the solution and precipitation of copper from naturally or artificially oxydized ores.

Solution.—A Freiberg barrel was used in the earlier trials, hut has since heen advantageously replaced by two circular tubs, made of three-inch spruce plank, measuring seven feet in diameter by five feet in hight, and furnished with closely fitting covers. The stirring apparatus consists of two oblique hlades fastened to a vertical shaft, their ende heing within an inch of the eides, and ahout twelve inches from the hottom of the tuh, which is somewhat convex, so as to diminish the space beneath the revolving blades near the center, and thue prevent an accumulation of ore in that part. Such a tub will hold about five tons of liquid, and may be three-qnarters filled. With twenty or twenty-five turns of the stirrer in a minute it is easy to keep one and a half or even two tons of roasted ore suspended in three tons of liqnid, and if allowed to subside the ore falls so as to leave the stirrer free. The bath used at present is even weaker than that indicated in the foregoing specification, marking ahout 19° Baumé, (specific gravity 1.147), and containing ten grains of iron to the fluid-ounce, or a little over two per cent. Such a bath will, by continued agitation, at a temperature of 120° to 180° F. dissolve the oxyd of copper from a properly roasted ore holding 15 per cent., in six or eight hours. At the end of this time a eample of the washed gangue should not yield too strong boiling acetic acid more than two or three thousandthe of copper. Should boiling nitric acid remove a farther portion, it ehows a defective roaeting of the ore. The stirrer being stopped, the liquid is quickly drawn off through an opening near the bottom by a two-inch india-rubber hose into a large covered settling-tank, where it deposits the finely divided portions of the gangne and the suspended peroxyd of iron. The gangue is washed by agitating for a few minutes with a portion of fresh bath or of brine, in order to remove the copper solution which it retains, and is then ehovelled out throngh a trap eight inches square in the bottom of the tank.

Precipitation.—After three or four honrs repose in the eettling tank the clear copper eolution is drawn off to the precipitating-tanks, which are built like the dissolving-tanks, but with flat hottoms. Here ecrap iron, either of wrought or cast metal, is placed on racks of basket-work near the top and bottom of the tank, which is filled with the hot liquor and closely covered. After twelve hours, if the exposed surface of iron be sufficient, the precipitation of the copper is very nearly complete, and the liquid may be drawn off, passing through a flannel filter to retain any suspended particles of metallic copper, and is ready to be transferred to the dissolving-tank for the treatment of a fresh charge of roasted ore. A little steam injected from time to time either into the dissolving or precipitating-tank suffices to keep the bath at hout 150° F., at which temperatnre the processes of solution and precipitation proceed with rapidity. As a charge of bath can he used once every twenty-four hours, the loss of heat in covered vessels is slight. The vats for the three operations are arranged at different levels, so that the liquors flow from the dissolving to the subsiding and thence to the precipating-tanks. From the last the regenerated bath is discharged into a tight vessel from which, hy the pressure of steam, it is raised to the level of the dissolving-tanks. As both iron and copper are attacked hy the copper solntions, the use of these metals must he avoided in those parts of the apparatus which are exposed to its action.

The use of lime and of sulphurous acid in this process has been already explained. The ores used at Harvey Hill are, however, so calcareous that lime is not needed to decompose the sulphate of copper formed in roasting. A small amount of sulphurous gas from the roasting of the ore is made to pass over the surfece of the hath, through a tuhe entering one side of the closely covered dissolving-tank, while from the other side an escape-tube passes into a chimney, thus estahlishing a draught. In this way it has heen easy at Harvey Hill to keep up, and even to augment at will, the iron contents of the hath. If this becomes excessive, its amount is readily reduced by adding a little lime, or in the case of the calcareous ores now used, by running one or more charges without the use of sulphurous acid. Baths which have been nsed twelve and fifteen times at Harvey Hill, at each time taking up and precipitating two or three per cent. of copper, are unaltered in their composition and as good as at first. The consumption of metallic iron in precipitating, as determined hy numerous trials on solutions prepared as above, and holding from fifty to eixty pounds of copper to the ton, will not exceed fourteen hundred pounds of iron to the ton of pure copper thrown down.

The cost of working copper ores by this process are comprehended under four heads:

1. The roasting and grinding of the ores, and the farnaces and mills for the purpose. Poor ores may be kiln-roasted before grinding, hut rich ores and regulus should he pnlverized hefore roasting.

2. The necessary vats and stirring-apparatus, and the handling of the materials in dissolving and precipitating.

3. The first cost of the baths and the small amount of salt required to supply unavoidable waste, besides, in some cases only, a portion of lime.

4. The metallic iron required for precipitating the copper, which is not more than from one-half to one-third the amonnt consumed in the ordinary processes for obtaining cement copper.

Solvent Power of Protochlorid of Copper. Protochlorid of copper readily attacks metallic copper, forming with it dichlorid. Hence, as already explained, the metallic copper which is eeparated when the protochlorid of iron bath acts on dinoxyd of copper, is at once dissolved if an equivalent of protoxyd of copper be present to yield the requisite amount of protochlorid. The protochlorid of copper will also attack certain eulphuretted componnds of copper. Copper glance, purple copper ore, or artificial products, as regulus, approaching these in composition, are readily dissolved by a solution of protochlorid of copper mixed with common salt, dichlorid of copper being formed. Hence, a sulphuretted ore imperfectly roasted, and still containing a portion of sulphnret rich in copper, will give it up to the action of a bath containing protochlorid of copper.

Some specimens of kiln-roasted Spanish pyrites, still holding kernels of regulus, have been found to yield the whole of their copper to the action of such a bath, but the kiln-roaeting is seldom complete enough to give this result, and a grinding and recalcination will in most cases be found necessary.

The present process has, from the above re-action, an important advantage over those in which the copper is dissolved as a sulphate. The protochlorid of copper in the bath exerts a powerful solvent action on any portions of snlphuret or of metallic copper (derived from snboxyd or otherwise) present in an imperfectly roasted ore. The snlphate of copper, on the contrary, possesses no such solvent power, so that a complete roasting of the ores becomes necessary.

Treatmsnt of Copper Ores Holding Silver and Gold.

The bath of protochlorid of iron and salt, after heing more or less completely saturated with copper, chloridizes and dissolves silver or any of its compounds, in virtue of the well known action of protochlorid of copper. Repeated experiments with the silver and gold-hearing snlphuretted copper ores of Colorado and other regions, have shown that when a properly roasted ore of this kind (or a regulus from suen ore) is treated in the way just described for the removal of its copper, all of the silver is, at the same time, dissolved as a chlorid in the bath, and may he thrown down in the metallic state hy digesting it with metallic copper, or causing it to filter through a hed of cement copper. After thus separating the silver the copper is precipitated as usual by metallic iron. The residue from the hath, having lost its copper and silver, contains any gold which may have been present in the ore, in a favorable condition for removal hy chlorination. Trials on a considerable scale have shown that when a regulus holding at the same time copper, silver and gold, is treated hy the present process for the extraction of the copper, it is possihle, with but little additional expense, to separate from it at the same time all the silver and the gold. The removal of the silver from the bath requires only the use of a portion of the cement copper from a previous operation; while to obtain the gold from the residue the ordinary apparatus for chlorination may be employed.*

In the case of copper ores containing nickel this metsl gradually accumulates in the bath, and when in sufficient quantity may be extracted, after first peroxydizing and precipitating the iron, which would probably be beet effected by forcing a current of air through the liquid previously mingled with pulverized carbonate of lime.

*See the *Engineering and Mining Journal* of New York, for March 8 and 16, also the *American Gaslight Journal and Chemical Repertory*, for March 9, 1870.

†This use has been pointed out in the specification of the United States patent, where it is stated that instead of employing sulphurous acid during the process of solution, "the residue after the solution of the copper may be exposed to the action of the sulphurous acid gas," in order to obtain a soluble protosalt of iron for the bath.

Stock Grazing on the Plains.

The present winter has been a most trying one for the stock grazers in the great territories of Wyoming, Colorado, and New Mexico. The "great heart of the Continent" covered by these territoriee has heretofore maintained a very good reputation for the mildness of its winter climate, considering its latitude and elevation above the sea. This favorable temperature is mainly due to the warm winds which reach that locality from the Pacific shore; but during the winter now passing away theee winds have scarcely been felt there, while, in their etead, that region has been swept by cold northerly blasts from Dakota and British Columbia. The territory of Utah has also euffered more or less from the excess of northerly and the absence of the usual ocean winds.

The effect of this change in the usual air currents has been most noticeable in the obstruction of railroad travel on the Union Pacific Railroad, which traverses the central portion of this region. Its effect npon the stock interest is not yet fully known; but a correspondent of the New York *Tribune*, Mr. R. A. Cameron, who appears to be very well posted with regard to the facts, has given a statement of the condition of the stock interest up to early in February from which we condense as follow:

There has been no suffering among the cattle in Southern Colorado or New Mexico. There has not been over 3½ inches of snow in any of the grazing valleys in the extreme south of Colorado, which has at no time remained on the ground over 48 hours. In the Central and Northern part of that territory, and in Western Nebraska the snow fall on the nsual feeding grounds has been about eqnal with that ordinarily experienced in Illinois; but the cattle were generally removed to more favored spots, and have consequently suffered but little. Reports from four large stock owners, holding 59,000 head report no loss; one person with 8,500 head reports small loss; another with 3,200 reports the loss of 13 head; two other owners report 9,000 and 2,000 head each with losees of 3 and 2 per cent respectively. Of the 20,000 sheep in Laramie valley a loss of 4 to 5 per cent is reported. Horses have not snffered anything to speak of. The proprietor of a herd of 18,000 head kept on the Platte, some 50 miles east of Greeley, reports that his loss will not exceed 2 per cent.

This showing is certainly much more favorahle than the puhlic had been led to expect, from the general reports of the weather for that region, and certainly augurs favorably for the future of stock raising in that great central portion of the continent. The correspondent ahove alluded to promises a full and definite report of the result of the winter's losses hy first of May. He thinks the worst was over in December, and that comparatively hut little will have to be added to that already reported.

He thinks that if each stock raiser would provide a month's feed of hay for his cattle, which might be easily done during the summer, no considerahle loss need ever be feared; even if not needed, safety and a reasonahle oare for onr dnmb animals demands it. Moreover, one feels vastly better if he knows that the safety and comfort of his stock is provided for in case of need. Such a winter as that just passed need not hs expected oftener than once in ten years.

Lemons and Sheep.

We hsve known for years that Los Angeles County produces as fine oranges as we usually see in our markets; hut we never saw a lemon, from there or anywhere else, eqnal to the one rolled in upon us a day or two since hy Mr. C. W. Cook, who, though a resideut of Diamond, Meigher Co., Montana, has just returned from his first visit to Los Angeles. He hrings with him a lemon grown hy the proprietor of the Anaheim Hotel, that measures 15 inches in longitudinal circumference and 11⅛ inches transverse circumference. It was one of many hundred on the same tree, not all as large as this however, hut still the numher of lemons as well as oranges grown upon a singlo tree in one season is enormous.

Our informant counted over three thousand oranges on one tree, and then stopped counting; true it was a ten year old tree, hut a great many much younger trees, had over a thousand each. This fact alone would set at rest the matter of the immense profit derived from orange and lemon culture. Curious to know how many trees were planted on an acre, of the different varieties of fruits, he found them to be nearly as follows: grapevines 1,000; walnut 40; oranges or lemons 60.

From 13 acres of trees, the rows alternating with orange and apple trees in equal numhers, over $22,000 of fruit, orange and apple, was sold in a single season. Mr. Cook represented the country as perfectly charming; the animals ae rolling fat, and the green grass in many places actually up to the wagon axles as you travel over it. He speaks of the great draw hack to the settlement of the country more rapidly than now, as heing the fact that much of it is held hy large proprietors who hold their lands at too high prices.

On the return of Mr. C. to Montana, he takes with him from the coast country a hand of 2,400 sheep, for the mountain pastures that surround his alpine home; which he assures ns is not surpassed hy any other country for sheep growing he has ever seen, not even the heautiful Los Angeles country he has just visited. He drives his flock by way of Walla Walla and the great national road leading eastwardly to fort Benton, known as the Mullen road. He represents Montana as ahounding in immense stock ranges, and that owing to the little snow falling there, an ahundance of food hoth winter and summer is procurahle hy all manner of stock, hut considers it eminently superior for sheep. Mr. C. is one of our earliest subscribers to the PRESS and we have the promise of hearing from him and his Montana stock enterprise at an early day.

THE WING OF THE LOCUST.—If the tip of the wing of the so-called "seventeen-year locust," is placed under a low magnifying power, there will be seen near the fancied letter W (which hae been observed by eome with superstition) a beantiful branching, arborescent appearance, which is probahly due to certain vessels which supply nutriment to the wing. The branches are transparent, and are based on one of the muscular bands of the wing. They appear to he filled with some granular material. Why they appear only at this one spot on the wing has not been explained.

Useful Information.

Wonderful Remains of Ancient Iron Workers.

The *Engineer* of Dec. 15th, 1871, contains a lengthy paper, by Robert Mallet, giving some very interesting facts with regard to the existence, in India, of numerous large masses of manufactured iron, which are found in various parts of that country. These masses consist of large beams or rafters of iron, 20 feet or more in length, and from 8 to 12 inches square. Masses of iron of this description are found among the ruins of ancient cities at wide distances apart, showing that such productions were not confined to any particular locality. But the most notable relic of this character is a large iron pillar, still standing as originally placed, near the city of Delhi. This pillar bears an inscription giving the name of the king in whose honor it was erected, but without date. Its hight above ground is 22 feet; but its depth underground is considerably greater, as it has been followed down, by excavations, 26 feet, without any indications of finding the bottom, or at all loosening the column. It is thought that the entire column cannot be less than 60 feet in length, while the lower diameter is 16.4 inches, and its upper 12.05—the diminution being uniformly 0.29 of an inch per foot. The pillar will weigh about 17 tons. All these remains are very ancient, and none can be referred to later than the 10th century. From the form of the letters on the Delhi pillar, it is known that it could not have been made later than the 3d or 4th century. The letters were evidently made with a punch and hammer.

The Immediate Question of Interest

Connected with such works are—how were they made? The iron is malleable and not cast iron. Specimens taken from the pillar are easily drawn out—a process inapplicable to cast iron. If this mass was forged, how could it have been done with the imperfect appliances known in those days? The possibility of forging a mass of iron by heat or by sledge hammers, which was the only method known in Europe until the present century, was limited by the power of the men to endure, within striking distance, the radiation of the heat from the mass. This limit was reached in England in ship's anchors, the largest of which were welded by 24 "strikers," trained to strike in time, with 14 to 18 lb sledges, and it is claimed that the proportion of heat radiated by these largest anchors, when compared to the Delhi shaft is as 64 to 201. The impossibility of welding such a mass by hand is apparent.

With regard to the possibility of this shaft having been cast, aside from its unmistakable, malleable character, the fact is interposed that the iron workers of those days, so far as we have any knowledge, never constructed furnaces that would turn out over 100 pounds of iron at a charge; hence it would require that at least 400 such furnaces should be tapped at one time to form such a casting. The manifest impossibility of such a thing must be apparent to every iron smelter.

Now were the ancient iron workers of India acquainted with mechanical appliances which have not been excelled by anything of the present day? Mr. Mallet seems to leave the question at this point as an insoluble metallurgical enigma.

A Possible Solution of the Problem.

In the issue of the *Engineer* for Jan. 12, 1872, Mr. George M. Fraser comes to the rescue with an ingenious and very plausible theory. It is pretty well established that the natives of India never did and do not now make cast iron, although the Chinese do. All the iron manufactured in India is from black magnetic oxide, which, in the furnace is not converted into cast iron, but into a mass of malleable metal, presenting in some parts a crystalline, in others a fibrous fracture. This product, not fluid, is removed from the furnaces by allowing them to cool, and then breaking away the front, so as to allow the removal of the charge in a mass. Of course the heated and plastic mass settles down to the bottom and takes the form of the lower portion of the furnace.

Now suppose a furnace built with the interior of its lower portion corresponding to the size and shape of a section of the column or beam wanted. Let a number of these sections be thus formed by separate furnace charges, so that when put together, endwise, they will constitute the column or beam desired. All that is needed is an end or butt welding of the pieces. It is well known that this kind of iron welds at a very low heat—much lower than that required for wrought iron, and there is no very great stretch of probability required to suppose the accomplishment of such a thing by even the present native iron workers of India, who it is known are able to effect a very fair weld of shafts 6 and 8 inches in diameter, with open charcoal fires. The sections from the furnaces as above, could be easily prepared, by heating and hammering, to make good joints, and then only a surface heating, with very little hammering upon the end of the section would be required to effect a weld, that, to the eye, would be very passable. Of course iron so constructed and welded could not be expected to stand any great tension, such as is endured by wrought iron shafts built up from regular blooms or from longitudinal bars by modern appliances. No such test has ever been applied to the Delhi column or to any other of the India remains, and the probability is that a comparatively slight blow, as from a cannon ball, would separate this shaft into two or more fragments, the breakages taking place at the welding joints.

The Telegraph as an Errand Boy.

New uses are constantly being devised for the telegraph, the latest of which is to employ it as an errand boy, as follows: A company has been formed to establish offices at convenient places in various parts of New York, whence messengers can be sent, on demand, to any house within the respective districts. These offices are to be connected by telegraphic wires with the houses of such persons as pay monthly $2.50 for the benefits. The occupants of a house, by touching a key, will simply give notice at the office that a messenger is wanted. The offices will be numerous, and so distributed that a house can be reached by a messenger within three minutes after the notice. It will be the duty of the messenger to go on any errands required of them, to any part of the city, the persons employing them to pay the company fifteen cents for every half hour of service.

It will be seen at a glance that this system will bring many conveniences; but all its advantages cannot be appreciated until it has become a necessity of domestic life in all large cities. There are thousands of little services which persons in moderate circumstances would gladly pay for at the rates named, but they cannot afford, or do not desire to keep an errand boy, or other male house-servant. But the plan promises safety and comfort. It will afford security against burglars at night, and a ready means of calling a physician or a friend in cases of illness. If burglars are in the house, two touches of the key will bring a policeman at any hour of the night. In cases of fire, too, the system would be invaluable; many small fires become great ones on account of the unassisted efforts of servants or members of the family to suppress them without a general alarm. Indeed the more one considers the uses of the proposed system, the more they multiply themselves, and we confidently predict that we shall be wondering how our ancestors got along without it.

How to Shave.—As you strap your razor, strap the two sides alternately, and keep the back of your razor always on the strap, as you turn it from side to side. You thus avoid cutting your strap and turning the edge of your razor. As you shave, keep your razor almost parallel with the skin, and not at a great angle with it. Give your razor also a slight lateral motion. In fact, to borrow the simile of the artist, "the more you can make your shaving like mowing grass with a scythe, the better." Do not make faces as you shave, with the object of making a better surface for your razor to act upon. The skin when strained is easily cut. Adopt these hints and you will bless the unknown giver.

New Use for Paraffin.—Dr. Vohl announces that mixed with benzole or Canada balsam, paraffin affords a glazing for frescoes much superior to soluble glass. By covering the interior of wine casks, with a film of pure white paraffin poured in melted, he has effectually prevented the spoiling of the wine and its evaporation through the wood.

Good Health.

A Man With a Watch Key in His Lungs.

Mr. Eli Hempstead died a short time since in New Haven from a most singular cause. Some years ago he was attacked with insanity, and was sent to the Insane Retreat in Boston. While there he pushed a watch key up his nose, and after his recovery informed his physician what he had done.

An effort was made to get it out, but without success. He left the Retreat and nothing further was done to remove the article, though he occasionally spoke of feeling it. In a year or two he was attacked with a sharp pain at the lower end of the right lung. He suffered from it for some time, when it passed away, and for two years he enjoyed good health. A few weeks ago he went to New Haven with an invoice of produce, and while engaged in lifting barrels was again attacked with pain and bleeding from the lungs.

He was taken to his father's house, where, in a few days he died. His case was so singular that the physicians made a post-mortem examination, when they found the key embedded in the lower part of the lung and surrounded by a lump in a state of mortification. The key had dropped out of the nose through the windpipe into the lung, and had remained there over four years.

Skin Grafting.—A late number of the Indiana *Medical Gazette* contains an account of three successful cases of skin grafting. This curious operation is as follows: A patient is suffering from a large ulcer. The worst is, however, over, and the ulcer is healing. But nature works too slowly for modern surgery, so a piece of skin is cut from some other part of the body and planted in the sore. At first, it seems to have failed, for the graft disappears, evidently absorbed into the wound, but in a few days a speck of healthy skin appears in the centre of the raw surface. The transplanted piece has, in fact, taken root. The speck now rapidly spreads, other grafts are made to take root, becoming each of them centers of a new growth, which, as they expand, join each other, and in a very short time cover the site of the ulcer with a smooth and healthy skin.

Not long ago an experiment was tried in a London hospital of grafting a negro's skin on an ulcer of a white child, to see if the pigment cells would be reproduced. The experiment failed, as the bit of skin died. The authors of the cases quoted in the Indiana *Medical Gazette* do not say whether the skin reproduced after grafting was the same color as that of the rest of the body or the pink color so often seen in the scars on natives' legs. This is a point which would be interesting to know.

The Right and Left Hand.—The generally accepted doctrine is that the pre-eminent use of the right hand is due to the force of education, without any natural tendency in physical formation. But an eminent physician in discussing this question takes the opposite ground. He insists that the preferential use of one side is not limited to the arm, but extends to the leg, which is not subjected to education. The tendency to use one side more than the other manifests itself before education begins.

Left-handedness is a physical malformation. Monkeys and parrots show a tendency to use the right side, preferentially. In properly developed persons the left hemisphere of the brain is the larger, as are the left arteries, and independently of the size of the vessels, the stream of blood is less hindered on the left than on the right side.

Hygienic Application of the Spectroscope.—The water used by the people of a crowded court, amongst whom several cases of typhoid fever had appeared, was drawn from a rather shallow well, and was highly charged with various unoxidized compounds of nitrogen. It was suspected that, from some defect, the contents of a public urinal obtained entrance to the well. The fact that the well water contained seven times as much common salt as the normal water of the vicinity was some confirmation of the suspicion. Prof. Church obtained absolute proof by the following method: He introduced two grams of a lithium salt into the urinal, and, two hours later, was enabled readily to detect with the spectroscope the presence of lithium in a liter of the well water, which by previous examination had shown no trace of this substance.—*Quarterly Jour. of Science.*

Scarlet Fever Non-contagious.

Dr. E. H. Lewis, in an interesting article published in the *Northwestern Medical and Surgical Journal*, states some striking facts bearing upon the contagiousness of scarlet fever. From data, gathered during an epidemic in 1870, the doctor concludes that scarlet fever is not caused by sewer gases, or marsh miasms, or decayed vegetable matter, impure water, or the habits of people; for in the cases observed by him all these causes were absent. The epidemic traveled directly and rapidly through well-drained and elevated regions of country, sweeping everything before it. In the cases observed, the doctor could find nothing to enable him to believe in its contagiousness. He says: "I have not the slightest doubt that the causes of scarlatina depend upon some peculiar condition of the atmosphere favorable to the propagation of the scarlatina poison, and that it travels in a manner similar to epidemic cholera, the principal feature of which it simulates, the difference being that in cholera the force of the disease is spent upon the bowels, while in scarlatina it is expended upon the skin and throat."

A Case for the Doctors.—A singular case came under the notice of John B. Thayer, at East Cambridge, on Thursday. He was called to a house on Charles street to attend an old lady, Mrs. Mary Carton, who was there lying with both thighs fractured. The patient is 76 years old and bedridden, though not troubled with any specific disease. While her daughter was assisting her to rise, a noise, like the snapping of a whip, was heard, followed by one of a similar character, and the old lady suddenly sank to the floor. Upon examination both thigh bones were found to be fractured. There was no abrasion of the skin or external marks visible. The doctor states the cause of the fractures to be from muscular contraction, occasioned by long disuse of those functions, and though a similar case has never come under his immediate observation, it is a matter of record that such cases have been known, but they are extremely rare.—*Boston Transcript.*

Foreign Substances in Living Flesh. Mr. J. W. Bangman of Baltimore, Md., writes that a lady recently ran a needle into her flesh, about three inches above the knee, breaking it off under the skin. She preferred to risk the consequences rather than to have it extracted by a doctor. Mr. Baughman thought of using a magnet, and applied one of the horseshoe shape, 8 inches in length. She wore it for two days, more or less, and then found the point end of the needle protruding from the skin, one inch from where it entered. The needle was easily removed. Our correspondent is curious to know how the needle could come to the surface point upward, having thus turned round in a space less than its own length, which was 1 1-16 inches, and he suggests that the muscles may have turned it about.

Protruding Teeth.—A child's teeth may be gradually pressed into proper shape by the application of a rubber band, which any first-class dentist can put on and attend to at intervals. That any child should be doomed to go through life with ugly, misshapen teeth, is but too common a fault of parents, whose omission of duty in such matters is something a child, in maturer years, finds hard to forgive. Science and art have advanced to such a degree in the present age that excuse for physical deformities of any sort, to be allowed to become prominent, is only another name for gross, unpardonable carelessness.—*Herald of Health.*

Nose-Shaper.—Those who are cursed with an ill-formed nose, can now, accordcording to the London *Court Journal*, have it "quickly shaped to perfection" for the ridiculously small sum of ten shillings and sixpence. A contrivance has, it seems, been patented by an enterprising London tradesman which, "if applied to the nose for an hour daily," so "directs the soft cartilage of which the member consists," that the ugliest proboscis in creation, becomes "in a few days" a nose worthy to figure upon a *chef d'œuvre* of Phidias.

Poisoning by Mercury.—Dr. Melsens of Brussels has found potassium iodide to be a preventive of poisoning by mercury, as it conducts off the mercury in a soluble condition in the urine. He recommends that the workmen be given wine containing iodine before and during their work not as a medicine, but as a pleasant refreshing drink.—*Revue Universelle.*

Scientific Press.

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San Francisco:

Saturday Morning, Mar. 16, 1872.

Gold and Legal Tender Rates.

SAN FRANCISCO, Wednesday, March 13, 1872.—Legal Tenders buying 91¼; selling, 91¾. Gold in New York to-day, 110¼.

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ORE SAMPLED.—J. W. Thurman, 413 and 415 Mission street, crushed and sampled the following lots of ore during the month of February: 143 and 59 sacks from the Arizona mine, Humboldt Dist.; 105 from the Sheba, same district; 2,100 and 160 sacks of copper ore from Battle Mountain, Nev.; 499 sacks of copper ore from Salt Lake; 826 sacks of antimony from Mill City, and 145 sacks of silver from Prescott Dist. The whole amonnt sampled was 4,037 sacks.

EUREKA CONSOLIDATED.—The recent development in the Eureka Consolidated mine is said to be something wonderful. A dispatch dated the 9th inst. says that no adequate conception can be formed of the number of tons in sight, and that it looks as if the vein could be worked for years without having to stop either furnace or mill.

ANOTHER RARITY.—A genuine mnsk deer *(moschus meschiferous)*, from the East Indies is the latest novelty added to Woodward's Gardens. Althongh it resembles the ordinary deer it is not larger than a hare. It is from the male of these animals that the celebrated perfnme, so much admired by some perverted tastes is derived.

RUMOR.—The Plumas County *National* says it is rumored that Parrot & Co. have disposed of the Eureka Mining property to an English company for $1,750,000.

HON. A. A. SARGENT, AND JAS. S. GRINNELL, Chief Clerk of the Patent Office, have our thanks for documents received.

PROF. SILLIMAN is on his way to California.

Loss of Quicksilver.

In treating roasted silver ores in pans, a great loss of quicksilver is found to be the result of almalgamation. Three pounds to the ton of ore is generally admitted, but when it is abovo three nobody likes to let it be known. There hss been a disenssion in the papers as to whether the loss of mercury shonld be expressed relatively to the amount of silver obtained, or to ton of ore. It seems to be immaterial to which of these two ways the preference is given, ss none indicates the nature or the reason of the loss. Neither is the chemical loss more important thsn the mechanical. If, for instance it were stated one pound of mercury is lost to one pound of silver, it would give net the slightest evidence whether this loss is due to defective roasting, to the abundance of base metals, or mismanagement in amalgamation; just as if one would say:—"One peund of mercury is lost to a ton of ore," the latter expression, however, is more convenient and customary.

At a clese investigation of the amalgamating process in pans, the question arises whether or not a real chemical loss of quicksilver occurs; that is, whether the quicksilver, by chemical action, is transformed into such a combination, that when formed, it must be considered irrecoverable, a positive loss, as theoretically explained, with the formation of calomel in the patio amalgamation. Iu examining pan tailings, also if eoucentrated, with the greatest care, no calomel can be discovered, and if a light gray powder is found, under a micrescope, it proves to consist of metallic quicksilver globules. This, however, does not exclude the probability of calomel being formed in pans during the amalgamation; but it is an important fact, that if formed, the calomel dissolves in a solution of salt and chlorides, especially in a hot pulp, as is always the case during the amalgamation. Whether it dissolves directly or iudirectly is not the question now; the fact is, it does dissolve, and from this solution metallic quicksilver is precipitated by iron, copper, etc.

It seems, therefere, it is the mechanical loss of quicksilver principally, against which the millman has to guard and to strive to diminish it by proper mechanical arrangements. Certainly, ore containing a great deal of copper, lead, antimony, etc., and roasted in the ordinary way, attacks the quicksilver vigorously by chemical action causing a considerable loss; it consists mostly of quicksilver in a metallic bnt different aggregate condition. Very minute globules are coated with iron, perhaps half amalgamated, and there seems to be an attraction between these globules, as many of them adhere together forming a light, blsck snbstance, a kind of poor amalgam, containing iron and other base metals. Its inconsiderable weight, and its dark color is the reason of its escaping notice. When a settler is discharged the amalgamstor examines the tailings now and then (or ought to do so,) by washing it in a cup or horn-spoon, and his attention is directed to the quicksilver globules or scum that may remain, but he is sure to wash off all of the light black amalgam without knowing it, and it seems that this stuff is the main source of the loss of mercury.

The origin of this amalgam is due to different circumstances, abundance of base metals, the chlorides of which are not decomposed in roasting, but more or less of this amalgam will be formed according to the treatment in pans. It will be increased by too much heat; 125 to 150 degs. is sufficient for a good amalgamation of all well roasted ore, but generally the temperature is kept a great deal higher—up to 200 degrees and above. It increases the loss of quicksilver, partly in a slight degree by evaporation, but principally by producing that black amalgam. There are cases where iron amalgam of white color is obtained in great quantities; to this I do not refer now. The black amalgam in question will be formed more or less under almost any circumstances, also if a tolerable firm amalgam is obtained in the strainers, giving a bullion from .600 to .700 fine.

In order to have all dissolved quicksilver precipitated, and the base metal chlorides as much as possible decompesed (the latter in absence of iron being effected by direct aetion 'of the quicksilver,) there must be sufficient iron (best is wrought iron) in the pans. In many mills it is customary to amalgamate the roasted ore without grinding. In this case, especially if rich ore is treated, all the iron in the pan is coated with amalgam, the surface of shoes and dies included, so that there is very little chance left for the dissolved quicksilver to eome in direct contact with iron. For this reasen, not te consider other advantages, a grinding of one hour or one and a half, before quicksilver is introduced, is necessary; it offers to each new charge of ore a great snrface of clean metallic iron.

Only a small part of the black amalgam is saved by the settlers, the motion being too quick to allow a sinking of the light stuff through the pulp; the most of it is therefore discharged with the tailings. In this amalgam the iron does not adhere to the quicksilver as if it were real amalgam, but can be separated by more friction. For this purpose, however, it must be obtained in a concentrated condition, and Hendy's concentrator, with a slight alteration, does the work to satisfaction. The concentrator requires proper care and attention, otherwise it is useless. From the settlers the pulp is discharged through ¾ inch holes into the concentrator, where quicksilver aud the black stuff is retained. The concentrated part is then charged iuto a Knox's or other similar pan, and ground for several hours, with not too mueh water, and dilute after sufficiently fine.

Another source of the loss of quicksilver will be found in retorting the amalgam. Even when a proper heat is given to the retert and proper time allowed, the crude bullion will contain in most cases 2½ to 3 per cent. quicksilver, and if there is a great amount of lead in it, say 60 to 80 per cent., the quicksilver may come up to 5 per ceut. and more, even if kept in a molten state for 8 hours in the retort. The larger the rotort and the smaller the charge, the more quicksilver remains in the bullion. An increase of heat to light redness is of no avail and only iujurious to the restort. When rod hot, a retort is filled with quicksilver vapors, by which the air was displaced; after 10 or 12 hours, when no more quicksilver is coming, tho space remains filled with vapor, as there is nothing to drive it out. On cooling, the mercury condenses and draws back into the bullien. A round retort of usual size contains about 3 pounds of quicksilver in vapor. The introduction of superheated air at the end of the operation, would probably carry out all the vapor of mercury and insure a well-retorted bullion. This would be an improvement, not only on acconnt of saving the quicksilver, but because the melting of such bullion is injurious to the melter. Having much bullion on hand, generally not more than one hour is given to cast a bar. If, after skimming, a piece of red hot iron is held in the crucible above the molteu silver, and in the next moment withdrawn, quicksilver will be seen swimming on the water. The most of the shipped bars contain quicksilver.

A MONTANA ARTIST.—The sketch, from which our engraving of Bozeman City was engraved, was made hy John Erikson, Esq., of that place, a young artist of much promise. It is pronounced by Montanians now in this city, an excellent representation of the metropolis of Eastern Montana.

Mining Accidents.

An Austrian, name unknown, was killed in the Eureka mine, Sutter Creek, on the 1st inst. by the falling of a large stick of timber.

John McPhee was killed in the Silver Plume tunnel near Georgetown, Col., a few weeks since, by a large rock which fell upon him.

H. H. Chandler of Silver Park Nye Co., Nev., lately had his hand terribly mangled by being caught in the machinery of his quartz mill.

John Healy has had his foot quite badly injured by catching it between the edge of the cage and the sill timber in the Belcher mine.

The Jacksonville *Ledger* says that two Mexicans working on a tunnel near the "Gate" were seriously hurt by a cave last week.

Wm. Osborn, working in Gentry & Co.'s claims on Oustomah Hill, received severe contusions and cuts on his head while running out of a tunnel to get out of the way of an expected rush of water that had been blocked up.

Patrick Maguire a miner at work for the Cherokee Co., iu Butte county, was caved upon in the claim lately and his leg crushed badly.

THE PAUL PROCESS.—In another colnmn will be fouud some certificates from parties who have had practical experience with Mr. A. B. Paul's dry amalgamating process, and who speak very highly of the results attained by its use. We have had the pleasure of conversing with Mr. Smyth, Supt. of Sprague & Co.s' mill, on the subject of this process, and he assures us that after the experiments made under his personal supervision, he has no doubt but that it will entirely supercede the eld system of par amalgamation. We have given before a detailed accouut of the process and at that time were satisfied that the plan would be a success. Mr. Paul has labered assiduously in perfecting the mechanical detail connected with the machinery, and is now resping the reward of his perseveraunce. He is now constructing a new mill to go to Calaveras couuty. Miners and mill men will do woll to read the certificates above alluded to, for the system has most certainly given new life to Dun Glen, where it has been in practical operation for some time. Any process that will work ore as close to fire assay as this doos, must eventually come into general use aud assist materially in increasing the bullion yield of the connty.

THE NEW IDRIA MINE.—The indefatigable McGarraham is at it again. He is still pushing his claims before Congress and we understand has instituted suit in the Third District Court at Monterey, against the New Idria Mining Co. for possession of the mine and its appurtenances and $5,000,000 for wrongful attention, rents, profits etc. He has been defeated so often in his attempts on this that any ordinary man would have got tired of it before this, but he seems determined not to give it up.

A VEGETABLE CURIOSITY.—It was the *Chronicle*, we think, that a day or two since said: "Two trees are pointed out to the curious visitor at San Diego which grow with their leaves in the ground and their roots in the air, a peculiar way which trees down there probably have of asserting and maintaining their independence."

The author of that item didn't know much, or he would have given us the true botanical name of that species of tree. The variety growing in that locality, when telescopically examined through the bottom of a tumbler, is found to he the obfuscated ocularium, of Linnæus, or Whiskied Intellecticus of modern botanists.

THE COLUSA Manufacturing Company have brought suit against the Buckeye Quicksilver Mining Co. to recover $10,000 damages for alleged breach of contract.

Settlement and Development of the Gallatin Valley.

[By our Special Traveling Correspondent.]

"The smoke-wreath curling o'er the dell,
The low—the bleat—the tinkling bell,
All made a landscape strange,
Which was the living chronicle
Of deeds that wrought the change."

The Gallatin Valley, in Montana Territory, is, next to the Great Salt Lake Valley Basin, the most extensive agricultural district of the Rocky Mountains, and is in all respects the peer of the latter as a farming country. Being immediately on the line of the Northern Pacific railroad, which cannot leave it entirely either to the north or south, and will probably traverse it throughout its length of 45 miles. It is beginning to attract much attention on the Pacific Coast and through the Western States. Therefore I am convinced I cannot use my pen more commendably than by giving a history of the settlement of this interesting section, its present condition and prospects.

Though very properly termed the "Granary of the Territory," the Gallatin Valley's present developments are the immediate results of and wholly owing to gold mining. The Pick made way for the Plow. Little attention was given to agriculture in Montana until the spring of 1864, though for two years previous the mining world had been in a blaze of excitement over the fabulous gold discoveries reported from the Upper Missouri, during which time gold-hunters had been flocking to the new El Dorado by thousands. But among them all there was probably not one who intended or expected to till the soil; in the wild pell-mell practical thoughts and calculations were unknown; they had come to dig out a certain quantity of gold, which they would return to enjoy. Four acres of potatoes yielding ordinarily well, would have brought them at that time, the snug sum of six thousand dollars; and an extraordinary yield, such as is not unusual in the Gallatin Valley at this time, would have netted double that amount. Freight from Salt Lake City ranged from $15 to $30 a hundred, and potatoes, cabbages, turnips, etc., found a ready market in the new diggings at from 25 to 40 cents a pound. But no one thought of raising a crop, though hundreds were toiling from daylight to dark in the mines.

The Earliest Prospectors.

The discovery of the rich placers of Alder Gulch, late in the fall of 1862—the most continuous placer deposits ever developed—brought the restless tide further north and within a day's ride of Gallatin Valley. It and all the adjacent country was over-run with prospectors early the next spring. We may well believe these fortune-seekers were intoxicated with delight as they reined in their "broncos" on the high tablelands, from which they had their first view of the Gallatin Basin, more especially as their travels, so far, had been over rugged ridges and across contracted creek bottoms scarcely extensive enough for a California farmer's calf pasture. Below them, stretching away to the north, the east and the west, and all in plain view through the clear, pure mountain air, was over half a million acres of ranky grassed valley land,—in gentle undulations it rolled on and on to the distant mountain walls. Since descending the summits that overlook the central plains of Utah, they had seen no region so inviting as a field for agricultural labor, and nowhere a picture of undeveloped Nature so enchantingly beautiful and impressively grand. There, all encompassed by a single sweep of the vision, were three noble currents—the West Gallatin, the Jefferson and the Madison—pouring down to the great basin from opposite directions and winding away with their myriad tributaries, through dense groves of cottonwood, alder, ash and willow, and the most nutritious grasses on the face of the earth, to unite their waters where the flourishing village of Gallatin City now stands, and form the second mightiest river of the Continent.

The influence of such a scene was too strong for even the fascinations of a gold-hunter's life, and projects of carving the lovely wild landscape into comfortable homes happily succeeded, in many instances, the dream of making fortunes in a day through blind luck. A few hay ranches were selected and "staked off" at once—hay then being worth from fifty to seventy-five and even a hundred dollars a ton in the mines—and the locators hurried back to the diggings to prepare to make them available. And a "stampede" for farms in the Gallatin valley was next in order. But it was then too late in the season to think of farming in the Gallatin valley that year, though a few plows were improvised for the occasion and some summer fallowing was done preparatory to the next year's operations; and the spring of 1864 found quite a colony settled around the head of the Missouri, near the mouth of the Gallatin, Jefferson and Madison rivers, and a few farms were also being opened in the upper part of the basin, in the vicinity of the present site of the vigorous young city of Bozeman—now outstripping all competitors in the race for commercial supremacy. Of course there have been special causes to accelerate the development of the Gallatin valley; but without such special agencies her progress would have been steady and healthy, for richness and extent of soil, desirability of climate, unexcelled facilities of water-power, and forests of noble timber, are among her natural advantages. My task would not be fully performed, however, if I omitted to notice the more prominent influences which have contributed so much to her wealth and prosperity.

Flour Mills.

In the summer or fall of 1864, the indefatigable Perry W. McAdow, with his mining partner, Thomas Couver, now engaged in agriculture in Los Angeles county, California, located a site for a grist-mill in the upper part of the valley, and had the necessary machinery on the road soon after. This gave an impetus to the settlement of Gallatin valley, just when such encouragement was needed, and the smoke from a score of new farm-houses was curling to the sky within sight of the pioneer grist-mill before its burrs had made a single revolution. In the meantime the energetic Wilson brothers had begun the erection of a large grist-mill in the lower part of the valley, at Gallatin City, 35 miles below the scene of McAdow & Co.'s enterprise, which equally stimulated settlement and development in that portion of the Gallatin basin. Then McAdow & Co., believing the Gallatin valley destined to become one of the most populous farming sections of the great West, (a hope now fully realized) still further manifested their confidence in its future by the erection of a saw-mill, which speedily did away with the "whip-sawing" method.

John Auld, J. J. Tomlinson and others, seeing McAdow & Co. were unable to supply the demand for lumber, erected other saw-mills in different parts of the valley, the same year. And in the summer of 1866, the capacity of the two grist-mills being found inadequate to meet the increasing demand of the wheat-growers, Captain Reuben Foster commenced the erection of the Union Mills, at Spring Hill, about 15 miles north of Bozeman—a two-story edifice capable of turning out fifteen thousand pounds of flour a day—and the next fall had it in successful operation. Your correspondent paid the Union Mills a visit, and must admit that it is the most complete flouring establishment he entered in his extensive tour through the Rocky Mountains. Under the management of its present enterprising and efficient proprietor, Andrew Pierstorff, Esq., its trade-mark holds its own with the world-famed St. Louis brands—which, in fact, the home productions have almost entirely driven from the local markets.

Churches and Schools.

With the true spirit of the American pioneer, the early settlers of the Gallatin valley, notwithstanding their exciting race for material prosperity, ever kept moral agencies in view, and the church and school received their first attention as soon as the family hearth-stones had been securely laid. Thenceforward immigration, still increasing, was made up largely of families, so that by the fall of 1866 the population and wealth of Gallatin county—now regularly organized—made her a power in the Territorial Legislature and in general business circles, and the Gallatin valley was universally admitted to be one of the safest fields for permanent investment.

Indian Troubles.

But, as might have been expected, some adverse clouds shadowed our infant empire. To the eastward, just beyond the dividing range between the Yellowstone and the Gallatin, was the fierce and powerful Crow tribe of Indians—since, under a benign and wise policy on the part of the general government, elevated to semi-civilization—and their depredations were very frequent. And danger was more imminent in the upper part of the valley—the most populous section—from the fact that Bozeman City is located in the very mouth of a low pass leading to the Yellowstone valley, as our cut shows, which can be traveled by any mode, winter and summer; consequently the majority of the settlers were kept in a state of constant uneasiness and alarm, knowing that any hour an incursion in force might take place, the result of which would certainly have been massacre and destruction of property throughout the settlement.

This perilous state of affairs continued until the spring of 1866, when Col. John Bozeman—in whose honor the metropolis of eastern Montana was named—was horribly murdered by Indians within a day's ride of the settlements, and another prominent citizen who was with him, made a hair-breadth escape. The survivor's horse was not yet cool after his arrival at Bozeman, when reliable scouts came in with the alarming news that the ferocious Red Cloud and his blood-thirsting followers were marching on the settlements with the intention of murdering all the whites, running off their stock, and giving to the flames all their improvements. And that these fearful threats would have been carried into execution, had it not been for the protective measures immediately inaugurated by acting Governor Thomas Francis Meagher, there cannot be the slightest doubt, for Red Cloud was really coming. As it was, the effect was disastrous enough; business, in all its branches, was paralyzed, and those having families abandoned their homesteads and fled for their lives. The call of the executive for troops was responded to promptly and with enthusiasm in all parts of the Territory, but for a while it was feared the protective movement would utterly fail and the valley be given over to rapine and destruction, owing to the general unwillingness on the part of the merchants to advance supplies. At this critical juncture it was that Col. Leander Black, a capitalist of rare sagacity and enterprise, and a humanitarian in the fullest sense of the word, came forward and made himself the savior of eastern Montana.

Our Illustration.

The surveyors have been through the pass shown at the right of our cut and it is considered the best route for the Northern Pacific R. R. The mountains in the vicinity of the town are rough and precipitous, but the valley is covered with fields of grain. At the mouth of the pass is situated Fort Ellis, erected there some time since. The buildings are substantial, the lumber from which most of them are built being abundant near by. The flour mill is seen a short distance this side of the mountains. Besides the hotels, which may be recognized, the stores and public buildings are on Main street. The residence of Col. Black, on Black street, is the house surrounded by trees, in front of which stands a horse and buggy. W. H. M.

(To be continued with other illustrations.)

BOZEMAN CITY, GALLATIN COUNTY, MONTANA.

New Incorporations.

The following have filed certificates with the County Clerk, San Francisco.

St. John M. Co.—Mar. 9. Location: New El Dorado Mining District, Kern county. Capital stock $600,000, divided into 6,000 shares. Trustees: Joseph Badger, F. A. MacDougall, J. P. Newmark, Joseph Clark and A. T. Swart.

San Francisco Lake Water Co.—March 12. Capital stock, $3,500,000, in 35,000 shares. Trustees: Peter Donahue, Nicholas G. Kittle, John P. Jackson and F. D. Atherton. Place of business; San Francisco.

Primrose G. M. Co.—March 12. Location: Sierra county. Capital stock, $2,400,000, in 24,000 shares. Trustees: S. Steinhardt, George F. Sharp, Philip Falk, Wm. Seligeberg, and A. J. Bryant.

Puebla G. S. M. Co.—March 12. Location: Hot Spring District, Humboldt county, Nevada. Capital stock, $3,000,000, in 30,000 shares; place of business San Francisco. Trustees: A. Hemmo, James C. Weir, and James Blake.

Grover M. and M. Co.—March 12. Location: Drytown, Amador county, Cal. Capital stock, $1,000,000, in 20,000 shares; place of business, San Francisco. Trustees: Cyrus Wilson, John S. Wilson and T. Ashby.

Pacific Box Manufacturing Co.—March 12. Capital stock, $200,000 in 4,000 shares. Trustees: Howard Chapman, L. L. Robertson, B. F. Baretow, James L. Blaikie, C. J. Cousin; place of business, San Francisco.

The rainfall in this city up to Tuesday noon last, was 33.23 inches.

Domestic Economy.

Wood Fires.

We often wonder why in an age abounding in inventions for household comfort, the oldeet and heet of all—the wood fire on the hearth—has almost disappered. It cannot he on the ground of its greater expense, for that it is hut a trifle compared to luxuries we see everywhere. Scrupulous housewives, we helieve, object to it as untidy. But from such pharisaic regard for the outside of the cup and platter may we be delivered? Now, in the first place, nothing keeps the air of a room so fresh and sweet as an open wood fire. Its advantages in point of healthfulness over ordinary ways of warming is immense. For a room of ordinary eize in this climate it gives amply sufficient heat. And what a wonderful promoter of cheerfulness it is? It ie as much hetter than the open coal fire as that ie better than the hlack hole in the floor called a register. Its voice, as its purrs and crackles and roars, ie enough to drive away the worst fit of the blues. Its mounting flames give the cheeriest light in the world. The depths of its glowing coals coutinually allure and charm the eye. There are are not many human beings who are as good company for every mood. Afthe day's work and fret it brings calm and cheer. It wiles away all trouhling thoughts. If the mind ie at work, ite unobtrueive companionship soothes and aids. When one ie weary, he may find restful occupation in watching the freaks of the flames, and lietening to their changeful voice. It brightens people and brings them together. To what sceues of friendship and eocial enjoyment doee it lend a unique charm! It is the luxury of luxuries, a thing without which life is incomplete.—*Beecher.*

Italian Chicken Salad.—Make a dressiug in the proportion of the yolks of three hard hoiled eggs, ruhbed fine, one salt spoonful of salt, one of mnetard and one of cayenne pepper, one of white sugar, four table spoonfuls of salad oil, and two table spoonfuls of vinegar. Simmer this dreesing over the fire, hut don't let it boil. Stir constantly while over the fire. Then take a sufficient quantity of the white meat of cold chicken for thie quantity of dressing or increase in this proportion to the deeired quantity; pull the white meat into small flakes, pile it up in a dish and pour the dreseing on it. Take two heads of fine, fresh lettuce that have been washed and laid in water, take out the hest part, cut it up and arrange in a heap or around the chicken, heapcd in the middle of the dish, and on the top of this ridge place the white of eggs, cut in rings, and laid in the form of a chain. A portion of the lettuce to he helped with each plate of chicken.

Look Most to Your Spending.—No matter what comes in, if more goes out, you will always be poor. The art is not in making money, but in keeping it; little expenses, like mice in a harn, when they are many, make great waste. Hair hy hair, heads get hald; etraw hy straw the thatch goes off the cottage; and drop by drop, the rain comee in the chamher. A harrel is soon empty, if the tap leaks but a drop a minute. When you mean to eave, hegin with your mouth; there are many thieves down the red lane. The ale jug is a great waste. In all other things keep within compass. Never stretch your legs farther than the hlankets will reach, or you will soon he cold. In clothes, choose euitahle and lasting stuff, and not tawdry fineries. To he warm is the main thing; never mind the looks. A fool may make money, hut it needs a wise man to spend it. Remember it is easier to huild two chimneys than to keep one going. If you give all to back and board, there is nothing left for the savings-bank. Fare hard and work hard while you are young, and you will have a chauce to rest when you are old.

A Retired Baker's Receipt eor Bread. Take an earthen vessel larger at the top than at the hottom, put in one pint of warm water, one and a half pouuds of flour, and a half pint malt yeast; mix well together and set away in a warm place until it raisee and falls again, which will be in from three to five houre. Then put two large spoonfuls of salt into two quarts of water and mix with the above rising; then put in ahout nine pounds of flour aud work it well; let it rise until night; then make it into loaves. New and runny flour requires one-fourth more salt than old and dry flour. Bake as soon as light.

Preserved Meats.

The Victoria Meat Preserving Company (Limited), of Melbourne, hae succeeded in overcoming the difficulty which has hitherto heen experienced in importing uncooked meat from the coloniee to this country in euch a state as to render it both wholesome and palatable food. Their process is very simple. The meat is first slightly corned, theu packed in a tin case, after which melted fat is poured over it, and, the interstices heing filled up, a tin lid is soldered down—thus effectually excluding air and preventing decomposition. The cooked meats of the same company are also particularly worthy of commendation. A prejudice has been long existent against Australian preserved meats—aud not altogether without reason, for hitherto they have heen eodden and "done to rags;" hut we are enahled to testify that the samples now supplied are not overdone, and consequently retain all the nutritious properties of freshly-cooked meat, and are equally agreeahle to the eye as they are grateful to the palate. The fat (by which, as a rule, meat may he fairly judged) is not melted into tallow, as is usually the case, hut is sweet and good; whilst the jelly within hespeaks the quality of the flesh which it surrounds. The meat ie packed in various couvenient-eized tins, aud is supplied to the trade at a cheap rate. Taking into consideration that the meats are boneless and already cooked, consumere are enahled to effect a eaving of nearly 50 per cent. as againsted hutcher's meat, and with this inducement to purchasers, a little effort on the part of retailers is all that is required to remove the objection to this class of food, and not only would the puhlic be supplied with a most wholesome article of diet, hut a profitable trade might also be firmly established.

To Make Bread From Flour that Runs. Put what flour you need in your pan, and pour enough boiling water over to just wet all of it, but not to make it thin; sprinkle in a teaspoonful of salt and a epoonful of hutter; stir it up with a large wooden spoou until eure that all the flour is scalded; then cover, and let it stand till cool enough to add the yeast. So that the yeast is sweet and lively, you can uee any kind you prefer—hakere' or home-made. When the flour ie eufficiently cool clear to the bottom add your yeast, and give the whole mass a faithful kneading, adding more tepid milk or water, if needed. Knead till the dough cleane from your hands easily; then eet to rise. When very light, knead again, put into the pane, and leave it to riee once more; then bake as directed above. By this method "running" flour can often he conqnered, and bread thus scalded will be found uncommonly sweet and tender.

Bean Soup.—With all thy dinner getting get soup. Get into the hahit of having it. Soup ie to a dinner what an anthem is to a divine service. It ie not half the trouhle that inexperienced housekeepers imagine it may he. Only a little is required on which to begin a dinner. When once in the way of having it, regularly, you will appreciate the convenience of soup stock, and value it equally with prepared fruits. To make bean eonp, clean the heane over night, pour boiling water over them and let them stand until morning. Then place in plenty of fresh water and put over the fire; add a small piece of corned heef with half as much pork; cover tight and skim as needed. When the heans are partially cooked, add sliced carrot, parsley, celery and pepper; boil elowly until done; strain into tureen and cover.—*Moore's Rural.*

Cautionary.—We ehould let our water pipes run a minute before we take water to drink, or use for cooking in the morning; and in going into a new house, or into one in which water pipes have heen just placed, it is hetter not to use the water for drinking or cooking for at least a month. And on returning home after eome weeke' ahsence, in summer excursions or for other reasons, take the same precautions. Perhaps in these things we find the reason of some persons eickening and dying just after getting into new houses.

Raised Crust for Pies.—Some persons cannot eat rich paetry, and for their benefit I will give a plain recipe. Take one pound of flour, three ounces of butter, one tableepoonful good yeast, and milk to form a dough. Rub the butter in flour, add the milk and yeast, and set to rise. When light, roll out pretty thin, and line the plates. Put in the fruit, roll out the cover, and set the pies in a quick oven. This makes a good crust.

Good Advice.

Many good people are much troubled hy the multiplicity of duties, especially in household matters. They see so much to he done, that they are ever in a worry and hurry, and thus are in danger of doing nothing well, and also leaving many things undone. In their eagerness to do the great things of their calling, they are apt to overlook what seems to he the smaller concerns, which perhaps lie just at hand. They are looking ahead and aloft, and pass over what really ought to he attended to, and which, if attended to and thus put out of the way, would lead on naturally and quietly to greater works. These little things may be indispensahle to the accomplishment of the greater. They may be the little stones which together make up the building. They may be the first rounds of the ladder, leading up to loftier hights of achievment.

Now let such persons consider what the great German poet, Goethe, eaid—and he hardly uttered a wiser one—"*Do the thing that lies next you.*" Be it little, do it. It may be great in its necessary relation to something else. Neglect not the preeeut, the immediate thing. The person who adopts this rule will do a world of work—a world of good. He will hegin at home, in his little circle, and so branch out as each day gives uew and, perhaps, wider opportunities.

Chicken Jelly.—For chicken jelly, take a little chicken, cut it up into emall pieces; hruise the bones and put the whole into a stone jar, with a cover that will make it water-tight. Set the jar in a large kettle of boiliug water, and keep it hoiling for three hours. Then strain off the liquid, and season it slightly with ealt, pepper and mace, or with loaf sugar and lemon juice, according to the taste of the person for whom it was intended. Return the fragments of the chicken to the jar, and eet it again in a kettle of boiling water. You will find that you can collect nearly as much jelly by the eecond hoiling. This jelly may be made of an old fowl.

To Kill Lice.—In every issue some one is inquiring how to kill lice. Having had six or eight years' experience with lice on human as well as hrute creation, I find nothing like salt. Wash horses, colts, cows or calves with a hrine ae strong as it can be made. It ie a dead sure shot.—P. Green, Bath, N. Y.

Mechanical Hints.

How to Use Grindstones.

1st.—Don't waste the stone hy running it in water; hut if you do, don't allow it to etand in water when not in uee, as thie will cause a eoft place.

2d.—Wet the stone hy dripping water on it from a pot suspended ahove the etone, and etop off the water when not in use.

3d.—Don't allow the etone to get out of order, but keep it perfectly round by use of gas pipe, or a hacker.

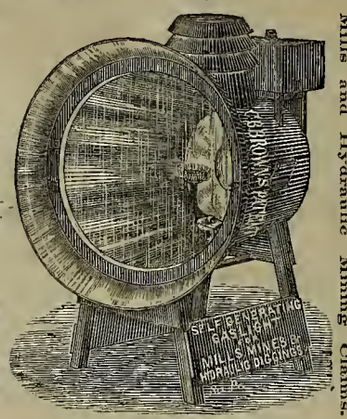
4th.—Clean off all greasy tools hefore sharpening, as grease or oil destroye the grit.

5th.—Observe: When you get a stone that suite your purpose, eend a eample of the grit to the dealer to select by; a half ounce eample is enough, and can be sent in a letter hy mail.—*Franklin Journal.*

Brown Tint for Iron and Steel.—Dissolve in four parts of water, two parts of crystallized chlorine of iron, two parts of chloride of antimony and one part of gallic acid, and apply the eolution with a eponge or cloth to the article, and dry it in the air. Repeat this any number of times, according to the depth of color which it is desired to produce. Wash with water and dry, and finally rub the article over with hoiled linseed oil. The material thns receivee a brown tint and reeists moisture. The chloride of antimony should he as little acid as possible.

To Draw a Curve.—A plan hut little known among draughtsmen, and most efficient for drawing fair curves, is the following: Cut a strip of soft pewter similar to that used for covering bar counters, ahout one-sixteenth of an inch thick, and from one-eighteenth to three-sixteenths of an inch wide, the length of the longest curve required. Dress it straight, and smooth the edges with a file. By drawing the etrip through the closed fingers of the left hand, or over the thumb, a very regular curve may be obtained, which can be altered at will till it matches the line to be drawn or copied. For fiue or quick curves a slighter strip should be used.—*Cabinet Maker.*

BROWN'S PATENT LAMP, FOR Mills and Hydraulic Mining Claims.



One of theee Lampe, when placed at a distance of 200 feet from the hank, will light up a hank surface 250 feet in length and 100 feet high, and to a much better advantage then any other light heretofore tried, and at an expense not to exceed five cents per hour. Lamps furnished at short notice.

For further particulars address

C. B. BROWN,
7v24-t Placerville, Cal.

The California Powder Works

No. 314 CALIFORNIA STREET,
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Manufacturers and have conetantly on hand

SPORTING,
MINING,
And BLASTING
POWDER,

Of SUPERIOR QUALITY, FRESH FROM THE MILLS. It heing constantly received and transported into the interior, ie delivered to the conenmer within a few daye of the time of its manufacture, and is in every wey superior to any other Powder in Market.

We have been awarded euccessively

Three Gold Medals

By the MEOHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the euperiority of our products over all othere.

We also call attention to our

HERCULES POWDER,

Which combines all the force of other strong explosive now in use, and the lifting force of the BEST BLASTIN POWDER, thue making it vaetly superior to any other pompound uow in use.

A circular conteining a full deecription of thie Powder can be obtained on application to our Office.

16v20-3m JOHN F. LOHSE, Secretary.

Varney's Patent Amalgamator.

These Machines Stand Unrivaled.

For rapidity pulverizing and amalgamating oree, they have no equal. No effort has heen, or will be epared, to have them conetructed in the most perfect manner, and of the great number now in operation, not one hea ever required repairs. The constant and increasing demand for them iecufficient evidence of their merits.

They are constructed so ae to apply steam directly into the pulp, or with steam hottome, ae deeired.

This Amalgamator Operates as Follows:

The pan heing filled, the motion of the muller forcee the pul, to the center, where it ie drawn down through the apperture and hetween the grinding eurfacee.—Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference ae hefore. Thus it is constantly passing a regular flow hetween the grinding surfacee and into the quicksilver, until the ore ie reduced to an impalpahle powder, and the metal amalgamated.

Setlers made on the eame principle excel all others They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorhed.

Mill-men are invited to examine theee pans and eetlers for themselvee, at the office, 229 Fremont Street, San Francisco.

AMBLER'S BLOWPIPE FURNACE,

For Roasting Rebellious Ores.

This new roasting furnace ie the CHEAPEST AND BEST yet offered to the public. By furnishing an emple eupply of oxygen to the ore while roasting, thorough oxydization of the sulphurete ie eecured at a emall coet.

It is Adapted to All Kinds of Ores.

A description and illustration of thie Furnace wae given in the SCIENTIFIC PRESS of November 25th.

For terms, circular, and further information, addrees the agent of the inventor,

MONROE THOMSON,

At 444 California street, San Francieco, until further notice. 6v23-3m

GOLD-SAVING
Silver-Plated Amalgamating Plates

FOR MINERS AND MILL MEN,

At San Francisco Plating Works, 655 Mission Street, San Francisco.

Goods of every description Plated.

Old Goods Re-plated.

E. G. DENNISTON, Proprietor.
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Improved Stop Governor,

Manufactured at the CYCLOPS MACHINE WORKS, 113 and 115 Beale street, San Francieco.

3v24-3m WM. CALDWELL.

Business Cards.

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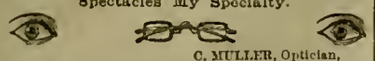
Office, No. 45 Montgomery Block,
San Francisco, Cal.

H. C. BENNETT,
STATISTICIAN.
Reports and estimates made about all departments of Production, Commerce, and Manufacture, of the Pacific Coast. 5v24-tf

Spectacles My Specialty.



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Surveying Instruments made, repaired and adjusted
22v17-3m

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Manila Rope of all sizes. Also, Bale Rope and Whale Line constantly on hand. Tarred Manila Mining Ropes of any size and length manufactured to order.
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SEAL ENGRAVER,
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Between Bush and Pine streets, San Francisco.
The first and only Manufactory on the Pacific Coast. MEERSCHAUMS MOUNTED WITH SILVER. Meerschaum Pipes Boiled and Repaired. Amber Mouth-pieces Fitted.

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MANUFACTURER OF TOOLS
—FOR—
Molding, Turning, Carving, Etc.
Mortise Chisels, Blind Chisels, Crotchet Chisels, and also all kinds of Screws for Stair Work and Sash Joints on hand and made to order.
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Engine Regulators.
GIFFARD'S
INJECTORS.
BARTOL'S
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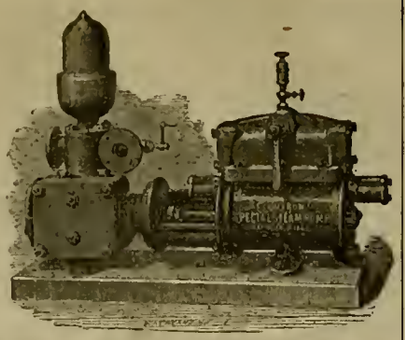
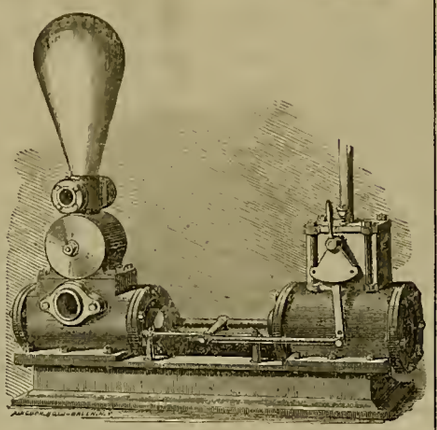
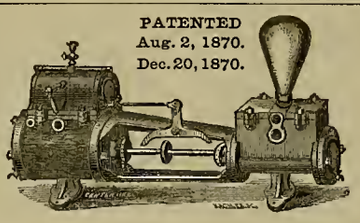


NIAGARA STEAM PUMP WORKS.
FIRST PREMIUM
American Institute, 1867 and 1870.
CHARLES B. HARDICK,
23 Adams Street, Brooklyn, N. Y
SOLE MANUFACTURER
Hardick's Patent Double-Acting
Steam Pump
and Fire Engine.
PATENTED IN ENGLAND, BELGIUM AND FRANCE. SEND FOR CIRCULAR.
22v26t-eow



PATENTED
Aug. 2, 1870.
Dec. 20, 1870.



Combines Simplicity and Durability to a Remarkable Degree.

Its parts are easy of access, and it is adapted to all purposes for which Pumps are used—especially Mining.

Full description in *Scientific Press* of August, 1871.

Catalogues sent on application.

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43 Cortlandt Street, New York.

AGENT WANTED for Pacific Slope. 7v23-1y-eow

PACIFIC STONE COMPANY.
Ransome's Patents International,
For which Commissioners for the Exhibition of 1862 awarded the Prize Medal, and Gold Medal at the Mechanics' Institute Fair, 1871, of San Francisco.
REMOVAL.
This Company have removed from the corner of Turk and Larkin streets, to their new and Commodious works corner of Greenwich and Octavia. They have established an office and saleyard at the Junction of Market and Bush, where they will keep constantly on hand an assortment of ORNAMENTAL, BUILDING, CEMETERY and GRINDSTONES. Orders will be received at the above office from all who wish to get good work at low prices. Send for Circular. 5v24-3amslamrly

To Parties About Building.

A person who is competent to prepare plans and take charge of the construction of Dwellings, Mills, Bridges, or other architectural improvements, will make favorable engagements with persons or corporations in the city or the interior. Has had full experience on this coast, and can insure good satisfaction. Address
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New and Superior Chromos.
The Changed Croes, size 22 by 28.
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Sold by Leading Dealers throughout the United States, and Wholesale by the Publisher.
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BLISS, KEENE & CO.'S Fluid Extract, the wonderful remedy for Cancer, Syphilis, Scrofula, Ulcers, Pulmonary Complaints, Salt Rheum, and all Chronic Blood Diseases, is prepared from the Genuine Cundurango Bark, from Loja, Ecuador, secured by the assistance of the authorities of that country. It is the most effective, prompt and certain alterative and blood purifier known. Sold by all Druggists, in pint bottles, having on them our name, trade mark and directions. Send for a circular. Office and Laboratory, No. 60 Cedar street, N. Y. 25v23-3m

First Premiums awarded by American Institute, N. Y.
MICROSCOPES.
Illustrated Price List sent free.
Magic Lanterns and Stereopticons.
Catalogue, priced and illustrated, sent free.
McALLISTER, Optician, 49 Nassau street, New York
3v23-1y

CRAIG & BREVOORT'S
Patent Condenser for Steam
PUMPS, &c.

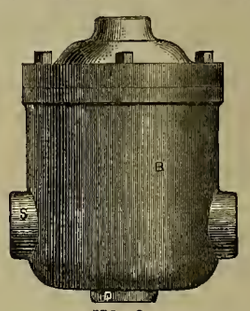
NO. 1.

The annexed engravings represent a Condenser intended to be attached to the ordinary steam pump, thereby bringing it within the class of low pressure, or more properly speaking, of condensing engines; the steam, when it has done its work in the cylinder, instead of being exhausted into the atmosphere, is conducted to the condenser, on its entry into which, it meets the water drawn by the pump, and is immediately condensed.

The Cut No. 1 represents a vertical section of the Condenser, and No. 2 an elevation.

The flange D is bolted to the suction orifice of the pump, and the flange S to the pipe leading to the well, or whatever source of supply the pump may have; W is a water jacket surrounding the main chamber of the condenser, B, and with which the suction pipe, S, communicates, permitting a free circulation of water within the jacket and into the hollow cover or top through the series of openings, one of which is shown at A, and from thence into the body of Condenser, B, through pipe P, carried by float F; the pipe P also acts automatically as a valve to enlarge or contract the space through which the water enters it, by which means the possibility of the condenser being at any time flooded is avoided. The pipe P, it will be observed, also acts as guide to float F.

The valve, O, (shown in Cut No. 1), which is raised or lowered by means of screwed stem—shown coming through elbow in Cut No. 2—is for the purpose of increasing or decreasing the flow of water according to the capacity of the pump to which it is attached.

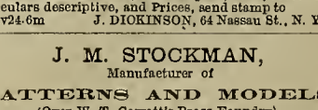


NO. 2.

The exhaust pipe from steam cylinder is screwed into cover at E; the exhaust steam is thus thrown directly into contact with the water entering the condenser on its way to water cylinder of pump through D. A vacuum being of course immediately formed, acts on the exhaust side of the steam piston, aiding it in its work. If at any time it is desirable to run the pump without the condenser, it is only necessary to turn the three-way cock, which is placed in the exhaust pipe, into such a position as to cause the steam cylinder to exhaust into the atmosphere; when this is done the pump is perfectly free from the condenser, and acts as if it were not attached. This condenser is specially useful for pumps running in mines, or any other position where trouble is experienced in getting rid of the exhaust steam. Address H. L. BREVOORT,
6v23eowly 128 Broadway, New York City.

Phœnixville Bridge Works
OF PENNSYLVANIA.
CLARKE, REEVES & CO.,
ENGINEERS AND BUILDERS.
NEW BRIDGES, VIADUCTS, ROOFS, ETC.
Would respectfully call the attention of the officers of Railway Companies, and Engineers having charge of New Bridge Constructions, to their new
Album of Designs,
showing various styles of New Railroad Bridges, Viaducts, etc., which they have either constructed or are prepared to construct. A copy will be mailed on application to our address, No. 410 Walnut Street, Philadelphia. ap8-1y

DICKINSON'S
Patent Shaped Diamond Carbon-Points.



Diamond and Carbon, shaped or crude, furnished and set for Dressing Mill-Burrs, Emery-Wheels, Grindstones, Conglomerate, Drilling Rock, Sawing or Working Stone, Trueing up Hardened Steel, and for other mechanical purposes. Also Glaziers' Diamonds. See Scientific American, July 24th, Nov. 20th and 27th, 1869; Engineering and Mining Journal, Jan. 17th, 1871; Journal of the Franklin Institute, Philadelphia, June, 1870. For Circulars descriptive, and Prices, send stamp to
1v24-6m J. DICKINSON, 64 Nassau St., N. Y.

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Manufacturer of
PATTERNS AND MODELS,
(Over W. T. Garratt's Brass Foundry),
N. W. corner Natoma and Fremont streets, S. F. Entrance on Natoma street. 6v23-3m

DR. LIVINGSTONE.—The Council of the Royal Geographical Society have undertaken, with the assent of Her Majesty's Government, though not with its immediate official assistance, the "Livingstone Search and Relief Expedition." They propose to send a steamer to Zanzibar and proceed, according to the advice they may receive there, to try and find some tidings of the lost explorer. The expedition will prosecute the search until something definite concerning his fate is learned.

Daily Weather Record,

BY THE U. S. ARMY SIGNAL SERVICE, FOR THE WEEK ENDING WEDNESDAY, MARCH 6, 1872.

Place of Observation.	Date.	Observation taken at 9 A. M.	Height of Barometer.	Thermometer.	Rel. Humidity.	Direction of Wind.	Vel. of Wind. Miles per Hour	Force of Wind. 0=Calm, 1=Approx. Scale, 12=Hurricane	Amount of Lower Cloud. Eighths since last Report.		State of Weather.
San Fran'co.	Thu...7	30.36	50	93	S. E.	6	Fresh	1-4			Fair
	Fri....8	30.23	52	86	W.	15	Brisk	4-4			Cloudy
	Sat....9	30.11	54	99	S.W.	7	Fresh	4-4		.25	Threat'g
	Sun..10	30.09	51	93	Calm						Clear
	Mon..11	29.95	58	98	S. W.	4	Gentle	4-4		.30	Threat'g
	Tu....12	30.06	51	86	S.W.	6	Fresh	4-4		.19	Lt. Rain
	Wed..13	30.35	48	78	Calm						Clear
Virg'a, M. T.	Thu...7	29.79	19	61	E.	4	Gentle			.08	Clear
	Fri....8										
	Sat....9										
	Sun..10										
	Mon..11	29.49	27	88	Calm			4-4			Lt. Snow
	Tu....12										
	Wed..13	29.62	16	77	S. E.	10	Fresh	2-4		.07	Threat'g
Corinne.	Thu...7	30.09	34	79	N.	6	Fresh				Clear
	Fri....8										
	Sat....9										
	Sun..10										
	Mon..11	29.90	38	80	S. E.	2	Light	3-4			Cloudy
	Tu....12	29.85	36	93	S.	15	Brisk	4-4		.18	Lt. Rain
	Wed..13	29.87	31	89	N.	10	Fresh	4-4		.01	Lt. Snow
Cheyenne.	Thu...7	29.77	27	99	N.	27	Brisk	1-4			Lt. Snow
	Fri....8										
	Sat....9										
	Sun..10										
	Mon..11	29 94	20	72	S. W.	8	Gentle	4-4			Cloudy
	Tu....12	29. 69	33	61	N.W.	17	Brisk				Clear
	Wed..13	29.87	28	88	S. W.	25	Brisk	1-4			Cloudy
Denver.	Thu...7	29.74	34	89	N.	23	Brisk	4-4			H & Slt
	Fri....8										
	Sat....9										
	Sun..10										
	Mon..11	29 98	24	74	Calm			1-4			Fair
	Tu....12	29.67	40	56	S.	10	Fresh				Clear
	Wed..13	29.94	32	69	S.	2	Light	3-4			Cloudy
Omaha.	Thu...7	29.82	36	55	S. E.	16	Brisk	4-4		.25	Cloudy
	Fri....8										
	Sat....9										
	Sun..10										
	Mon..11	30.20	12	80	N.	24	Fresh				Clear
	Tu....12	29.88	28	88	S. E.	13	Fresh	1-4			Fair
	Wed 13	30.04	26	75	N.	10	Fresh	1-4			Fair
Davenport, I.	Thu...7	30.30	27	88	E.	15	Brisk	3-4		.05	Cloudy
	Fri....8										
	Sat....9										
	Sun..10										
	Mon..11	30.12	26	64	N.W.	3	Gentle	4-4			Lt. Snow
	Tu....12	30.38	25	88	Calm			2-4			Fair
	Wed..13	29.94	40	63	N.W.	4	Gentle	1-4			Fair

Mining Companies

Should advertise their Meetings, Assessments, and Sales, in the SCIENTIFIC PRESS. Rates more than one-half less than daily publications. Stockholders should take the hint and request their managers to truly economize by advertising in a MINING JOURNAL, where all notices may be seen by cheaply purchasing and examining a weekly. You will thus save money and uphold a journal which upholds your interests

RICHARD H. BUEL, Consulting Mechanical Engineer, 7 Warren Street, New York. Advice and assistance given to those who desire to invest funds in meritorious and valuable Patent Rights. Machinery of all kinds bought and sold. Unusual facilities for testing engines, boilers and other machinery. I refer particularly to Professor R. H. Thurston, of the Stevens Institute of Technology, who has consented to associate himself with me in consultation on matters of special importance. 10v24-13t

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With Punctuality, Cheapness and Dispatch.

26v23-3m-hp

Miners Using Powder

Containing Nitroglycerine, giving off deleterious odors, should read the description, in the SCIENTIFIC PRESS, August 6, 1871, of the patented process for instantly dispelling the noxious gases; and for further information address Dr. A. Blatchley, patentee, at SCIENTIFIC PRESS Office, S. F. 8v24tf

PLUMBAGO CRUCIBLES.

MOROAN'S CELEBRATED PLUMBAGO CRUCIBLES, all sizes (except 25 and 30), from No. 1 to 100, for sale low to close consignment.

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RICHARD H. STRETCH, Civil Engineer,

City and County Surveyor.

Office—Room 16, City Hall. 11v23-3m

PURCHASERS please say advertised in SCIENTIFIC PRESS.

CENTRAL PACIFIC RAILROAD.

March 10th, 1872.

San Francisco & Sacramento.

Leave going East.			Arrive from East.	
*4.00 P M	7.00 A M	San Francisco	8.30 P M	*2.20 P M
4.35 P M	7.35 A M	Oakland	8.00 P M	1.50 P M
4.10 P M	7.10 A M	San Jose	8.30 P M	2.10 P M
5.35 P M	8.35 A M	Niles	7.05 P M	12.45 P M
8.25 P M	11.28 A M	Lathrop	4.43 P M	9.45 P M
8.48 P M	11.50 A M	Stockton	4.07 P M	9.07 P M
10.45 P M	1.45 P M	Sacramento	2.20 P M	7.15 A M
Arrive from West.			Leave going West.	

San Francisco & San Jose.

Leave going South			Arrive from South	
.....	3.00 P M	San Francisco	10.40 A M	.....
.....	4.40 P M	Niles	9.35 A M	.....
.....	5.30 P M	San Jose	7.10 A M	.....
Arrive from North.			Leave going North	

Stockton, Lathrop & Merced.

Leave going South			Arrive from South	
.....	7.35 P M	Stockton	10.20 A M	.....
*9.45 A M	8.25 P M	Lathrop	9.30 A M	*6.20 P M
11.35 A M	9.45 P M	Modesto	8.13 A M	6.45 P M
2.40 P M	12.15 A M	Merced	5.45 A M	3.30 P M
Arrive from North			Leave going North	

Sacramento, Colfax, Reno & Ogden.

Leave going East.			Arrive from East.	
	2.00 P M	Sacramento	2.00 P M	
	5.40 P M	Colfax	10.20 A M	
	1.00 A M	Reno	2.10 A M	
	9.10 A M	Winnemucca	5.25 P M	
	12.00 M	Battle Mountain	1.25 P M	
	4.40 P M	Elko	8.45 A M	
	6.20 A M	Ogden	5.20 P M	
Arrive from West.			Leave going West.	

Sacramento, Marysville & Red Bluff.

Leave going North			Arrive from North	
*8.45 A M	2.35 P M	Sacramento	1.05 P M	*1.45 P M
10.25 A M	3.25 P M	Junction	12.15 P M	3.25 P M
1.50 P M	5.15 P M	Marysville	10.20 A M	12.00 M
8.00 P M	8.35 P M	Tehama	6.50 A M	5.30 A M
.....	9.30 P M	Red Bluff	6.00 A M	.....
Arrive from South			Leave going South	

San Francisco, Vallejo & Calistoga.

Leave going North			Arrive from North	
*4.00 P M	6.20 A M	San Francisco	8.00 P M	*11.30 A M
6.30 P M	8.30 A M	Vallejo	6.05 P M	9.30 A M
7.18 P M	10.40 A M	Napa	4.50 P M	8.30 A M
8.50 P M	1.00 P M	Calistoga	3.00 P M	7.00 A M
Arrive from South			Leave going South	

San Francisco, Vallejo & Knight's Landing.

Leave going East.			Arrive from East.	
†7.30 A M	*4.00 P M	San Francisco	*11.30 A M	*8.00 P M
9.35 A M	6.35 P M	Vallejo	9.30 A M	6.05 P M
12.05 P M	10.10 P M	Davis	6.40 A M	3.3 P M
1.00 P M	11.15 P M	Knight's Land'g	5.00 A M	2.30 P M
Arrive from West.			Leave going West.	

San Francisco & Healdsburg.

Leave going North			Arrive from North.	
.....	*2.00 P M	San Francisco	*11.00 A M	.....
.....	4.35 P M	Donahue	8.45 A M	*5.35 P M
8.20 A M	5.00 P M	Petaluma	8.29 A M	5.00 P M
9 45 A M	6.00 P M	Santa Rosa	7.30 A M	3.30 P M
10.20 A M	6.45 P M	Healdsburg	6.45 A M	2.00 P M
Arrive from South			Leave going South	

Stockton, Milton & Oak Dale.

Leave going South			Arrive from South	
.....	*11.25 A M	Stockton	*4.25 P M	.....
.....	11.52 A M	C.P.R.R. Depot.	3.52 P M	.....
.....	12.42 P M	Peters	3.02 P M	.....
.....	1.22 P M	Milton	2.12 P M	.....
.....	1.44 P M	Oak Dale	2.00 P M	.....
Arrive from North			Leave going North	

CAL. P. R. R. CO.'S STEAMERS.

Leave going East.			Arrive from East.	
*4.00 P M	*4.00 P M	San Francisco	*10.00 P M	*8.00 P M
6.00 P M	.....	Vallejo	.....	6.00 P M
7.00 P M	6.00 P M	Benicia	8.00 P M	5.00 P M
.....	2.00 A M	Stockton	2.00 P M	.....
2.00 A M	.....	Sacramento	.....	12.00 M.
Arrive from West.			Leave going West.	

☞ **Explanation.** ☜

For trains running "from" San Francisco, take the left hand columns and read downwards.

For trains running "towards" San Francisco, take the right hand columns and read upwards.

OAKLAND BRANCH.—LEAVE SAN FRANCISCO, 7 00, 8 10, 9 2 , 10 10 and 11 20 a. m., 12 10, 1 50, 3 00, 4 00, 5 15, 6 30, 8 00 9.20 and *11 30 p. m. (9 20, 11 20 and 3 00 to Oakland only).

LEAVE BROOKLYN, *5 30, 6 40, 7 50, 9 00 and 11 00 a. m., 1 30, 2 40, 4 55, 6 10, 7.40 and 10 10 p. m.

LEAVE OAKLAND, *5 40, 6 50, 8 00, 9 10, 10 00, and 11 10 a. m., 12 00, 1 40, 2 50, 3 50, 5 05, 6 20, 7.50 and 10 20 p. m.

ALAMEDA BRANCH.—LEAVE SAN FRANCISCO, 7 20, 9 00, and 11 15 a. m., 1 30, 4 00, 5 30, and 7 00 p. m. (7 20, 11 15, and 5 30 to Fruit Vale only).

LEAVE HAYWARDS, *4 30, 7 00 and 10 45 a. m., and 3 30 p. m.

LEAVE FRUIT VALE, *5 25, 7 35, 9 00 and 11 20 a. m., 1 30, 4 05 and 5 30 p. m.

*Sundays excepted. †Sundays only.

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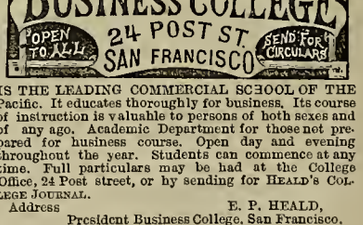

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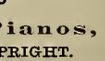

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Shareholders' Meeting — Office of the

Eagle Quicksilver Mining Company.

In accordance with a resolution adopted at a meeting of the Trustees of the Eagle Quicksilver Mining Company, duly held on the 15th day of March, 1872, a special meeting of the stockholders of said company is hereby called, to be held at the office of the company, Room No. 5, No. 30: Montgomery street, San Francisco, California, on Monday, the 25th day of March, 1872, at the hour of 4 o'clock P.M. of said day, to elect two Trustees to fill vacancies in the Board, and for the transaction of such other business as may lawfully come before it.

WM. H. WATSON, Secretary.

San Francisco, March 16th, 1872. mar16-2t

Kincaid Flat Mining Company—Location

of works, Tuolumne County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 11th day of February, 1872, an assessment of three dollars per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Sec'y, at his office, No. 220 Clay street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 18th day of March, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 8th day of April, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

R. H. CORNELL, Secretary.

Office, 220 Clay street, San Francisco. fe24-td

Marcelina Silver Mining Company.—Lo-

cation of Works: Eureka District, Lander County, Nevada.

Notice is hereby given that at a meeting of the Board of Trustees of said company held on the eighth day of March, 1872, an assessment of ten cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company, Room 21, Hayward's Building, 419 California street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the fifteenth day of April, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the seventh day of May, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

CHAS. E. ELLIOTT, Secretary.

Office, Room 21, Hayward's Building, 419 California street, San Francisco, California. mar19-3w

Nuestra Senora de Guadelupe Silver Min-

ing Company.—Location of Works: Tayoltita, San Dimas District, Durango, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twelfth day of May, 1869, an assessment of two dollars per share was levied upon the assessable capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, E. J. Pfeiffer, No. 210 Post street, or to the Treasurer, A. Himmelmann, No. 637 Washington street, San Francisco, to settle the indebtedness of the said Company.

And whereas there has been an error in the course of proceedings for the collection of said Assessment, by reason of which, as provided by law, all previous proceedings, except the levying of the Assessment, are void, and publication required to be begun anew, NOW, therefore, by order of the Board of Trustees of said Company, at a meeting of said Trustees, held on the eighth day of March, 1872, said Assessment is hereby re-published, and notice thereof given as follows, to wit:

Nuestra Senora de Guadelupe Silver Min-

ing Company.—Location of Works: Tayoltita, San Dimas District, Durango, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twelfth day of May, 1869, an assessment of two dollars per share was levied upon the assessable capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, E. J. Pfeiffer, No. 210 Post street, or to the Treasurer, A. Himmelmann, No. 637 Washington street, San Francisco, to settle the indebtedness of the said Company.

Any stock upon which said assessment shall remain unpaid on the fifteenth day of April, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the eighth day of May, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

E. J. PFEIFFER, Secretary.

Office, No. 210 Post street, San Francisco, California.

Piermont Milling and Mining Company—

Location of works, Piermont District, White Pine county, Nevada.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the 25th day of January, 1872, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Am't.
Briggs, Chas A	16	533⅓	$466 67
Briggs, Chas A	47	111	88 80
Flint, Benj	6	1750	1400 00
Flint, Benj	27	2525	2020 00
Flint, Benj	44	814	651 20
Perkins, J E, Trustee	32	1500	733 33
Perkins, J E, Trustee	40	286	139 83
Perkins, Jas E	4	1750	1400 00
Perkins, Jas E	42	719	575 20
Perkins, Jas E	34	2025⅓	1620 26

And in accordance with law, and an order of the Board of Trustees, made on the 25th day of January, 1872, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the said Company, on Saturday, the 23d day of March, 1872, at the hour of 2 o'clock P.M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

J. W. CLARK, Secretary.

Office, 418 California street, San Francisco, Cal. 2w

Pocahontas Gold Mining Company—Lo-

cation of works, Mud Springs, El Dorado County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 26th day of February, 1872, an assessment of Five Dollars per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, Room No. 26, Hayward's Building, No. 419 California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on Saturday, the 6th day of April, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before will be sold on Monday, the 6th day of May, 1872, to pay the delinquent assessment thereon, together with costs of advertising and expenses of the sale.

D. A. JENNINGS, Secretary.

Office, Room No. 26, Hayward's Building, 419 California street, San Francisco, Cal.

February 26, 1872. mar2-5w

Quail Hill Mining and Water Company—

Location of works, Salt Springs Valley, Calaveras County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 15th day of February, 1872, an assessment of $5 dollars per share was levied upon the capital stock of said Company, payable immediately in United States gold coin, to the Secretary, at the office of the Company, No. 409 California street, up stairs, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 26th day of March, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 16th day of April, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. F. CRONISE, Secretary.

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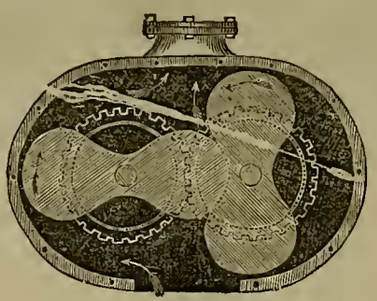

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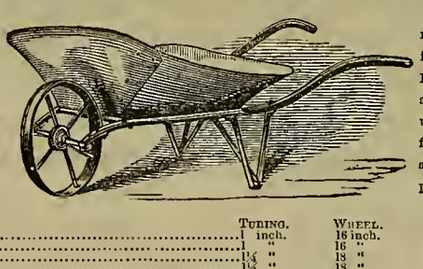

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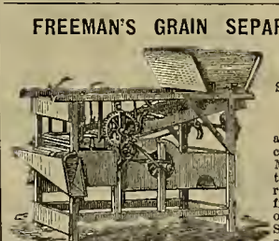

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NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the seventh day of February, 1872, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Geo. F. Sharp	1	200	$300
W. H. N. Cronise	2	200	300
G. B. Merrill	3	60	90
J. W. Griswold	4	50	75
J. W. Griswold, Jr.	5	100	150
E. J. Griswold	6	50	75
Geo. W. Merritt	7	50	75
A. C. Wallop	8	50	75
T. F. Cronise	10	140	210
Mrs. S. L. Griswold	11	50	75
B. M. Griswold	12	50	75
Geo. W. Gilmore	13	50	75
H. E. Watson	14	50	75
Walter Roby	15	50	75
J. H. Brown	9	50	75

And in accordance with law, and an order of the Board of Trustees, made on the 7th day of February, 1872, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Company, 409 California street, San Francisco, Cal., on the 3d day of April, 1872, at the hour of 12 o'clock M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale. T. F. CRONISE, Secretary.

Office—409 California street, San Francisco, Cal.

mar16-3t

Spring Mountain Tunnel Company, Ely

Mining District, Piocho, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 12th day of March, 1872, an assessment of fifteen cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, Room 37, Merchants' Exchange, California street, city and county of San Francisco, California. Any stock upon which said assessment shall remain unpaid on the 22d day of April, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 13th day of May, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. M. BUFFINGTON, Secretary.

Office, Room 37, New Merchant's Exchange, California street, San Francisco, California. mar16-td

San Francisco, March 16, 1872.

Tecumseh Gold, Silver and Copper Min-

ning Company Location of Works: Gopher District, Calaveras County California.

NOTICE.—There are delinquent upon the following described stock, on account of Assessment levied on the 23d day of January, 1872, the several amounts set opposite the names of the respective Shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Charles Osmer	6	10	$ 40 00
Charles Osmer	31	2	8 00
Charles Osmer	32	2	8 00
Charles Osmer	33	1	4 00
Charles Osmer	132	35	140 00

And in accordance with law and an order of the Board of Trustees, made on the 23d day of January, 1872, so many shares of each parcels of said stock as may be necessary, will be sold at public auction, by Maurice Dore & Co., at No. 327 Montgomery street, San Francisco, Cal., on Saturday the 16th day of March, 1872, at the hour of 12 o'clock M., of said day, to pay said delinquent Assessment thereon, together with costs of Advertising and expenses of sale.

F. J. HERRMANN, Secretary.

Office—516, Kearny st., San Francisco. mar2-3t

Wm. Penn Consolidated Gold and Silver

Mining Company—Location of works, Storey and Lyon Counties, State of Nevada.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the 25th day of January, 1872, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. of Certificate.	No. of Shares.	Am't.
George Stead	18	25	25 00
George Stead	19	25	25 00
George Stead	20	25	25 00
George Stead	21	21	21 00
H J T Scheel	25	50	50 00
H J T Scheel	26	50	50 00
H J T Scheel	27	25	25 00
H J T Scheel	28	25	25 00
H J T Scheel	29	2	2 00
B J Scheel	30	50	50 00
B J Scheel	31	50	50 00
B J Scheel	32	25	25 00
B J Scheel	33	25	25 00
B J Scheel	34	2	2 00
Frank Kruyer	35	30	30 00
Frank Kruyer	36	25	25 00
Frank Kruyer	37	25	25 00
H F Rice	42	50	50 00
H F Rice	43	50	50 00
H F Rico	44	50	50 00
H F Riee	45	10	10 00
S D Prescott	49	24	24 00
John W York	53	25	25 00
Henry R Reed	15	6	6 00
Henry R Reed	16	6	6 00
Henry R Reed	17	4	4 00
John F Sears	13	2	2 00
Alfred Deenove	3	5	5 00
W P C Stebbins	1	28	28 00
Gregory Yale	4	17	17 00
E H Doty	8	10	10 00
E H Doty	10	12	12 00
E H Doty	11	10	10 00
E H Doty	12	10	10 00
W E F Krause	9	1	1 00
E F Stone	5	88	88 00
E H Doty	unissued	165	165 00
Henry Tomey, Trustee	unissued	155	155 00
George Hearst	unissued	46	46 00
L M Pearlman	unissued	94	94 00
Jacob C Clark	unissued	52	52 00
H F Cutter	unissued	106	106 00
Thos. McNamara	unissued	50	50 00
W H Bremer	unissued	50	50 00

And in accordance with law and an order of the Board of Trustees, made on the 26th day of January, 1872, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the auction house of John Middleton & Son on the 21st day of March, 1872, at the hour of 1 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of Sale.

ma3-3t HENRY TOOMY, Secretary.

Office, No. 338 Montgomery street, Rooms 3 and 4.

Important to Miners.

FREY'S IMPROVEMENT ON

Evans' Under Current and Sluices.

For Saving Fine Gold and Floating Quicksilver.

For particulars address

WATERS & CO., Assayers, Agents,
NO. 54 J STREET, SACRAMENTO.
3v24-3m

Machinists and Foundries.

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO

IRA P. RANKIN, A. P. BRAYTON,
GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS

Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

☞ Particular attention paid to Jobbing Work and Repairs.

N. B.—Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR.

18v20-3m GODDARD & CO.

FULTON
Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

E. corner of Tehama and Fremont streets, above Howe street, San Francisco. 3-qy

GEORGE T. PRACY,
MACHINE WORKS,

109 and 111 Mission Street,

SAN FRANCISCO.

These Works have lately been increased, by additional Tools, and we are now able to turn out any kind of work, equal to and cheaper than any establishment in the State; that is to say:—

STEAM ENGINES,
Flour and Saw Mills,
QUARTZ MACHINERY
Printing Presses,

AND MACHINERY MADE OF EVERY DESCRIPTION.

Improved Safety Store Hoists,

Fitted with Cutting's Patent Came, unequaled for safety, convenience and cheapness. This Hoist can be built for about half the price of any other in use. To be seen at HAWLEY & CO.'S.

ALSO, MANUFACTURER AND SOLE AGENT FOR

Pracy's Celebrated Governor.

TURNING LATHES, Etc., constantly on hand.

4v23tf

UNION IRON WORKS,

Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR
WILCOX'S PATENT WATER LIFTERS,
Dunbar's Patent Self-Adjusting Steam Piston
PACKING, for new and old Cylinders.
And all kinds of Mining Machinery.
Front Street, between N and O streets,
SACRAMENTO CITY

PACIFIC
Rolling Mill Company,

SAN FRANCISCO, CAL.

Established for the Manufactnre of

RAILROAD AND OTHER IRON
—AND—
Every Variety of Shafting,

Embracing ALL SIZES f
Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames
—ALSO—
HAMMERED IRON

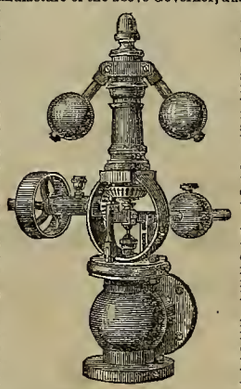
Of every description and size.

☞ Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will celve prompt attention

☞ The highest price paid for Scrap Iron 9v14Sm

THE GARDNER AUTOMATIC SAFETY-STOP GOVERNOR.

These Governors have now been sold in this market for several years, and wherever once introduced and made known, are invariably sought after. They are in the Eastern States fast displacing all other Steam Governors, and are regarded as *the perfect regulator*. They are manufactured by Messrs. Gorchur & Robertson, practical engineers, who have given many years time exclusively to their manufacture and perfection. The manufacturers say: After an experience of eleven years in the manufacture of the above Governor, during which time several important improvements have been made and two additional patents obtained, we feel justified in recommending it to all parties using Steam power, and warranting it to be the most perfect regulator in the market.



The Gardner Governor is so well known that we think it unnecessary to enter into a detailed explanation of the principles involved, or details in its construction, merely giving the leading objects realized by this important invention. The Governor combines with the greatest simplicity of construction, accurate regulation of speed, POSITIVE INSURANCE AGAINST ALL ACCIDENTS LIABLE TO OCCUR FROM SLIPPING OR PARTING THE GOVERNOR OR DRIVING BELTS, and a convenient arrangement for ADJUSTING THE SPEED OF THE ENGINE WHILE IN MOTION, without change of pullies.

The construction of the Governor is extremely simple, having no springe, inside joints, swivels, or parts liable to disarrangement, all the several parts are duplicates of each other in the same series; the most skillful workmen are employed, the best material used and the machinery employed especially adapted to their manufacture. The valve is most PERFECTLY BALANCED, and the Governor is built with a view of securing the quickest and most sensitive action possibly attainable in a steam regulator. Thus with accurate machinery, and skilled labor, and devoting our WHOLE ATTENTION to the manufacture of THIS ONE ARTICLE, we are able to produce a perfect and reliable Governor at a low price.

We do not publish any letters of recommendations, but can give references to upwards of 5,000 PARTIES THROUGHOUT THE UNITED STATES, who are using the Gardner Governor.

We would especially invite the attention of steam Engine Builders to this Governor, feeling assured that they can purchase for less than they can make an inferior article, and thereby increase the value and sales of their Engines.

We respectfully refer to the following parties using the GARDNER GOVERNOR, and can speak understandingly of its merits: Oakland Cotton Mills, the Selby Lead and Silver Smelting Works, L. & E. Emanuel, Vulcan Iron Works, Fulton Foundry, Levison Bros., Cal. Jewelry Co., Pioneer Woolen Factory, D. A. McDonald & Co., and others in San Francisco; Ophir Co., Lady Bryan, and Sacramento and Meredith Mills, John McCone, Virginia, Nev.; Globe Iron Works, Stockton; A. F. Chury, Albany, Oregon, and many others.

☞ WE WARRANT these Governors to give perfect regulation of speed under all circumstances; and if there is one within one thousand miles of San Francisco, that is not giving perfect satisfaction, it may be returned to us at our expense, and we will exchange it for any other Governor in the country, or refund its price.

☞ When ordering please state whether THROTTLE-VALVE is wanted or not; and whether BLOCK or FINISHED Governor is desired. **THE RATE OF SPEED FOR GOVERNOR IS FULLY STAMPED ON THE REVOLVING HEAD OF EVERY GOVERNOR. Send for circular and price list to

TREADWELL & CO.,

Agents for Pacific States, San Francisco.

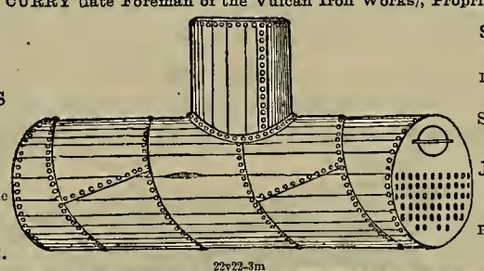
☞ At Treadwell & Co.'s (late BERRY & PLAGE'S) Machinery and Supply Depot may be found in stock the above Governors, together with all sizes of HOADLEY'S PORTABLE ENGINES, BLAKE'S STEAM PUMPS, STURTEVANT BLOWERS, PORTABLE DRILLS, TAPS AND DIES, DREYFUS'S CYLINDER LUBRICATORS, Etc. Also a heavy stock of HARDWARE AND MINING TOOLS, LEATHER BELTING, LINEN HOSE, BOILER FELT (saves 25 per cent. of fuel), SELF-OILERS, LACE LEATHER, STEAM PACKING (all kinds), BELT STUDS, Etc., Etc., embracing every description of Engineers' and Machinists' supplies and Millmen's findings. 7v24-tf

San Francisco Boiler Works, 123 and 125 Beale Street, San Francisco.

F. I. CURRY (late Foreman of the Vulcan Iron Works), Proprietor.

High and Low Pressure BOILERS of all descriptions.

SOLE Manufacturers of the CELEBRATED SPIRAL BOILER.



Sheet Iron Work of every DESCRIPTION done at the Shortest Notice.

All kinds of JOBBING and Repairing Promptly Attended to.

22v22-3m

To Coal Operators, Miners and Railroad Corporations.

YOUR ATTENTION IS INVITED TO

THE GRICE & LONG LOCOMOTIVE WORKS,

1340 Beach Street, Philadelphia, Penn.

Patentees and Builders of Mining and other Locomotives;

☞ Also, Patent Traction Engines for Snburban and NARROW GAUGE Roads, Furnaces, Quarries, Contractors, Etc. Now extensively introduced and indorsed by many of the Largest Coal Operations and Furnaces in Pennsylvania and elsewhere—and adapted for gauges of two feet and over, and weighing from four to nine tons.

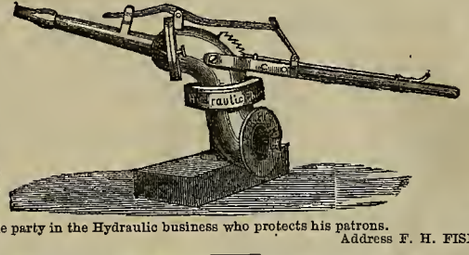
Messrs. G. & L. were the PATENTEES AND BUILDERS of the FIRST COLLIERY LOCOMOTIVE introduced into the Mining District of Pennsylvania.

SEND FOR CIRCULAR AND PHOTOGRAPHS.

23v22-3m

HYDRAULIC CHIEF.

FISHER'S KNUCKLE JOINT AND NOZZLE IS THE Cheapest and Best Hydraulic Machine in use.



MACHINES Manufactured TO ORDER, to throw from One to an eight-inch STREAM.

The only reliable party in the Hydraulic business who protects his patrons.

9v23-tf Address F. H. FISHER, Nevada, Cal.

HYDRAULIC MINERS, TAKE NOTICE—I hereby caution Miners and Manufacturers against making, buying, selling or using a Hydraulic Machine or Joint known as the Little Giant, manufactured and sold by R. R. & J. Craig and Richard Hoskin, as the same is an infringement upon the invention of the machine known as FISHER'S HYDRAULIC CHIEF, secured by Letters Patent, No. 110,222, dated Dec. 20, 1870. All parties participating in such infringements will be rigorously prosecuted. Nevada, Jan. 13th. F. H. FISHER.

THOMPSON BROTHERS,
EUREKA FOUNDRY,

129 and 131 Beale street, between Mission and Howard San Francisco.

LIGHT AND HEAVY CASTINGS,
of every description, manufactnred 24v16qr

SAN FRANCISCO
SCREW BOLT WORKS,

PHELPS BROTHERS, Proprietors,

MANUFACTURERS OF ALL KINDS OF

Machine Bolts, Bridge Bolts, and Ship or Band Bolts.

13 and 15 Drumm Street, San Francisco. 4v24ly

H. J. BOOTH & CO.,
UNION IRON WORKS,

(The Oldest and most Extensive Fonndry on the Pacific Coast).

Cor. First and Mission Sts.,

SAN FRANCISCO.

Marine, Locomotive and Stationary Engines, Quartz Crushing and Amalgamating Machines, Mill Irons and Brass and Iron Castings, of every description, made to order.

Steamboat Repairing, Boiler Making, Turning and Finishing,

EXECUTED WITH DISPATCH.

Beet Sugar Machinery complete in every part—made a specialty.

OIL MACHINERY.

A complete set of Machinery of our own design and patent for extracting oil from Castor Bean, dispensing with Hair Cloth. Also Machinery for Flax Seed Oil, Mustard Seed Oil, and Sun Flower Seed Oil.

MARBLE MACHINERY

For sawing Marble of any thickness or size.

Irrigating Pumps. Steam Pumps.

Plans, Estimates, and Advice promptly supplied.

H. J. BOOTH. GEO. W. PRESCOTT. IRVING M. SCOTT

4v24-1yslamr

COPARTNERSHIP NOTICE.

We have this day admitted Mr. William R. Eckart as a member of our firm, the business of which will be hereafter conducted under the firm name of Prescott, Scheidel & Co. PRESCOTT & SCHEIDEL.

Marysville, Jan. 8, 1872.

MARYSVILLE FOUNDRY.

Referring to the above, we respectfully solicit the patronage which has for the past twenty years been enjoyed by our predeceseors, pledging our best attention to the wants of all who may so favor us.

Quartz and Amalgamating Machinery,

SAW AND GRIST MILLS,
STEAM ENGINES,
HYDRAULIC MACHINES,
HOUSE FRONTS, ETC.

Repairs upon all kinds of machinery promptly made and at moderate chargee. Having unrivalled facilities, we are prepared to make to order, at short notice, everything required in our line.

Specimens of our work may bo seen in all the mining regions on this coast.

5v24-3m PRESCOTT, SCHEIDEL & CO.

THE RISDON
Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1868.
CAPITAL.....$1,000,000.

LOCATION OF WORKS:
Corner of Beale and Howard Streets,
SAN FRANCISCO.

Manufacturers of Steam Engines, Quartz and Flour Mill Machinery, Steam Boilers (Marine, Locomotive and Stationary), Marine Engines (High and Low Pressure). All kinds of light and heavy Castings at lowest prices. Cams and Tappets, with chilled faces, guaranteed 40 per cent. more durable than ordinary iron.

Directors:

Wm. Alvord,	O. J. Bremham,	O. E. McLane,
Wm. Norris,	Wm. H. Taylor,	Lloyd Tevis,
	James D. Walker.	

WM. H. TAYLOR.....President.
C. E. McLANE.....Vice President.
JOSEPH MOORE.....Superintendent.
LEWIS R. MEAD.....Secretary.

24v17-qy

OCCIDENTAL FOUNDRY,

137 and 139 First st., near the Gas Works, San Francisco.

STEIGER & BOLAND,

IRON FOUNDERS.

IRON CASTINGS of all descriptions at short notice.

NOTICE.—Particular attentfon paid to the making of Superior Shoes and Dies. 3v24-3m

Miners' Foundry and Machine Works,

CO-OPERATIVE,

First Street, bet. Howard and Folsom, SAN FRANCISCO.

Machinery and Castings of all kinds.

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Machinery.

POWER, TAINTER & CO.,

MANUFACTURERS OF

WOOD-WORKING MACHINERY,

3003 Chestnut street (West end Chestnut street Bridge) PHILADELPHIA.

☞ Woodworth Planers a Specialty. 2v23-1y

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,

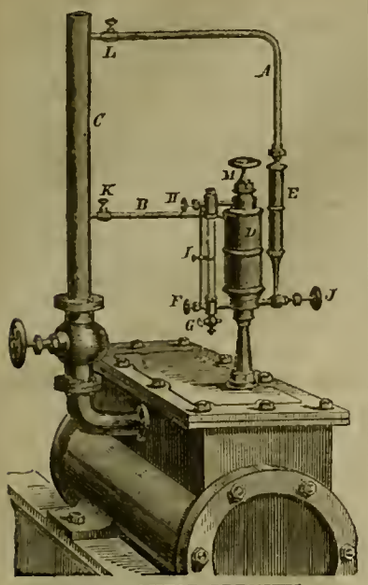
SAN FRANCISCO.

ALL KINDS of Brass, Composition, Zinc, and Babbitt Meta Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch

☞ PRICES MODERATE. ☜

J. H. WEED V. KINGWELL.

N. Seibert's Eureka Lubricators.



THE HIGHEST PREMIUM

Awarded by the Mechanics' Institute Fair, San Francisco, and State Fair, Sacramento, 1871.

These Lubricators are acknowledged by all engineers to be superior to any they have ever used; feed constantly by pressure of condensed water, supplied by pipe A, regulated under the oil by valve J, and forced out through check valve and pipe B into the steam pipe C; it then becomes greasy steam, passes to all the valves and cylinder at every stroke of the engine; glass tube I indicates amount used per hour. Packing on rods and stems lasts longer, and the rings on the piston will not corrode. One pint of oil will last from three to six days, according to speed and size of engine; I, sliding gauge; K, valve to shut off when engine stopps; H, F, valves to shut off in case of frost; steam does not enter the cup; it is always cool; warranted to give satisfaction. Patented February 14, 1871. Manufactured by California Brass Works, 125 First street, S. F. 24v23tf

California File Manuf'g Co.

Potrero, Solano street, bet. Tennessee and Minnesota streets, SAN FRANCISCO.

Manufacturers of New Files.

Old Files re-cut and warranted equal to new.

REAPER AND MOWER SECTIONS, BARS AND KNIVES COMPLETE,

at a saving of 50 per cent. Orders from the country promptly attended to. 9v19-hy

Notice is hereby given, that the copartnership

heretofore existing between A. J. Severance, Charles W. Randall and J. Gus. Burt, under the firm name of "Severance, Holt & Co.," is this day dissolved by mutual consent. A. J. Severance, having purchased all the interest of his late partners, will continue the business of manufacturing and selling Diamond Drills, as before, under the style of A. J. Severance & Co.

Dated San Francisco, Nov. 24, 1871.
Office, 315 California street. A. J. SEVERANCE,
CHAS. H. RANDALL.
22-v23-tf J. GUS. BURT.

JOS. THORNHILL,

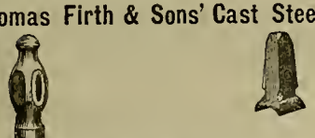
Bricklayer and Contractor.

Particular attention paid to all kinds of Fire Work, such as Boilers, Furnaces, Ovens, Grates, Rangee, etc. Orders left with C. W. WHITE, 47 Clay street, JOS. THORNHILL, 1612 Mason street, near Green, will be promptly attended to. 24v21-3m

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.



MANUFACTURERS OF

Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools.

13 and 15 Fremont street, near Market, San Francis
10v14qr

SHEET IRON PIPE.

THE

Risdon Iron and Locomotive Works

Corner Howard and Beale Streets,

Are prepared to make SHEET IRON AND ASPHALTUM PIPE, of any size and for any pressure, and contract to lay the same where wanted, guaranteeing a perfect working pipe with the least amount of material.

All kinds of CAR WHEELS, AXLES and RAILROAD WORK made to order. Standard sizes of Wheels constantly on hand. Wheels bored and pressed on, Axles turned, etc., at Reasonable Rates.

☞ All kinds of Machinery made and repaired.

24v22-3m JOSEPH MOORE, Superintendent.

THE

Gutta Percha and Rubber Manufacturing COMPANY,

118 Front street, SAN FRANCISCO.

Patent Combination Carbolized Steam Fire Hose, Steam and Petroleum Oil Hose,

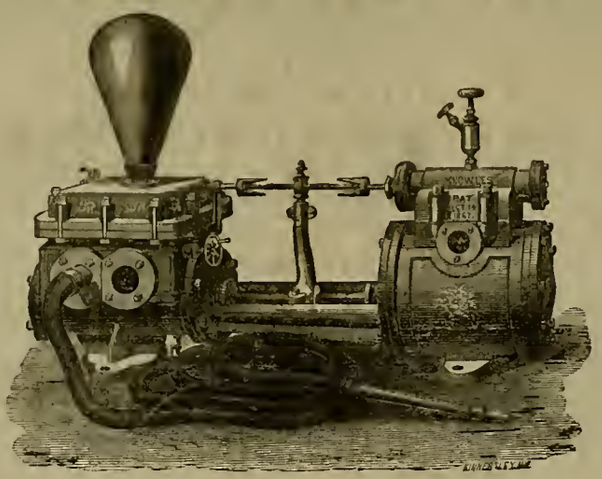
Suction Hose, Hydrant Hose, Conducting Hose, Engine Hose, Round Packing, Rubber Belting, Packing, Valves, Caskets, Pure Vulcanized Sheet Rubber, Fire Buckets.

12v23-3m J. W. TAYLOR, Agent.

KNOWLES' PATENT STEAM PUMP.

Received the Highest Award---A Diploma---

Over all Steam Pump Competitors, at Mechanics' Institute Fair of San Francisco, 1871; also Special Medal and Diploma at State Fair.



It has no Cranks or Fly-Wheel, and has no dead points where it will stop, consequently it is always ready to start without using a starting-bar, and does not require hand-work to get it past the center. Will always start when the steam cylinder is filled with cold water of condensation.

The trial of Steam Pumps at the Eighth Industrial Fair in San Francisco, by a Committee of Five of the most thoroughly practical mechanics on this coast, showed the Knowles Pump to lose but 11½ per cent., while others lost as high as 40 per cent., showing great difference in economy.

CENTRAL PACIFIC R. R., OFFICE OF THE GEN'L MASTER MECHANIC,
SACRAMENTO, Cal., April 14, 1871.

A. L. FISH, Esq., Agent of the Knowles' Steam Pump, San Francisco—Dear Sir: In reply to your inquiry as to the merits of the Knowles' Steam Pump, in use upon this road, I will say that we have nineteen of them in use on this road as fire engines, and pumping water for shop and station use. I consider the Knowles Steam Pump the best in use, and prefer it to any other. Yours truly, A. J. STEVENS, General Master Mechanic.

WE BUILD AND HAVE CONSTANTLY ON HAND

THE LARGEST STOCK OF PUMPS IN THE WORLD,

And for Every Conceivable Purpose.

A. L. FISH, Agent.

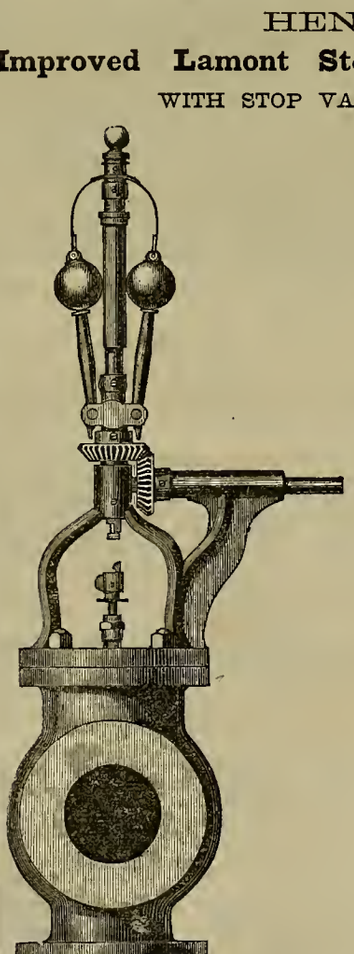
No 9 First Street, San Francisco, Cal.

P. S.—All kinds of new and second-hand Machines on hand. 3v24-eow-bp

HENDY'S

Improved Lamont Steam Engine Regulator,

WITH STOP VALVE ATTACHED.



PERFECTLY RELIABLE.

Rapidly Superceding all other

GOVERNORS

Wherever introduced.

We Invite the Attention of those

INTERESTED IN OR USING

STEAM ENGINES,

TO OUR

IMPROVED REGULATOR AND CUT-OFF,

FOR EITHER

Stationary or Portable

ENGINES.

An Examination Will

BE SUFFICIENT TO SATISFY THE

MOST SKEPTICAL

OF ITS UTILITY AND

SIMPLICITY,

And the many References in Our Possession

FROM ENGINEERS WHO ARE

Using them, attest their

PRACTICAL SUPERIORITY

Over all others.

We refer to Union Iron Works; Pacific Iron Works; Fulton Iron Works; M. Taylor, Grass Valley; Phœnix Quicksilver Mining Co., Napa Co.; Samuel McCurdy, Nevada Co., and others.

JOSHUA HENDY,

Office and Works, 32 Fremont Street, San Francisco.

Hendy's Ore Concentrators and Circular Saw Mills. 4v24-1am-tf

Metallurgy and Ores.

RODGERS, MEYER & CO.,

COMMISSION MERCHANTS,

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ANTIOCH, Contra Coata county, Cal., Feh. 29, 1872.—Messrs. DEWEY & CO.: I take great pleasure in acknowledging the receipt of letters patent for dish-washing machine. Please accept many thanks for the expeditious manner in which you have done the business I intrusted to yon. I am perfectly satisfied that your firm has no superiors as patent solicitors or legal advisers in patent matters on the Pacific Coast.

CATHERINE WOODRUFF.

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DUN GLEN, March, 1872.

MR. ALMARIN B. PAUL—SIR:—Yours asking for statement of tests made at Sprague & Co.'s new mill at this place is received, and we here cheerfully oomply as follows: We reduced 22 tons of ore from the Anburn mine, owned hy Messrs. Wright & Wentworth, containing besides Gold and Silver, Magnetic Iron, Carbonate Oxide, and Sulphuret of Lead. The 22 tons worked by your process, paid $107 per ton. Eleven tons of same ore worked in pans, paid $53 per ton. The hullion from your process runs as high as 989–1000 fine.

We also worked the tailings of a lot of 20 tons of ore from the Monroe Mine, which ore in the first instance was reduced hy battery and pan process, at Essex Mill, and paid $8.14 per ton. The tailings from this lot yielded by your process, $293.27. The hullion per battery and pan working, was 584 fine; by your process as per certificates of San Francisco Assaying and Refining Works, was 960 fine. The loss of mercury was less than half a pound per ton.

We also made a test on a small lot of Iron Sulphurets from Monroe Mine, very closely concentrated, and which had been previously worked by battery and pan amalgamation, and which had been salted, oxidized, and worked several times previously—each time yielding some low grade bullion. This lot was treated hy your process, and to our astonishment ohtained more metal in value, than we had gained hy all the several previous working, though very carefully done. The bullion hy last working, as per certificate of California Assay office, was 999–1000 fine.

We have now commenced on the "Lang Syne" ore, from a mine belonging to the "Great Central Mining Co. of San Francisco," the results of which speak more for your process, and the great revolution the system is likely to inaugurate, and of its inestimable value, than any tests we can give you. That you may fully understand this we must particularize.

In 1863–4–5, the Lang Syne mine was worked, and in 1864 a mill erected for reduction of its ores, and over $100,000.00 expended and lost. The ore could not be made to pay.

The operation was pronounced a failnre, and the mill removed. Tests of ten and twenty tons were also worked at the Essex Mill, having all the then modern improvements, with like unsatisfactory results. The mill just erected for the working of your Process is built upon the same spot where the old mill stood. We have now worked a number of tons of a class of ore of which there are hundreds of tons in sight, with the result of $30 per ton, and bullion 966 fine—heing more than double the result ohtained in other mills.

The same renewed life which this locality has received through the introduction of your radically improved system, we are certain can be extended to others similarly situated, hy the introdnction of your mills.

We will add that we have no difficulty in saving the mercury, and assert that the loss on all ores can be hrought within that of pan amalgamation, and ordinarily very considerahly less. Under all circumstances, it is hright, active and pure, and is used over and over again without any cleansing or retorting.

Your self-feeding and self-discharging Pulverizing Barrel is, without exception, one of the most complete reducers that we have ever seen. Its capacity is fully equal to your estimates of it, receiving ore from No. 14 wire cloth.

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If desirable, we will, at any time, give results of our working.

Yours, SPRAGUE & CO.

CHAS. D. SMYTH,
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As corroborative testimony, the following from the owners of the Auburn Mine speaks for itself.

DUN GLEN, Humboldt Co., Nevada.

MR. ALMARIN B. PAUL—Dear Sir:—As we have completed the working at Sprague & Co's. Mill of the ore from our mine, by your Electro-Chemical Dry Amalgamating Process, we are prepared to give its comparative merits with our old system of working in pans. We had eleven tons of ore worked at the Essex Mill hy Pan Process. The returns were $53 per ton, with bullion heavily charged with base metals. The quantity worked hy yonr Process was twenty-two tons, and the returns $107 per ton, with bullion as high as 989–1000 fine U. S. Mint assay. All the ore was from the same mine, and the first extracted. It contained, with the precious metals, Sulphuret, Carbonate and Oxide of lead, some zinc.

Your Process we regard as cheap, simple and practical, and are satisfied it can work ore to a much higher percentage than pans, and produce fine hnllion; in fact, we believe it to be one of the greatest improvements in Quartz Mining of the age.

Respectfully yours,
JOHN WENTWORTH
JOHN WRIGHT.

We, the undersigned, Quartz Mill Builders of Humboldt County, Nevada, having examined the mechanical construction of the machinery which make np the "Paul Process," at Sprague & Co's. new mill, Dun Glen, give it as our opinion, that the same is mechanical in design, simple in construction, and practical in operation.

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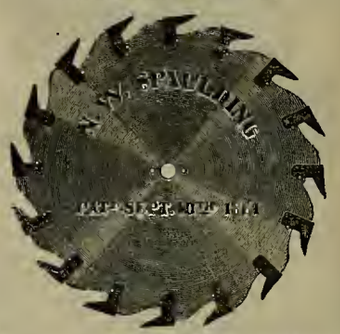

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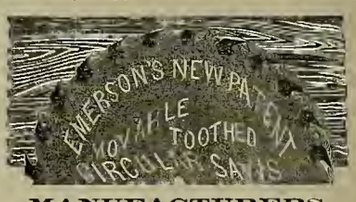

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BY DEWEY & CO., Patent Solicitors.

SAN FRANCISCO, SATURDAY, MARCH 23, 1872.

VOLUME XXIV. Number 12.

Pelton's Improved Horse-Power.

Our illustration represents an improved horse-power which combines strength, compactness, a large wearing surface and consequent durability. It consists of two sets of triple gears, one arranged above the other, both of them driven by the same master-wheel. A case or boxing of novel construction and application covers the gearing or moving parts, which protects the power from dust and foreign bodies and men from danger of accident.

A represents the bed-frame upon which the horse-power is secured. The annular metal base plate is properly secured upon the frame *A*, and has a raised outer rim or vertical flange, *C*, which is formed into alternate raises and depressions, making the lower half or section of a circular box. The double set of triple gears are arranged inside of this section of the box, the two sets being arranged in alternation, and each of the six-toothed wheels engaging with the centre pinion which is made with a sufficent face to admit the engagement of both sets of triple gears. The horizontal bevel wheel is driven by the centre pinion being socured to the lower end of the same shaft, and it in turn drives the tumbling-rod. *N* is the upper half of the circular case, inside of which the train of gears is placed, and it is arranged with a downward projecting flange, *O*, which is also provided with alternate raises and depressions corresponding to those on the lower half, so that when the two flanges are placed together the projections will interlock and form a snugly-fitting side to the case, so as to resist the torsion conseqnent on the application of the power. The upper section of the box, *N*, is also annular, and recesses are made in the proper position around its inner edge, through which the pinions pass, so as to stand above the upper face of the upper section, *N*.

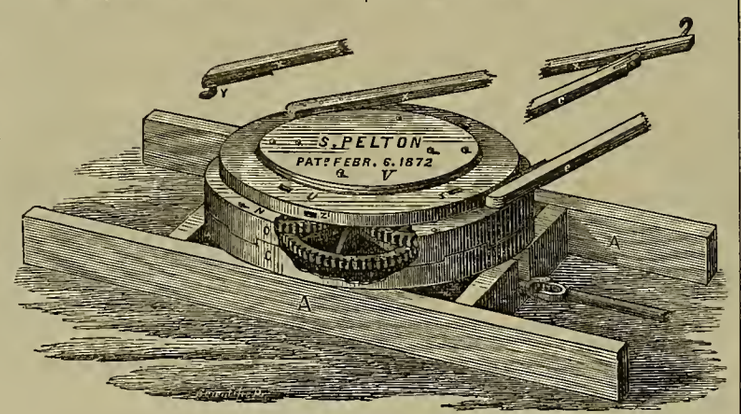
A raised ring is secured around the inner edge and above the circular opening in the upper section, *N*, being secured to it by flanges which project downward so as to leave sufficient space above the recess to allow the master-pinions to project above the case or box. The journals on the upper end of the vertical shafts which carry the double set of triple gears, hear and are supported in the holes in this ring, while the journal of the shaft which carries the center pinion hears in the cross bar below. The master-wheel, *U*, is an annular one with internal gears. In order to protect the gearing inside of the box, a cap or cover, *V*, is secured upon the raised ring, thus entirely concealing the operating parts, and preventing the master-wheel from being lifted or displaced hy any means.

The four levers, *x*, to which the horses are attached, are secured to the master-wheel by means of a hook or curved bar, *Y*, which is secured to the end of each lever so that the hook shall extend beyond the end and in a line with the lever. Holes or slots, *z*, are made through the upper face of the master-wheel, parallel with its rim, and the hooks, *Y*, inserted hy elevating the outer end of the lever until the end of the hook enters the slot, *z*. The lever when depressed will then he supported upon the master-wheel hy the binding of the hooks upon the under side of the wheel. The braces, *e*, are provided at one end with a similar hook which is inserted into the slots, *z'*, in the vertical rim of the annular master-wheel in the same manner as that of the levers. The outer extremity of the braces, *e*, are secured to the levers near their outer ends hy a loose joint.

By this manner of arranging and applying the triple gears, a large amount of wearing surface is secured, and the strain is distributed more evenly, thus insuring durability and strength, while the entire machine is at the same time in a compact and convenient form.

The arrangement of the box or inclosing case is at once economical and convenient. While it not only protects the gearing itself from injury, it completely obviates any liability of accident to life or limb, which the ordinary open horse-power is apt to occasion. It also excludes dust and dirt from the machinery, so that it will not be necessary to be continually cleaning the journals from the accumulation of gummy or other matter, thus saving oil and time, while the machine will run much easier on account of its keeping clean.

The device for attaching the levers and braces is especially useful, as it will allow of all neccessary changes in the elevation of the outer extremities of the levers, without in any way affecting the attachment; while it at the same time provides a strong, simple and convenient means of attaching these pieces to the horse-power. Owing to the extended surface of the journals the power only needs oiling once a day. The construction of this power is such that, as will be evident to any one familiar with this class of machines, from 25 to 50 per cent. more power can be gained with the same steam than any other horse-power will furnish, and it will take at least 30 days' use in driving a threshing machine to get the master piston cogs bright and smooth, owing to the great extent of hearing surface. This invention was patented through the SCIENTIFIC PRESS Agency hy Samuel Pelton, of Marysville, Cal., who may be addressed at that place for further information.



PELTON'S IMPROVED HORSE-POWER.

The Mining Incorporation Bill.

The "Mining Corporation Bill," one of the most important that has come before the Legislature this session, passed the Senate after a determined opposition, on the 19th inst. It provides that one-half of the stockholders of a company may call a general meeting at any time, and that two-thirds of all the stock may remove trustees and appoint new ones in their stead. One-third of the stockholders may call for a statement of the affairs of the company. The provisions of the bill will do much to secure persons of small means in holding mining stocks, but would have been still better if a simple majority of the stockholders had the power to remove trustees when desirable. Heretofore the trustees of mining companies have been elected for one year, and having complete control, did pretty much as they pleased without regard to the wishes of the stockholders.

There has long been a necessity of a law of this kind, and many a man who has been fleeced of hard earnings by the manipulations of stock by trustees will be glad to know that people are now to have some protection. Mines have been run in the interest of trustees and not for the benefit of the parties who pay the assessments and furnish the money. The stocks are "bulled and beared" by parties on the "inside" without any apparent relation to the actual value of the mines themselves. A mine may run up, according to the value of its stock from $100,000 to $3,000,000 during a year, and yet he actually worth no more at the end than at the beginning. Another great evil has been that the trustees have frequently used the funds of the company at different times for the purpose of manipulating the stock of the very mines whose interests they were supposed to uphold.

As the means of carrying on the business of mining is most conveniently done hy means of incorporated companies, that great interest should be as properly protected as possible, and in no way can it be done better than hy restraining the acts of unreliable trustees, and allowing the *real* owners of mines a voice in the affairs of the company they support. The bill as passed will prove of great value to all who are interested in mining operations and cause a reform in many practices which have heretofore been indulged in to the detriment of parties buying mining stock as a legitimate investment.

State Geological Survey.

The bill providing for the continuance of the State Geological Survey and appropriating $2,000 per month to defray expenses, has been signed by the Governor, and that necessary and highly useful work will now go on towards completion. The leading papers of the State have advocated the cause of the Survey strenuously, and although considerable opposition has been manifested by a few non-progressive members of the community and those who have no desire to promote the cause of science, we are pleased to see that the members of the Legislature and the Governor have been fully awake to the interests of the State in taking the neccessary steps to ensure its successful operation. We have already given a description of the work that has been accomplished by Prof. Whitney and his able corps of assistants, and that which it proposes to do. If the maps and books that have been, and will be, issued by the Survey were in such places as to be convenient to the miners throughout the State, for reference, that particular class of men, who represent a large and growing interest, would be materially benefitted. But not only to them, but to the farmers, and in fact all classes of our community will the advantage of the work accomplished, accrue. The *Bulletin* puts forth a very good suggestion that the Geologist ought to be authorized to forward copies of the books to learned societies in America and Europe, and to the leading libraries in this State and elsewhere. This would not only bring credit upon the people of this Coast as an enlightened and progressive community, but the exchanges we would he likely to receive would be of great use to us. We hope shortly to hear of the completion of the maps which are in hand at the office of the Survey, and congratulate not only Professor Whitney, but the people of the State of California, that this most necessary measure is now sure of completion.

THE COMMERCE OF THE WORLD.—The aggregate international commerce of the world, at the present time, is estimated at $9,237,000,000 in value. Of this large amount Great Britain, mainly through her subsidized steamship lines, is able to control within a fraction of $3,000,000,000—or nearly one-third of the entire world's commerce. It behoves the United States to be actively in earnest, in reconstructing her commercial marine.

CORRESPONDENCE.

Notes of Travel in Yuba and Nevada Counties.

[By our Traveling Correspondent.]

Timbuctoo,

Situated on tho South Yuha river, about 17 miles east of Marysville, is not a very prepossessing place, although locatcd adjacent to some of the richest deep channel mining in the State. It contains at present only ahout 100 inhahitants; its present dilapidated condition may he attrihuted to its close proximity to two other mining camps, each striving for the mastery to furnish goods and amusement for the laboring miner.

The Babb Claim

Consists of a portion of the celebrated "Blue Lead," and is situated ½ mile east of Timhuctoo. The works consist of a 10-stamp mill, run by water power, for crushing cement; not at present in operation hecause they are engaged in stripping. preparatory to taking out cement. The mill will he running again ahout the 25th inst. James O'Brien is Supt., and John Boyer is Foreman; at present working 8 men; the amount of bullion realized from this claim is satisfying its owners, and in times past, has paid fabulously.. Giant powder is used in this claim to a considerahle extent and gives general satisfaction.

Sucker Flat

Is a stirring little mining camp 2 miles N. E. of Timbuctoo, and consists of ahout 350 inhabitants. Two quite large mercantile establishments are carried on here hy D. Doherty and R. L. Crary; the latter has lately erected at this place a fine skating rink, completed, I helieve, in Nov. last. The huilding is 50x123 feet, the main hall 50x70, with a stage 30x50 feet, with dressing rooms complete; this structure has 65,000 feet of lumber in it, and cost $5,000. The different mining companies in this section, of which you have said more or less of late, are all running their usual complement of men, and the dividend paying companies are taking out the usual amount of bullion.

Smartsville.

This camp is situated 3 miles east of Timhuctoo, and about one mile south of Sucker Flat. It contains about 400 inhabitants, hut at preseut is quite dull. C. C. Duhain and J. McAllis & Co. are the merchants of this place, the latter attend to the postal affairs. There is also a hotel here, and I neglected to say that Timhuctoo and Sucker Flat were similarly provided for, hut if one good first-class hotel was to start in the vicinity of these three camps it would do the husiness of all.

Rough & Ready, Nevada County,

Is located 4 miles west of Grass Valley. It contains about 150 inhahitants, and at the present writing is the dullest camp in the State. One redeeming feature here is that the accommodations at its hotel are equal to the hest average of the interior.

Rich Placer Deposit.

Rees & Depew, owners of a (heretofore ordinary) placer claim, located one mile east of Rough & Ready, and three miles west of Grass Valley, had the good luck to run across a very rich deposit of gold, in a strata of decayed quartz. A specimen shown your correspondent weighiug ahout $40, looked to contain ahout 10 to 12 per cent. of iron; these gentlemen own 300 feet of this lead running northeast and southwest, and friends of the ahove have taken up extensions in either direction for a half mile. The amount taken from this claim since this rich deposit was fouud, will not exceed $500, hut 15 ounces of that was taken out in one afternoon, the probahility is that it is of considerahle extent. In reaching this deposit, soft granite is passed through, then a combination of iron pyrites, then a piuk colored quartz; hetween the two latter formations the gold is found, some of the nuggets, show distinctly two different deposits or formations in the same piece of gold; the upper portion heing not over 780, while the lower is at least 900 fine.

Union Gravel M. Co.,

Is an incorporation of 8,000 shares, with a capital Stock of $800,000, one half of which is owned hy the North-Bloomfield Gravel M. Co., the remainder hy A. E. Davis, C. J. Brenham, A. H. Barker and W. W. Nichols. The latter mentioned, acting as general Supt. This claim is situated upon the celebrated deep-channel "Blue Lead," midway hetween North Columhia and Lake City; and ahout 9 miles north of Nevada. City; principal husiuess office 420 California street, San Francisco. This Company own 1¼ miles in length, on the channel of the lead, which at this point is ahout one-half mile wide. There is no prohahility that the next generation will see it worked out. This claim has been worked for 3 years past, hut hydraulic washing has heen done but about 6 months of that time. At present they are working two of

The Hydraulic Chief,

Fisher's Patent, of Nevada City, which give general satisfaction. This company's improvements cousist in part of 2,000 ft. of flume, 40 inches wide by 20 inches deep, with 10 inches grade to every 14 ft., all blocked with 20 inch square blocks, 6 inches thick; 2,175 ft. of 15 inch pipe, and 800 ft. of 18 inch pipe—also a reservoir built last year at a cost of $5,200, situated one mile from the present workings. This reservoir has a capacity of supplying 500 inches of water for 48 hours, when full, without receiving a drop. At present, 400 inches of water run into their reservoir night aud day, equal to 1,050 inches of water for 10 hours run—which amount, they are using at the present writing. To get a lower grade of 152 ft. helow the present working, this company are engaged in running a

Large Tunnel,

Which, when completed, will he 1,500 feet in length, 6 feet 4 inches high, hy 6 feet wide, with a grade of 6 inches to every 12 feet. This tunnel was commenced Aug. 18th, 1870, and has heen worked with from two to three shifts per day to within the last 7 or 8 weeks, hy hand drilling, hut the rock was of such a character that it would have discouraged the most persistent set of men in the State. So slow was their progress that the distance made in the face of the tunnel for a month could be reached with a ten-foot pole. After due deliheration, counting the cost and time, for adding more improved machinery, the Company finally adopted one of Messrs. Severance & Holt's

Celebrated Diamond Drills,

At a cost of $4,000. After many delays of an unavoidable nature, such as bad roads, caused by the inclemancy of the weather, this drill was put in successful operation. To say that it gives satisfaction, would not in this case suffice, for they are overjoyed at its success; they are now making from 2½ to 4 feet per day, with three shifts of 8 hours each, in the same kind of rock above mentioned. Mr. W. W. Nichols, the gentlemanly superintendent of this mine, speaks in the highest praise of this drill, and adds in so many words, it is a great success, doing more work in one day, with the number of men above quoted, than twice as many could do in the same tunnel in a week. This drill is run hy a Hurdy-Gurdy wheel, placed on the rear of the drill carriage, which is driven hy

Hydraulic Pressure,

The water for which is conducted 3,000 ft. through an 11 inch pipe, to the mouth of the tunnel under a 274 ft. pressure; from the mouth of the tunnel to the drill at its present position, 925 feet in, hy a 7 inch pipe; there it is thrown into the hurdy-gurdy wheel 4 ft. in diameter, through a ⅞ inch nozzle which runs the drills, 2 in number. The hlasting agent used, is

Giant Powder.

The Supt. and men employed to work it, acknowledged to me that it was certainly the safest and most powerful explosive in use; further, that from 25 to 30 minutes is all they require to clear the tunnel of all bad odors after a hlast. The exploding is done by a "Fields Electric Battery," at the mouth of the tunnel, conducted hy an insulated wire the whole length of the tunnel. Eleven men are at present employed in this mine, and with that force including the running of the tunnel, I foresee a clean-up this fall of from $50,000 to 75,000. This claim never looked hetter since it was opened. L. P. MC.

Mines at Phillipsburg, M. T.

EDITORS PRESS:—We have found out a new way of developing quartz mines, and also how to make big money on them in the future. First, go to work and take out all the ore and sell the hole, he sure and leave a hig hole in the ground with a number of levels, so that you can get all the ore out and then sell the mine and work the quartz yourself; original, isn't it? You hear that there is not a developed mine in Phillipsburg, from some of those smarties that have their experience only with a hlow-pipe in St. Louis or New York, hut we have mines here with shafts over 100 feet deep and two levels running a distauce of from 68 to 90 feet from the main shaft, and also a mine that is opened 1,000 feet in length with a tunnel run in on the ledge 144 feet, with 4 shafts sunk a depth of from 30 to 75 feet on this same ground, showing a good quality of milling ore the entire distance. Would you not call these developed mines? they would he called so in a mining country, hut perhaps not among those would-he experts. Plaistead & Co. are taking out a fine lot of ore from the Eastern Camanche and also from the Cordova lode; they intend starting the St. Louis mill in a few days. The Captain is an experienced mill-man and is confident of making a good run, being well pleased with the ore in sight.

Dr. J. M. Merrell has a set of men at work on the Western Camanche lode, and Estell & Co. are taking out quartz from the Emma mine that averages over $200 per ton by assay. Professor McArdle has a number of men at work on the Hope mine, developing it for the St. Louis Co. He is getting some very fair prospects and has great confidence in his enterprise.

The Imperial Silver Mining Co. is hard at work; their five-stamp battery with wood stems is pounding away. They are crushing dry and keep 25 men employed at the Trout mine and mill. All the Co. wants is a good 10-stamp mill and their fortune is in sight. They have several thousaud tons of ore in sight that will work $150 per ton hy roasting process. Things look more favorahle in this place than ever before. "OLD MICHIGAN."

Phillipsburg, M. T., Feh. 29.

PROGRESS OF SILVER MINING IN MONTANA.—The new smelting works at Helena, Montana, are reported to he a decided success. Since this has become generally known in the Territory, a great deal of prospecting for lead and silver ledges has taken place, especially in the vicinity of Helena and Jefferson. The discovery of several fine ledges is said to be the result. Most of them are already vigorously worked. A very large vein of argentiferous galena has heen discovered two miles from the Gregory, in the Jefferson mines, but on the Boulder slope. It has the extraordinary width of 21 feet, but assays only from $45 to $100 in silver per ton. But as the lead ores are reported to occur so solid that they may he at once used at the furnace, the discovery is an important one.

EMMA.—Prof. Silliman, writing to a friend in England, says that since his report was written, and up to the present time, he is advised hy those at the mine that the reserves are in the greater part intact, the daily supply of ores (ahout 50 tons) being drawn chiefly from new and virgin ground, opened in course of explorations advised hy Prof. Silliman. It is understood to be the policy of the new management to follow the advice of Prof. Silliman—to hold intact the great body of their reserves and push on new explorations in virgin ground—a policy which has already richly rewarded them, and is the only safe policy in any mine. So far as the mine is concerned, it is truly surprising in its productiveness.

A RIVAL TO TEA AND COFFEE.—Tea and coffe are threatened with a Brazilian rival, called guarana. Guarana consists of the seeds of a tree known to hotanists as the *paulinas sorbitis* which is very abundant. The tree produces a fruit about the size of a walnut, containing five or six seeds. The seeds are roasted mixed with water and dried. Before being used they require grindiug when they fall into a kind of powder. The active principle is an alkaloid identical with that found in tea or coffee, but there is twice as much of it in guarana as there is in tea. The effects are similar to those of tea and coffe.

THE Grass Valley *Republican* of the 6th says: We understand that a party at Truckee have a contract for making one million bushels of charcoal. A large portion of the work is to he doue hy Chinamen. One million bushels of charcoal will weigh ahout two hundred thousand tons, and would require eighty trains of cars to remove it, allowing two hundred and fifty tons for each train. We suppose this large amount of coal is required by the Union Pacific and Central Pacific Railroads for their various machine shops. Truckee is the most accessible point for timher on the entire line of the continental railway.

An Apocryphal Comet.

A report has obtained circulation, probably without foundation, that a Geneva Professor has discovered an immense comet, which from its direction must collide with the earth on the 12th of August next. It is also stated that many weak minded people, both in this country and Europe, are very much alarmed at the announcement. So far from such an event heing unwelcome to scientific men, nothing could be more acceptable to thom than to have a large comet approach near enough to the earth to switch its tail in the face of mankind, for no such body (save Enck's, a very small and distant one) has made its appearance in the heavens since the great value of the spectroscope in the determination of the constitution of such wandering hodies, was fully understood. The next comet which does approach very near the earth will he closely scanned, and will enable science to determine, with great precision, in regard to its physical characteristics.

As to any harm heing apprehended from auy such source, there is little need for fear. It has been quite fully determined that the most of them at least are comparatively harmless bodies—nothing in fact hut huge "gas-hags" scarcely more tangible than the streak of light sent out into space hy a lantern on a dark, foggy evening. Thore is little doubt but that the earth has passed through the tails of at least two comets within the last forty years, without knowing it at the time—the phenomena attending the passage having, in both cases, been attributed, at the time of the passage to some peculiar atmospheric phenomena. The first one, about 1837, is well remembered hy the writer. The atmosphere over nearly, or all this continent was aglow with a red lurid light, which caused alarms of fire in various parts of the country—the atmosphere having the appearance given hy the reflection of a fire at a great distance on a slightly foggy night. The continuance of the phenomena was observed for several hours.

FENCING.—The fence is a costly structnre. Illinois is said to have ten times as much fence as Germany, and Duchess county, New York, more than all France. A narrow path divides farms in France, Germany and Holland. In South Carolina the improved land is estimated to he worth $20,000,000; tho fences have cost $16,000,000. The annual repair is a tenth of this. A recent calculation places the cost of fences in the United States at $1,300,000,000. Nicholas Biddle, thirty years ago, said the Pennsylvania fences had cost $100,000,000. In Ohio they are put at $115,000,000, and in New York at $144,900,000. Some day fences will probably disappear, and houndaries will be marked with fruit trees or neat hedgerows.

A PYRITES GROOM.—California will appreciate the following from an Eastern Exchange: A verdant-looking Vermonter appeared at the office of a chemist with a large bundle in a yellow bandauna, and opening it, exclamed: "There, doctor, look at that." "Well" said the doctor, "I see it." "What do you call that, doctor?" "I call it iron pyrites." "What, isn't that gold?" "No," said tho doctor, and putting some over the fire it evaporated up the chimney. "Well," said the poor fellow, with a woehegone look, "there's a widder woman up in our town has a whole hill of that, and I've been aud married her!"

IRON-PAPER.—German journals complain that this article, which is simply commou paper mixed while in the pulp with iron filings, so as to increase the weight, is "shamelessly advertised in all English aud American papers," and is particularly recommended to shop-keepers for wrapping up their wares. As the papers in which groceries are put up are generally weighed along with the article, there can be no doubt that the use of such paper is fraudulent. But we must demur to the assertion that it is advertised in all English papers.

MINING IN PORTUGAL.—The operations at the Chans silver lead mines are heing prosecuted with all practicahle speed, the indications presented from lodes already discovered, far exceed the expectations held out by the promoters, and there is every reason to justify the prediction that this will prove one of the great prizes of 1872.

BRAZIL, Ind., claims to produce its iron at a cost of $25.50 per ton, with coal, two tons at $2.50, and ore, one and five-eights tons at $8.00.

Mechanical Progress.

Utilizing the Rivers of France.—London *Engineering* gives an account of a grand scheme for utilizing the French rivers, proposed to the French government several times by T. de Gamond, and now brought up again. It is proposed to suppress the natural profile of the large water-courses which are imperfect, and to substitute for them a series of regular planes in successive slopes, or, in other words, to change the inclined planes of rivers into hydraulic staircases. By means of dams, reservoirs, etc., the amount of water in the river channels would be regulated, and therefore the irrigation of land, motive power, navigation, etc. Floods, washing away of land, filling up of river beds, etc., would be avoided. By means of dams the level of the outfall of oceanic rivers is to be raised, sensibly, say two feet.

A table, prepared by M. de Gamond, gives the total mean volume of daily discharge of the rivers into the sea as 6,348,958 millions of cubic feet. This would irrigate 45,000,000 acres, at the rate of 140,000 cubic feet to the acre; or would furnish by its fall 12,000,000 horse power. In addition to the benefits (mentioned above) to accrue from the scheme, industrial establishments could spread themselves over the whole face of the country under the most favorable circumstances, the use of steam would be reduced to very narrow limits, and the exhaustion of the coal supplies would become a very remote question. The access to the great sea-ports would be improved for ships of heavy tonnage, and the great river harbors would be opened for navigation by transforming the sea-channels into vast lakes of fresh water, independent of the sea. The ebb and flow of the tide would be suppressed. Internal navigation would be greatly improved, and great lines of water communication could also be completed. Fish culture could be introduced on a grand scale, etc. Finally the enterprise would be exceedingly profitable to the parties undertaking it. Notwithstanding the brilliancy of the scheme the project will hardly be carried out just at present.

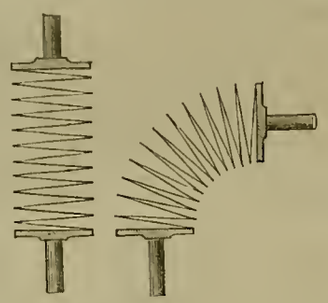
Improved Axle-Boxes.—*Engineer* of Feb. 9th calls attention to an improved axle-box, designed for railroad cars, which promises to effect an important saving in the working expenses of railroads, and a greater immunity from danger from a certain class of accidents. Lubrication at the sides is one of the principles involved, and capillary attraction the condition under which the oil is applied to the journal is another. Springs are also introduced to keep the pads in position. One of these boxes was lately exhibited, according to *Engineer*, which had run 19,000 miles with the consumption of only half a pint of oil. It is also claimed that a box filled with oil in the repair shop, will not again need refilling until in ordinary wear it is time for it to go again into the repair shop for general overhauling. Moreover, the oil in the box cannot be readily tampered with. They are known as the Beuther axle-boxes, and have already been introduced upon 26 railroads on the continent of Europe, aside from their very general introduction into use in England.

Effective Work of Steam Engines.—The *Deutsche Ind. Ztg.* lately contained an article on indicators and Brake Dynamometers and on the method of ascertaining the amount of useful or effective work of steam engines. This can generally be found by three methods:—By calculation; by means of a brake dynamometer; or by the indicator-diagram which gives the indicator horse-power from which the actual or effective brake power can be derived. The third method is the simplest. From a large number of experiments upon engines of different dimensions, it would appear that no smaller ratio than 0.70 between brake and indicator is impossible, and that not more than 0.90 is attainable.

Artesian Well at Boston.—A well was commenced last March and work has since been steadily going on at a rate of 1 to 15 feet daily. It is now down 1,000 feet and has cost $15,000. The diameter of the bore is 5 inches; the drill is 4 inches across; the drill and iron shafting which connects it weighs now 1,200 lbs., and the rope 900 lbs. A 16-horse-power engine is employed, with a walking beam of 36-inch stroke making 30 strokes per minute.—*Am. Railway Times.*

New Mode of Transmitting Rotary Motion at Angles.

This ingenious invention is shown in the engraving. It is a spiral formed of a plane iron, or rather steel, band which is attached at its opposite ends to the two shafts to be connected. The diameter will necessarily, in order to secure sufficient strength, be considerably larger than that of the shaft; and the attachment may be made by means of a cast iron cap, having on one side a socket for the shaft and on the other a flat surface to receive the spiral. The breadth of the iron band or ribbon which forms the spiral is about an inch and a half, and its thickness a little more than a quarter of an inch. The total diameter of the spiral is about one foot. For a joint of transmission forming a right angle, about fifteen turns of the spiral will suffice. The entire spiral may be



made of a single ribbon, or it may be made up, as it has been in some cases, of a number of parts connected together by tongue and groove.

Experience has proved that this mode of transmission performs perfectly, without being liable to get out of order or to give way. Its strength is very considerable, but cannot be indefinitely increased, since a thickness exceeding that which is adopted would bring too great a cross strain on the metal. A number of these joints have been in operation without accident for several years. It is the invention of Mr. Thirion, of Belgium.—*Scientific American.*

Diamond-Toothed Saw.—A diamond-toothed saw for stone quarries has been invented in Vermont, and after three years experimenting, is said to have been perfected so far as to work very satisfactorily. The Boston *Advertiser* says of one of the machines on exhibition in Boston: The main feature consist of a straight saw armed with diamond points moving back and forth through the stone, with drills working vertically to free the ends of the kerf. The diamonds employed are of the black variety, on a half-inch width, and with a six-horse-power engine can be sunk in the solid quarry from six to twenty-four inches per hour, according to the hardness of the material operated upon. The instrument is very compact, and one of the power displayed can be operated by two men, whose services, together with the fuel consumed, will amount to less than ten dollars a day, effecting an estimated saving of the labor of fifty men, and reducing the cost of solid building material one-half.

Improved Iron Rails.—The demand for steel rails is so great that steel-rail makers are said to be nearly all full with orders for two years to come. At this juncture an English firm has patented a new rail pile which is said to give an improved iron rail, and which is favorably noticed by the *Engineer*. The usual rail pile is built upon the slab of crystalline iron which forms the head of the rail and must be placed in the heating furnace in the same position, viz., the slab on the bottom or coolest part of the furnace and the fibrous iron uppermost and exposed to the most intense heat. The result is in many cases that the fibre of the flange is destroyed while the head is imperfectly welded, and there is produced a brittle rail with a laminated head. In the patent the fibrous iron is below, the crystalline above, giving superior rails.

Asphalt Roads in Paris.—It is stated that the authorities of Paris are about to give up the asphalt paving and return to the old-fashioned stones, in consequence of the great expense of keeping up the former.

Glycerine for Paper.—Small quantities of glycerine are sometimes added to paper stock to give the paper flexibility, but especially to give copying paper the quality of taking up color readily.

Scientific Progress.

New Method of Nickel Plating.—A simple and cheap method of nickel plating, which is open to the use of all, has been invented by Prof. F. Stolba. The process is, in brief, as follows: Into a vessel of porcelain or metal, preferably copper, is poured a concentrated solution of chloride of zinc, made by dissolving commercial zinc in common hydrochloric acid. From once to twice the volume of water is added, the solution heated to boiling and hydrochloric acid added drop by drop until the precipitate (formed on diluting the chloride of zinc with water) is redissolved. As much zinc powder as will cover the point of a knife is now added, whereby the metal of the vessel becomes zinc plated. Enough nickel salt (the chloride or sulphate or the double sulphate of nickel and potassium) is introduced to color the liquid distinctly green, after which the articles to be plated, with surfaces perfectly free from fat and rust, and with them some small cuttings of zinc, are put in and the liquid again boiled. The work is finished in about 15 minutes. If any part of the articles is not plated, the boiling is continued, fresh pieces of zinc and, if necessary, fresh nickel salt being added. It is important, if the coating of nickel is to be brilliant, the liquid on boiling shall not be cloudy from basic zinc salt, or acid from free hydrochloric acid. The plated articles are well washed with water and cleaned with polishing chalk. The same liquid may be used repeatedly for plating. The nickle salt need not be chemically pure, but must contain no metals precipitated by zinc.

Phosphorescence of Animals.—Prof. Panceri, of Naplee, who has been studying the phosphorescence of marine animals, finds that in all cases examined this is due to matter cast off by the animals—it is a property of dead, separated matter, not of living tissue. In all cases (except *Noctiluca*) this matter is secreted by *glands*, possibly special for this purpose, but probably the phosphorescence is a secondary property of this secretion. Further, this secretion contains epithelial cells in a state of fatty degeneration, and it is these cells and the fat therefrom which give rise to the phosphorescence. This brings the phosphorescence of marine animals and that of decaying bones, etc., under the same category. In one species, this property was made the means of studying the rate of transmission of an irritation. For when one extremity of a *Pennatula* is irritated, a stream of light runs along the whole length of the polyp-colony, indicating the rate at which irritation is transmitted. This rate can be accurately measured. In these studies the spectroscope was used.—*Nature.*

Primordial Fauna in Nevada.—An interesting discovery has been made, carrying the primordial fauna much further west than ever before found. The most western locality of potsdam sandstone fossils previously described is in the Big Horn Mts., at the head of Powder river, in long. 107°; but Mr. J. E. Clayton has discovered fossils of the same period near the 116th meridian. These he sent to Prof. Whitney, of the California Geological Survey, who has an article thereon in the February *American Journal of Science*. The fossils occurring in limestone, belong to the characteristic potsdam families of the *Lingulidæ* and the *Paradoxidæ*. The specimens contain many individuals but few species. *Agraulos Ceurni* is the most abundant species, with fragments of (apparently) *Concoryphe* and the genera *Linguiepis* and *Obolella*. Other specimens found by Mr. Clayton on Shell Creek, is mottled buff and gray limestone, also demonstrate the existence of primordial fauna, but the fragments are very imperfect.

Masses of Meteoric Iron, the largest said to weigh 25 tons, were found last year in Greenland, lying loose on the shore, but immediately resting upon basaltic rocks (probably miocene) in which they appear to have been imbedded originally. They contain nearly 5 per cent. of nickel, with 1 to 2 per cent. of carbon and are chemically identical with many aerolites of known meteoric origin. Notwithstanding the place they were found, on removal they speedily fell into powder, possibly from the absorbence of chlorine and the formation of ferreous chloride.—*Chemical News.*

Mastodon in Massachusetts.—The first mastodon remains ever found in Massachusetts consist of a tooth, discovered last fall in Colerain, a northern border town.

Fortieth Parallel Survey Report.—The Report on Botany, by S. Watson, aided by Prof. D. C. Eaton, has appeared. It is illustrated by a map and 40 plates and is excellent in its matter and appearance. A general Report forms an introduction to the Catalogue which makes up the principal bulk of the volume. This "Catalogue" is not a mere list of names, but a systematic account of the plants collected. The geographical and meteorological notes and those on the general character of the vegetation are well written and most interesting.

Agricultural Resources of the Great Basin.—A few pages at the close (we use the remarks of the *American Journal of Science*) are devoted to the consideration of the agricultural resources of the basin, the limit to which is fixed by the deficiency of water. The most fertile localities lie at the base of the Sierrae; but, as a rule, there is an apparent absence everywhere of a true soil or mould resulting from the decomposition of vegetable matter. A moderate amount of alkali in the soil appears not to be detrimental to culture. The soil which produces sage brush seems to be always cultivable when it can be irrigated. With the present supply of water, most economically used, it is thought that only 1,000 out of 34,000 sq. miles of Northern Nevada could be cultivated; of the southerly portion and of western Utah, much less. Eastern Utah, with more water from the Wasatch and Uintah, Mts. is much more favorably situated. The absence of graminivorous animals, except rabbits in the valleys and a few mountain sheep and antelopes in the higher ranges, shows that the country is ill adapted for grazing. *Eurotia lanata* and a few other chenopdiaceous plants are eaten by sheep as a substitute for grass. The question is raised whether the existing plants, or some substitute, may not be turned to profitable account, and whether some forms of orchard, vineyard or tree culture may be made to thrive here. The present plants on the whole are not lacking in expansion of foliage or succulence, from 55 to 80 per cent. of foliage—and evaporate daily an amount equal to three-eights of the weight of their available material. This loss is made good, not from the atmosphere, but from the soil, dry as it is; yet water is rarely to be had under a depth of 100 to 300 feet, often not even at that depth. The porous soil must allow of the free upward diffusion of moisture, also of deep penetration of roots.

Diamonds in Xanthophyllite.—P. Von Jeremejew has found minute diamonds irregularly distributed through the plates of the Xanthophyllite of the Schischimekian Mts., near Slatoust. The green plates of this mineral nearest the rounded masses of talcose slate and serpentine enclose very large numbers of the crystals which are generally colorless and transparent, sometimes with a pale brown tint; the diamonds are also found in the two rocks mentioned.

Remarkable Fossil Bird.—One of the treasures secured last year by Prof. Marsh's expedition was the greater part of the skeleton of a large fossil bird, at least 5 feet high, found in the Upper Cretaceous of western Kansas. Although a true bird, it differs widely from any known recent or extinct form, and affords a fine example of a comprehensive type. The proposed name is *Hesperornis regalis.*

Microscopic Forms in the Atmosphere. According to a late communication by Ehrenberg to the Academy of Sciences at Berlin, he has succeeded in determining the existence of 548 species of organic forms, absolutely invisible to the naked eye, and yet held in suspension in the atmosphere.

Phosphorescence of Eggs of the Glow-Worm.—M. Joesuet has noticed that the eggs of the common glow-worm are phosphorescent after laying and remain so, at least for a considerable time. If one of the eggs is crushed in the dark the liquid therefrom is luminous until quite dry.

Plants of Oregon.—Mr. E. Hall last year made extensive collections of dried plants in Oregon, which are distributed in sets and sold at $8 per hundred. Full sets contain 500 to 600 species and may be obtained of Mr. C. Wright, Harvard University Herbarium, Cambridge, Mass.

Deep Sea Life.—The sea has living microscopic creatures three miles below the surface. How can they live with such a heavy pressure of water upon them?

MINING SUMMARY.

THE following is mostly condensed from journals published in the interior, in proximity to the mines mentioned.

California.

ALPINE COUNTY.

I X L.—Silver Mt. *Chronicle*, March 9: The richest ore ever seen in this county was taken from this mine last Saturday.

LEVIATHAN.—This mine is being opened and developed by contract, and high grade ore is being taken from No. 7 drift. Several thousand tons of low grade ore, assaying from 10 to 20 per cent. copper, are in sight and on the dump. Some 20 ft. of sandstone, saturated with over 25 per cent. of pure sulphur, have recently been passed through in sinking the incline, immediately below the large copper deposit.

TARSHISH.—On Monday last a large body of first class ore was struck, extending across the whole face of the 105-ft level, north, in the direction of the Michigan claim. Rich ore is also being taken from the 150-ft. lovel, in the same direction, as well as from the slope recently started in the lower tunnel. All the men in the mine are taking out ore in the northern drifts in the ordinary course of opening up the ground, none of the rich reserves being worked.

MONITOR MILL.—Monitor *Miner*, March 9: The mill has been running 3 days since the change in plan of roasting, and will clean up on Monday next and determine whether the plan works satisfactorily.

RED MOUNT is the name of a series of claims taken up and located this week on the northern slope of Red Mt., in this Dist. This new location consists of 5 claims of 1,000 ft. each, and covers the north extension of the old Mountain lode.

GOOD ORE.—From upper and lower levels of the Monitor No. 3 and Silver Glance, and from several parts in the Schenectady, good ore is coming out.

CALAVERAS COUNTY.

HUDSON LEDGE, CENTRAL HILL.—San Andreas *Citizen*, March 9: They are sinking on it night and day, Mr. Davis having taken a contract to sink 50 ft. deeper. The shaft is 60 ft. deep, the vein 9 ft. wide, abounding with sulphurets. Mr. Davis will commence operations in his quartz claim in Mudgett's ranch, as soon as the weather will permit.

ITEMS.—Good rock has been struck in the Petticoat mine at Railroad Flat.

The Prussian Hill Mine, near Railroad Flat, is taking out rock which appears to be very rich. A rich quartz ledge has been struck near West Point, the ledge paying on the top at the rate of $250 per ton. The Zacetara has a ledge of 3¼ ft. at the bottom of the shaft. The rock taken out is very rich. The Brackett & Co. claim in Chili gulch, is a perfect success. The Russian Hill mine has struck good rock.

WHISKY HILL.—Cor. San Joaquin *Republican*, March 12: Three hydraulic Cos. are busy at work sluicing down the gravel deposits, the Bunker Hill working night and day with 400 inches of water. The excitement in reference to these mines is increasing daily, and should the clean-up of the Bunker Hill be favorable, there will be an excitement such as this section of country never before saw.

INYO COUNTY.

BULLION.—Inyo *Independent*, March 9: On the 29th of Feb. there were shipped from Lida Dist., ore from the mill of Hiskey & Walker, Deep Springs, one bar of bullion, 255 ozs., valued at $265. Also, on the 4th of March, there were shipped 5 bars, 1,755 ozs., valued at $2,050.

SPECIMEN.—Mr. Hiskey presented us a piece of chloride ore, from one of the mines in Lida Valley, which will yield at the rate of not less than $800 per ton.

MONO COUNTY.

MILLS.—Cor. Inyo *Independent*, March 7: Mono county contains 5 mills, as follows: The "Pioneer," at Montgomery; an arastra, harrel and lavadero roasting furnace now being added. Run by water power. Worked last summer 125 tons of ore, assaying from $100 to $700 per ton, average $247 per ton. Extracted about 85 per cent. of assay, and paid well. Also worked over about 100 tons of tailings. Riley's mill, also in Montgomery; small stamps and pans; run by water power, formerly profitable, idle and dilapidated now. A small mill at Hot Springs owned by J. Partz; 4 small stamps; barrel, and separators, water power, process same as Pioneer mill, working about a ton a day and fairly profitable. Jennings' mill near Whisky Flat, a very small affair, abandoned several years. W. J. Williams & Co.'s mill built last year, steam power, 10 stamps, 2 pans, 2 separators and a White's furnace, was running a couple of months, off and on, last year, worked about 20 tons of ore, has been idle about two months.

NEVADA COUNTY.

MOUNT AUBURN. — Nevada *Transcript*, March 13: The mine is near the Newtown road, adjoining the Soggs's location, and running 3,000 ft. to Ragan Flat. Last summer a new shaft was sunk, and a north and south drift run. Rock was taken out which yielded $22.80 per ton, the quartz being taken from top to bottom. The ledge averages 4 ft. in thickness. In the south drift they did not cross the chimney of rock which was found, and when they left off work the ledge was widening and the rock showed free gold and rich sulphurets.

LOCATIONS.—The Birds Eye Cañon Co. have located a water privilege of 2,000 in., in Steep Hollow Creek, Little York township. The Big Deer Creek and Green Mountain Placer Co. have located 500 ft. of ground north of Murchie ground, and fronting on Big Deer creek Nevada township. The Big Cañon Placer Co. have located 400 ft. on Big Deer creek and running back to the centre of the hill. The Spring Ravine Co. has located 500 ft. of the bed and banks of Spring ravine, in Nevada township, for gravel mining. Joaquin M. Pavea & Co. have located 300 ft. of ground for gravel mining, on the hill between Sailor and Picket ravine on the north side of Rush creek in Nevada Township.

EUREKA.—The Black & Young mine at Rocky Glen, near Eureka, is being worked with splendid prospects this season. The last run of 30 days resulted in a clean up of between $4,000 and $5,000 though the work was done under the greatest disadvantages.

BRICKS.—Grass Valley *Union*, March 13: We saw yesterday at Findley & Co.'s Bank a pair of gold bricks worth $14,000 the result of the crushing of the first two weeks of this month at the Idaho mine.

WATER.—The North Star is not quite able to control the water. In the 800 ft. level it is slowly gaining.

FRENCH CORRAL. — Several extensive gravel claims at French Corral have been consolidated, and the owners are about to run a tunnel from the South Yuba river, so as to drain the French Corral mines. The tunnel will be about 2,500 ft. long and will be through very hard rock.

Extensive tunneling is also to be commenced and carried on from Sweetland creek so as to drain the Manzanita and other claims adjoining. This will require only some 400 or 500 ft. of tunnel.

RANDOLPH HILL STRIKE.—The strike continues to pan out. Reese & Depew took out about 50 ozs. of gold yesterday in a few hours.

SAN DIEGO COUNTY.

BULLION.—San Diego *Union*, March 7: The bullion shipment to S. F. yesterday, was $550. A clean up of several of the Julian and Banner mills will take place tomorrow.

JULIAN AND BANNER.—DeFree and Co's. mill has just cleaned up a small lot of ore from the Butler lead which yielded $53 per ton. A few days ago the same mill finished crushing a lot of Hayden rock which went $25 per ton. They are now engaged upon a lot from the Van Wert mine, about 30 tons, which will be cleaned up about Saturday. After they have finished crushing the Van Wert rock they will commence on another lot of Owens ore. Water has been struck in the shaft of the latter mine, at the depth of 200 ft. The ledge at this depth looks splendidly. Wilson & Co's. mill is working on ore from the Helvetia mine, and will probably clean up to-morrow. Reynolds & Co's. mill has resumed work and is engaged upon a lot of ore from the Andy Johnson mine. Active operations have commenced on the Excelsior lead from which some good ore is being taken. The Ready Relief mill is crushing rock from the mine of that name at the rate of 2 tone per day. The rock it is expected will go about $40 per ton. The Redman mill is also working on Ready Relief ore, and the Co. are at the same time actively engaged in developing their own lead. The Antelope mill is receiving plenty of ore for crushing. The mill is engaged upon rock from the City of Richmond. The props. of the lead of the same name are busy at work taking out rock and will soon have sufficient quantity in readiness to crush, which will keep the stamps employed for some time. Nearly all the ledges in the Banner dist. are being actively worked.

STONEWALL MINE.—Their steam pump is working admirably. It has reduced the water in the shaft considerably. The mill has commenced to run.

SAN LUIS OBISPO COUNTY.

CAMBRIA MINES.—San Luis Obispo *Tribune*, March 9: We hear glowing accounts in relation to the silver and quicksilver mines of Camhria. The excitement there is intense. Mining feet change hands rapidly.

SIERRA COUNTY.

PAYING.—Mountain *Messenger*, March 9: The pans at the Butte Mine, for working tailings, are paying exceedingly well. Several more will be put in this summer.

At the Orleans claims at Little Grizzly, 42 ozs. of gold were taken out recently in a week's work. This claim has paid well all winter.

MORRISTOWN.—Cor. same: The American Co. has had a full supply of water in their ditches, and doing considerable work, in running off pipe-clay. Perkins, Williams and Co. have made a nice clean-up, but I am not informed as to the amount. Their claims look well.

TRINITY COUNTY.

GOING IT.—Uniouville *Journal*, March 7: Charley Tourot has had no water in his ditch this winter for fear of injuring it. This week, however, he turned the water in and is rushing the dirt off double-quick.

DUTTON'S CREEK.—Dixon, Hurst & Co. have half of their big blast run off.

QUARTZ.—James Morris and Jonathan Smith have found a quartz ledge in the diggings discovered back of Corhus' store, on Indian Creek.

Nevada.

EUREKA DISTRICT.

RICH ROCK.—Eureka *Sentinel*, March 8: Some rich rock has been struck near the toll house, on the Eureka road. Several claims have been staked off in that vicinity lately.

STRIKE.—A belt of ore 80 ft. wide and of indefinite depth was struck in the Eureka Con. yesterday.

LOOKING WELL.—The Adams Hill mines are looking splendid. A large amount of ore is coming to the surface, and all the workings are improving at the bottom. There are several hundred tons of first-class ore on the dumps, which will probably be milled before long.

TO START UP.—Preparations are being made to resume work on several mines in the dist. that have been idle during the winter.

MCGARRY.—We were informed that considerable well-directed labor is being expended on the different mines of the dist.

STARTED UP.—The Consolidated has started another furnace—making 4 in successful operation.

RICHMOND.—The Richmond smelting works are to be supplied with new hoilers and engine of the largest pattern.

GEN. LEE.—A body of ore 3 ft. wide, was struck in the mine yesterday. The ore was found at a depth of 200 ft. in the main shaft, and a considerable body was also found in the tunnel.

ELY DISTRICT.

BULLION.—Ely *Record*, March, 7: W. F. & Co. shipped to-day bullion valued at $44,875.27.

REESE RIVER.

MORE ORE.—Reese River *Reveille*, March 9: Preparations are being made for working several mines on Lander, Central and Union hills as soon as the spring opens.

WASHOE.

RESUMED.—Virginia *Enterprise*, March 10: The Vivian mill, Carson river, started up day before yesterday.

THE Petaluma mill now being thoroughly overhauled, will start up in a few days.

SUTRO TUNNEL.—The Sutro tunnel was yesterday in 2,775 ft., with hard ground at the face. At shaft No. 1 they are hailing and putting in a steam pump. No. 2 is down 230 ft.; ground good and but little water coming in. At shaft No. 4 the machinery is all in, and they will get the steam pump to running to-day.

OPHIR.—The drift from the 1,300 ft. level of the Ophir will probably reach the lead by next Saturday. The drift south on the 1,100-ft. level is being pushed vigorously. When it has reached the intended length 4 or 5 cross-cuts will be simultaneously made.

THE Sierra Nevada mine is looking well. A raise to the hight of 4 or 5 sets of timbers has been made in the new vein.

NEW MILL.—A Mr. Soderlinge, day before yesterday started up at American Flat a neat little 2-stamp mill.

BIG DAYS WORK.—Gold Hill *News*, Mar. 9: From the mines of Comstock ledge, yesterday, there were shipped to the mills on the Carson river, 110 car loads of ore, an aggregate of 880 tons in all. On the 10th (same paper 11 inst.) 105 car loads were transported.

IN OPERATION.— The second of the 2 new hoisting engines at the Crown Point works were started up on Friday, and both are in full operation, running smoothly and well, and hoisting about 500 tons of ore per day.

WHITE PINE.

NORTH AURORA.—White Pine *News*, Mar. 9: The Risdale chamber has improved greatly since last report. A force of men is breasting in the northeast end of the chamber. The shaft, a continuation of the original Risdale shaft, is down 73 ft., and the showing of ore in the bottom is of a higher grade than any (not excepting the Eberhardt) ever extracted from the English Co'e. mines. The ore commences 57 ft. below the top of the shaft and, as far as bottomed, shows a body of ore 16 ft. thick. The shaft will be sunk deeper. The ore is of a regular grade, requires but little sorting, and averages $80 per ton. There are 2 shifts of 12 men in the northeast chamber, and the number will be increased as soon as the opening can be made. About 50 tons of ore are hoisted per day, by the whim. The ore in the new chamber south of the Lady's chamber has increased in body and richness; the workings are in 75 ft. A contract has been let to run a drift from the Lady's chamber to the south chamber.

MAMMOTH.—This mine is on the north slope of Treasure hill, toward Hamilton. Mr. Paul, the present foreman, commenced work on the center of the location, and discovered a fine body of ore. An open cut was started, and a tunnel is in 100 ft. on ore. Back of the open cut a shaft is down 51 ft. A drift from the shaft shows a ledge 12 ft. wide; 49¼ tons of ore were worked at the Swansea mill in Nov., which yielded $41 to the ton.

SAN JUAN DEL RIO.—The shaft is down about 30 ft., in a good body of ore.

GEN. LEE.—The drift from the shaft is in 40 ft., showing ore the whole way. The last 5 ft. run shows an improvement in the ore-body in grade. Piling on the dumps.

EAST SHEBOYGAN.—The force prospecting has developed good prospects since last report. The Exchange incline is going down in spar by contract. The indications show well for ore.

EBERHARDT.—A force of men will be put on in the different workings to-day, and should the weather be favorable work will continue as usual in the mine.

COPPER GLANCE.—The West drift goes ahead as usual Running in black spar and quartz mixed.

NOONDAY.—Work going ahead as usual, and no change in the grade of ore.

Arizona.

ITEMS.—Prescott *Miner*, March 2: The latest from the Tiger is to the effect that the tunnel was in 180 ft. from the bottom of the 100 ft. shaft; that rich ore was getting plentier. Mr. Burger's mill near Ehrenberg, is almost finished, and work upon the mine is progressing favorably. At Castle Dome, a short distance above Arizona City, miners are taking out a great deal of ore, containing silver and lead, which they are shipping to San Francisco.

A letter from Florence, has the following: The last heard from the Silver Queen they were down 18 ft. on the ledge. The ore is rich in gold, silver and copper. It is rumored in town, during the week, that Mr. Simmons had found a rich mine somewhere west of town. Col. Cany has recently received some big assays from rock which he forwarded to San Francisco. A recent run of 3 days with 4 stamps at the Del Pasco mill netted the owners about 50 ounces of gold, worth $17 per ounce.

Colorado.

ITEMS.—Georgetown *Miner*, March 7: Baily & Nott has shipped during the past week 35½ tons, on account of owners, of rich smelting ore.

Another crusher will soon be in position in the mill of the Silver Plume Co. at Silver Plume. This mill will soon have a crushing capacity of 26 tons per diem.

About 1,160 ft. from the mouth, and about 600 ft. from the surface, the Marshall tunnel has cut a vein of mineral, valuable for silver as well as lead.

SHIPMENTS.—The last shipment of ore, 21,515 lbs. of the Marshall S. M. Co., contains 6,949 ozs. of silver and 35 per cent. of lead. The coin value of the silver in this lot of ore is, $8,984.35. The lead contained in the ore, 7,630¼ lbs., at 5 cts. per lb., in coin, would be worth $381.51. Total coin value of silver and lead in the ore $9,365.-87. The amount of ore shipped out of the county during Feb., foots up to more than 240 tons. The average value of the ore, in coin, will amount to $400 per ton, or $96,-000 per month.

HIDDEN TREASURE.—This lode is on

Leavenworth, a short distance above the Equator and Compass & Squaro lodes. Tho discovery is being worked by Clark & Co. and McCoy & Co. East of tho discovery, Stowol, Cox & Co., Hurd & Co., Chipman & Co., Mahancy & Fellows, and a Co. of Swedes are working ground in tho order named. West from the discovery Mairs, Shea & Co., Ingrnm & Co., Papin & Co. and J. Gunow & Co. are working gronnd in the order named. Nearly every Co. have struck good pay. The valuo in coin, of the oro yield of the mino is at the rate of $1,000 per diem.

Gold Hill.—Central *Register*, March 6: A private letter informs us that Cort & Day expect to havo their shaft and engine house on the Horsofall lode completed by the 15th or 20th of March, when they will commence hoisting water. As soon as the water is out of the mino, a large force of men will be put in the mino to work night and day.

Wm. Tennis has leased the Teller property, on the Adelino lode, also the adjoining claims to the west, on tho Gunnel hill. He takes possession to-morrow, and will push the work with energy.

Shipments of bullion from the Caribou mill are becoming regular and freqnent.

S. B. Andrews, of Carihou, placed some ores on our table, from the following lodes, viz: "Seven-thirty," "Caribou," "Wabash," and "Potosi." Of these lodes, he says, the first carries a pay-streak 18 inches in thickness, and the drifts are being run east and west on the vein. The main shaft on the "Caribou" 250 ft. deep. The first-class oro in this shaft is one ft. thick. The east shaft is down 140 ft., and shows a 4 ft. vein of oro. The "Wabash" is 60 ft. deop, and has 15 inches of good ore. On tho "Potosi," the main shaft is 75 ft. deep. A drift has been commenced at a depth of 50 ft. The ore is 2 ft. thick, and assays $150 per ton. Eight tons of ore have just hcen shipped from this mine, to the Middle Boulder mill.

Idaho.

Local Record.—Silver City *Avalanche*, March 9: Under the guidance of J. Jewell, foreman of the Mahogany, we went through the various levels, drifts and stopes of that mine on Wednesday. The main shaft is down 437 ft. from the surface. Four ft. from tho hottom of the shaft a tank has been put in to receive the water from the 5th level after tho vein shall have been tapped. Tho cross-cut from the hottom of the shaft is in ahout 8 ft., and Mr. Jewell expects to rnn from 8 to 10 ft. further heforo striking tho ledge. Tho shaft will shortly be put down to the 6th level. The 4th level is at a depth of 328 ft. The length of the cross-cut from tho shaft to the ledge at this point was 12 ft. Drifts have been rnn hoth north and south on the vein in the 4th level. The South drift has been extended 95 ft., and stopes taken off from cross-cut for 61 ft. in length with an average hight of 25 ft. The north drift is in 79 ft. with the hacks taken away for 65 ft. in length, and at an average hight of 33 ft. There is yet 35 ft. more to rnn before reaching the South Chariot line; so that there is a fine vein of stopes, 126 ft. in length and still getting longer by extending south. Throughout the 4th level the ore is better than was ever before found in the mine. The pay streak is about a foot in width, and will pay over $100 per ton. Free gold and pure silver in abundance can he seen in almost any of the quartz, and also in the granite casings. They have shipped ahout 250 tons of ore to the mill and have 50 tons on hand in the ore house. Forty-three men, all told, are employed in the mine at present, and they are takiug out from 12 to 15 tons of ore every 24 hours.

The South Chariot 4th level drift is in 228 ft., showing a 15-inch ledge, and looking hetter than over before since it was started.

The 2d lovel drift of the Minnesota is in 140 ft. north from the shaft and 130 south. The ledge is from 6 to 15 inches in width, of ore that will pay ahout $60 per ton.

South Mountain. — Boise *Statesman*, Mar. 9: Twenty-eight mon have beou wintering in South Mt. Tho country has heen prospected in a limited manner for ahout 5 miles square. About 150 ledges have heen located. The Bay State, Yreka, Independent, Mammoth, Original and Monitor are the ones that are boing prospected, and may he considered as fairly tested. The Bay State is nearly solid galena; 5 tons sent to S. F. yielded $105 to the ton in silver, and 45 per cent. lead. The work is down 16 ft.; it shows an average of 4 ft. in width. The Golconda is down 40 ft.—300 tons taken out. The lead opens 60 ft. wide. The ore is half carhonate and half galena. The Yreka is down 20 ft.; shows a large lead but the width is not known. Some of the ore has been sent to S. F., and works $100 to the ton; 50 to 100 tons havo hcen taken out. The Independent is down 18 ft.; shows 15 ft. wide; 200 tons of ore have been takon out, and the ore is the same character and valuo as the Yroka, only a little more galena. The Mammoth shows on the surface 40 ft. wide. Only 3 days work havo been done on this lead. The oro assays $303 to the ton. The Original shows 125 ft. wide on the surfaco. They havo run a cut 45 ft. across, and 25 ft. deep in the deepest placo. Tho average assay is $42 in silver and 27 por cent. lead. The Miami is down 45 ft.; shows 6 ft. wido; assays $120 to tho ton. Tho Monitor is down 25 ft., or rather they have run a tunnel on the lead 60 ft., and are in 25 ft. below the surface; shows 20 to 30 ft. wido.

Throo furnaces are to he pnt up in running order by the 1st of July.

The Outlook.—Idaho *World*, Mar. 2: Most all the miners around Idaho City aro making preparations to commence work, and soveral of tho short ditches will he shoveled out during the coming week. Tho Chinese Cos. who are working ground opposito town, under contract with the Buena Vista Bar Co., have been groundsluicing for tho past week, and have about 110 hands at work. Keller & Bidwell and West & Ralston will have their claims running in Bear Run in a few days, and the Buena Vista Bar Co. also have men at work on their bar claims on the west side of Elk creek, putting things in shape to start thoir hydranlics. The Buena Vista ditch was cleaned out, and the wator has been running throngh it for ahont 10 days, and tho old Dunn ditch will he shoveled out and water put through it in tho course of a week. The Alderson ditch, the Big ditch, and More Creek ditch, helonging to the Buena Vista Bar Co., also, will probahly not be cleaned out for a couple of weeks yet.

W. J. Hanks, foreman of the Empire, has that mine in splendid shape for working. Stopes are being driven north the entiro depth of the shaft, which is down 90 ft. from the surface. The ledgo averages a foot or more in width as far as it has yet heen worked, and the ore pays about $150 per ton. A new ledge, 1½ ft. in width, has just come into the hottom of the shaft from the west.

The Morning Star shaft will be down 220 ft. next week, from the hottom of which a drift will he run north 200 ft. to connect with the old works.

Lower California.

Machinery.—Ahout 2 tons, consisting principally of a railway track, were shipped to Ensenada yesterday. The material is intended for the mino and mill of Mr. McKean.

Montana.

Beartown.—Deer Lodge *New North West*, March 2: The residents of Beartown and vicinity are making preparations for an uncommonly prosperous season. The claims of Brady & Co. and Brennen & Co. immediately above town, have heen worked successfully all winter, and there is half a mile of the gulch above them yet to he worked. The gulch for 10 miles below the town is heing mined, with good results, and over a 100 cahins have busy occupants.

Silver Bow.—Deer Lodge *Independent*, March 2: Should the present warm weather continue, mining operations will ho resumed much earlier this season than common.

Clean Up.—Helona *Gazette*, March 7: From a new lode opened this winter in the Sultana dist. on the Park, at the head of Grizzly gulch, called the Choctaw, a run was made on the quartz this week, at Judge Turnley's mill, which yielded $44 to the ton. The crevice of paying quartz is about 1¼ ft. in width, and shows every indication of widening out.

Bullion.—Helena *Herald*, March 7: Tho Helena Reduction Works, 2 furnaces in blast, turned out in the 12 hours run last night, 38 hars of crude bullion of 50 lbs. each.

We saw to-day a specimen of silver ore from the Poor Man's lode, at Phillipsburg, which will assay $10,000 to the ton.

New Mexico.

Our Mines.—Santa Fé *Post*, March 2: We learn from Elizabethtown that prospects for the coming season are very hopeful. At the Corona del Pueblo silver mines in Socorro county and Silver City mines in Grant county great activity prevails.

Oregon.

Rich Mines.—Oregon *Sentinel*, March 9: The claims of O'Shea & Stevens, on Coyote Creek, are paying from 2 to 3 ozs. per day to the hand, for drifting.

Nugget.—Mr. Beekman, bought on Monday, a gold nugget of a Chinaman, supposed to have been found on Jackson creek, that weighed 2¼ lbs., and valued at $444.25.

Utah.

Bullion.—Salt Lake *Tribune*, March 13: Since tho 9th inst. W. F. & Co. has received from Raymond & Ely 40 bars valued at $62,010.22. On the 12th they forwarded to N. Y. 15 bars valued at 14,-084.46 from the Meadow Valley works. Last week Durant & Cutting received 86,-000 lbs. of ore from the South Star and Titus mines. N. P. Woods shipped yesterday 4 car loads of hullion from the Sultana works, American Fork.

Discovery.—A large amount of galona ore has been struck in the Winnomucca miue Bingham cañon, yielding several ozs. of silver per ton.

Star.—Specimens from the Mary Josephine, at a depth of 6 ft. assay $16,000; Yellow Jacket ore, from a depth of 20 ft., $5,000.

Ophir.—The owners of nearly all the smelting works aro preparing their furnaces to commence operations early in the spring. New arastras are going up and the Aiken furnace attached to the Pioncer quartz mill is completed.

Stockton.—Simon's smelters on Stockton Lake, are not running at present.

Pioneer Mills.—Tho furnace is chloriding up to 80 per cent. and the amalgamation working well.

S. F. Stock Exchange Board.

San Francisco, March 21, 1872.

The sales at the Board for the week ending Wednesday the 13th inst. amounted to $4,072,-300. The heaviest trausactions were in Meadow Valley, Washington & Creole, Excelsior and Eureka Consolidated. Last week 758 tons, assaying $37 per ton, were taken from the Chollar-Potosi mine. The shipment from the Raymond & Ely from the 1st to the 15th of March aggregate $160,000; total received for the month thus far $192,675. Nearly 800 tons of ore were taken from the Hale & Norcross mine last week; 2,950 from the Crown Point, valued at $142,000, and 1,200 tons from the Savage mine, assaying $30.50. The following Trustees of the Alps Mining Co. have been elected: J. D. Fry, C. W. Fox, A. Hayward, C. S. Hobbs and E. Skerrett. On Friday, stocks were moderately firm; Saturday a little more active; Monday and Tuesday still active; and Wednesday and to-day the market was rather weak; almost all kinds sold lower.

Comparative Prices—Extremes, Advance and Decline.—S. F. Stock and Ex. Board.

	Feb. 14.	*Highest.*	*Lowest.*	March 21.	*Adv.*	*Dec.*
Alpha	$37	40	35	35	—	2
Amador	—	—	—	—	—	—
Belcher	600	630	600	610	10	—
Buckeye	—	6¾	5	5	—	—
Chollar-Potosi	64	74½	61	69	5	—
Caledonia	18¾	22	17½	18½	1	—
Cons. Virginia	38	46	36½	46	8	—
Crown Point	780	800	780	—	—	—
Daney	—	3⅜	2¾	3⅜	—	—
Eureka Cons	29	31	27	28	—	1
Eureka	16½	21¾	16½	21½	5	—
Exchequer	18	18½	17½	—	—	—
Gould & Curry	207	240	200	240	33	—
Golden Chariot	21	23	19¼	21	—	—
Hale & Norcross	300	350	288	320	20	—
Imperial	112½	150	100	123	5½	—
Ida Elmore	14	14¼	13	14¼	¼	—
Kentuck	260	300	255	—	—	—
Mammoth	—	65c	65c	—	—	—
Meadow Valley	24	24	21	23½	—	1½
Mahogany	17	17	15	—	—	—
Ophir	66	85	59	80	14	—
Orig. Hid. Treas.	8⅛	10	7⅛	10	1⅞	—
Overman	52	68½	50	60	8	—
Pioche	15¼	16	14	16	¾	—
Raymond & Ely	135	136	123	129	—	6
Savage	237	260	227	252	15	—
Sierra Nevada	28	29	26½	27¾	—	—
Succor	5¼	6¼	5	5	—	¼
Wash. & Creole	7	7⅞	6½	6⅝	—	¼
Yellow Jacket	88	88	70	84	—	4
St. Patrick	—	—	—	—	—	—
Seg. Belcher	60	75	57	70	10	—

Latest Prices—Bid and Asked.

	BID.	ASKED.		BID.	ASKED.
Alpha Cons	33	34	Ida Elmore	14	14½
Amador	—	—	Imperial	123	123
Belcher	608	610	Kentuck	—	—
Chollar-Potosi	67	67½	Meadow Valley	22¾	23
Crown Point	—	—	Ophir	76⅝	77
Oancy	3¼	3⅜	Orig. Hid. Treas	8¾	9
Eureka Cons	27¾	28	Overman	58½	60
Eureka	21	21⅝	Savage	245	250
Golden Chariot	20	20½	Raymond & Ely	127½	128
Gould & Curry	230	233	Sierra Nevada	27	27¼
Hale & Norcross	320	—	Yellow Jacket	81½	—

Consignment of Californian Pears.—We have often had to direct attention to the magnitude of the fruit trade of this city and the enormous distances from which in many cases the Glasgow market is supplied. A hetter illustration of this could not possibly he adduced than the fact that on Saturday Mr. Thomas Davis, of the Bazaar, received a consignment of pears grown in Sacramento, California. The pears are of the Easter Beurre kind, and arrived in very good condition. The Easter Beurre is a magnificent species of pear, being twice or three times the size of our Jargonelle, of excellent flavor, and so well adapted for keeping that, notwithstanding the lateness of the season and the distance over which it has travelled, the fruit looks as fresh as if it had just heen plucked from the tree.—*North British Daily Mail of Feb.* 3d.

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the Scientific Press and other San Francisco journals.]

ASSESSMENTS.

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT	DAY DELINQUENT.	DAY OF SALE.
Alps S. M. Co., Nev., March 1, 75c	April 9	April 30
Bloomfield Gravel M.Co, Cal., Feb. 23, $3	Mar. 27	Apr. 13
Caledonia S. M. Co., Nev., Feb. 1, $4	Mar 8	Mar. 29
Cons. Virginia M. Co., Nev., Mar. 19, $3	Apr. 24	May 18
Daney G. & S. M. Co., Nev., Feb. 1, 65c	Mar. 4	Mar. 25
Emma Hill Co., U. T., Jan 11, 25c	Feb. 19,	Mar. 14
Golden Age & Empire M.Co, Feb. 9, $2.50	Mar. 12	Apr. 3
Gould & Curry, Nev., Jan 30, $15	Mar. 4	April 26
Golden Chariot, I. T., Jan. 31—$2 50	Mar. 9	Mar. 30
Grand Duke M. Co., I. T., Mar. 5, 25c	April 15	May 15
Ida Elmore, Idaho, March 6, $3	April 11	May 10
Kincaid Flat M. Co., Cal., Feb. 14, $3	Mar. 18	April 8*
Mahogany G. & S. M. Co. I.T. Jan. 26, $1.50	Mar. 6	Mar. 23
Marcelina S. M. Co. Mar. 8. 10c	April 15	May 7*
Noonday S. M. Co. White Pine, Feb. 1, 20c	Mar. 5	Mar 25
Nuestra Senora de Guadelupe, May 12, $2. Ap 15	May 8*	
Overman S. M. Co, Gold Hill, Mar. 18, $4	Apr. 13	May 13
Pacific Borax Co., Nev. Feb. 23, 15c	March 28	April 16
Peter Walter M. Co. Placer Co. Mar. 11, $1.	Apr. 18	May 6
Phoenix S. M., Nev., Mar. 19, 75c	April 24	May 15
Piermont M. & M. Co., N., Jan. 20, 80c	Mar. 1	Mar. 23*
Pocahontas G. M. Co., Cal., Feb. 25, $5	April 6	May 6*
Quail Hill M. & W. Co., Cal Feb. 15, $5	Mar. 26	April 16*
San Buenaventura Co. Cal., Jan. 19, $1.	Feb. 29	Mar. 29
South Chariot M. Co., I. T., Feb. 8, $1	Mar. 9	April 1
South Eureka, Nev., Mar. 2, 15c	April 4	April 24
Spring Mt. Tunnel Co., March 12, 15c.	April 22	May 13*
St. Patrick M. Co. Placer co. Cal. Feb. 8, $4.	Mar. 13	Apr. 2
S. Gulch Gr. M. Co., Cal., Feb 7, $1.50.	Mar 13	April 3*
Tallulah M. Co., Nev., Jan. 30, $1	Mar. 5	Mar. 26
Tecumseh G. S. & C. M. Co. Cal. Mar. 20, $3.	Apr. 29	May 94*
Washington & Creole M. Co. Feb. 16, 50c.	Mar. 15	Apr. 11

MEETINGS TO BE HELD.

Buckeye M. Co	Annual Meeting Mar. 29
Cadmus M. Co	Annual Meeting April 1
Eagle Quicksilver M. Co	Special Meeting, Mar. 25*
Hale and Norcross	Special Meeting April 18
Jackson M. Co	Annual Meeting Mar. 25
North Oro Fino	Annual Meeting Mar. 25
Oro Fino M. Co	Annual Meeting Mar. 25
Phœnix S. M. Co	Annual Meeting April 1

LATEST DIVIDENDS—(Within Three Months).

Belcher, $15	Payable March 9
Chollar Potosi, $1	Payable Feb. 10
Crown Point, $15	Payable March 15
Fastport, Close Bay, Coal M. Co. 1 per ct.	Payable Feb. 12
Eureka Gold M. Co., $1	Payable March 11
Keystone M. Co., $1. $1	Payable Feb. 10
Meadow Valley M. Co., $1.50	Payable March 18
North Star G. M. Co., $3	Payable Feb. 10
Raymond & Ely, $5	Payable March 8

—*Advertised in this journal.

San Francisco Metal Market.

Corrected weekly by Hooker & Co., 117 and 119 Cal. street.]

PRICES FOR INVOICES

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

THURSDAY, March 21, 1872

Iron.—			
Scotch and English Pig Iron, ₱ ton	$55 00	@	60 00
White Pig, ₱ ton	45 00	@	— —
Refined Bar, bad assortment, ₱ lb	— 05	@	— 05½
Refined Bar, good assortment, ₱ lb	— 05½	@	— 06
Boiler, No. 1 to 4	— 05	@	— 06
Plate, No. 5 to 9	— 07½	@	— 08
Sheet, No. 10 to 13	— 05½	@	— —
Sheet, No. 14 to 20	— 06	@	— —
Sheet, No. 24 to 27	— 06	@	— —
Horse Shoes	7 50		
Nail Rod	10		
Norway Iron	8		
Rolled Iron	5		
Other Irons for Blacksmiths, Miners, etc.	5	@	6
Copper.—			
Sheathing, ₱ lb	— 24	@	— 28
Sheathing, Yellow	— 24	@	— 26
Sheathing, Old Yellow	— 11	@	— 11½
Composition Nails	— 24		—
Composition Bolts	— 24		—
Tin Plates.—			
Plates, Charcoal, IX ₱ box	12 00		— —
Plates, I C Charcoal	10 00		10 50
Roofing Plates	11 00		— —
Banca Tin, Slabs, ₱ lb	— —		— 45
Steel.—English Cast, ₱ lb	— 16		— 17
Drill	— 16		17
Flat Bar	— 17		20
Plough Points	3 75		
Russia (for mould boards)	— 12½		
Quicksilver.—₱ lb	— —		— 85
Lead.—Pig, ₱ lb	— 05½		— 06½
Sheet	— 08		— 8½
Pipe	— 9		— 10
Bar	— 08		— 09
Zinc.—Sheets, ₱ lb	— 10		— 10½
Borax.—Refined	— 25		— 30
Borax, crude	— 5		— —

Leather Market Report.

[Corrected weekly by Dolliver & Bro., No. 109 Post st.]

San Francisco, Thursday, March 21, 1872.

Sole Leather.—The demand is still equal to the supply, and prices still continue firm.

City Tanned Leather, ₱ lb	26@29
Santa Cruz Leather, ₱ lb	26@29
Country Leather, ₱ lb	25@29

French skins are firmer with an advance in some grades. Heavy California skins are ilull, with an upward tendency.

Jodot, 8 Kil., per doz	$90 00@ —
Jodot, 11 to 19 Kil., per doz	76 00@ 90 00
Jodot, second choice, 11 to 15 Kil. ₱ doz	60 00@ 76 00
Lemoine, 16 to 19 Kil., ₱ doz	95 00@ —
Lemoine, 12 and 13 Kil., per doz	70 00@ 70 00
Cornellian, 16 Kil., per doz	70 00@ —
Cornellian, 12 to 14 Kil., per doz	60 00@ 68 00
Ogerau Calf, ₱ doz	54 00@ —
Simon, 8 Kil., ₱ doz	60 00
Simon, 20 Kil. ₱ doz	68 00
Simon, 24 Kil. ₱ doz	72 00
Robert Calf, 7 and 8 Kil	35 00@ 40 00
French Kips, ₱ lb	1 00@ 1 30
California Kip, ₱ doz	65 00 to 80 00
French Sheep, all colors, ₱ doz	15 00
Eastern Calf for Backs, ₱ lb	1 15@ 1 25
Sheep Roans for Topping, all colors, ₱ doz	8 00@ 13 00
Sheep Roans for Linings, ₱ doz	5 50@ 10 50
California Russett Sheep Linings	1 75@ 5 50
Best Jodot Calf Boot Legs, ₱ pair	5 25
Good French Calf Boot Legs, ₱ pair	4 50@ 5 00
French Calf Boot Legs, ₱ pair	4 00
Harness Leather, ₱ lb	30@ 37½
Fair Bridle Leather, ₱ doz	48 00@ 72 00
Skirting Leather, ₱ lb	34@ 37½
Welt Leather, ₱ doz	30 00@ 50 00
Buff Leather, ₱ foot	18@ 21
Wax Side Leather, ₱ foot	18@ 29

Received.—We are again under obligation to White & Baner, newsdealers in this city, for the latest copies of Australian, China, New Zealand and Sandwich Island Papers, *viz.* the *Melbourne Australian;* the *Sydney Mail* and *New South Wales Advertiser;* the *New Zealand Herald;* the Hongkong *Overland China Mail;* and the Honoluln *Commercial Advertiser.*

Strawberries.—The first strawberries of the season have arrived, having been sent by Bloomfield, of Santa Clara, to A. Lusk & Co.

Wastage of the Precious Metals—No. 4.

BY ALMARIN B. PAUL.

[Written for the PRESS—Concluded.]

We boast of our mechanical and scientific skill, our 22 years experience, our great discernment and independent action, and yet are bowed down by our grandfathers' ideas of working gold ores, and, on the average, do not extract 50 per cent. of the riches contained therein. Is there not a contradiction in our boasts, when compared with results?

Some will say, it is all well to talk about loss of metal, but how can we prove it, and where is the remedy?

I will tell you how to prove it, but each must work out his own remedy. For my part I have worked out the loss by what I consider the remedy—dry amalgamation—but our subject now is loss, not remedy. To awaken the mind for improvements, and he interested in a remedy, miners must first realize their loss. I contend there are several ways of working our gold ores better than the one now universally used in California. If you want to get a clear comprehension of your loss, take say 5 tons or more—not less. Reduce the ore *dry* through say No. 20 wire cloth screens; mix all thoroughly, then spread it out upon a floor about two inches thick. Lay it out in 12-inch squares, take a smaller quantity from each square, take samples thus obtained, and again mix them. Again spread out say one inch thick, laid out into 4-inch squares, taking a smaller portion from each. Reduce this sample to powder; if too much for average assays, sample again as before. Get 3 or 5 assays from reliable assayers, average the assays. Work your ore by your mill process; compare the results with assays; and in nine cases out of ten every one will find they possess more riches than they thought they had. Any other system of testing is unreliable. Pieces of rock can be had to assay more or less as you want. To get at the value of your mine, the testing of *tons* by this mode is the only safe one. It is troublesome, and these "old time" gold miners, who have got it all, don't want to be troubled. The less bigoted ones, however, may find time and take an interest in doing so, and receive, I doubt not, a pleasurable lesson. As I happen to be in the unfortunate position of trying to benefit the pursuit in which I take the most interest studying, I will receive it as a favor, if parties who should make any tests as the value of their ores in connection with the loss, will send me the results of any experiments. I said "unfortunate position," as I clearly realize the fact that it is unfortunate for any one to start out of the old beaten track, or to show the least enterprise, outside of "interest;" for by so doing he too often becomes the prey of those—

> "Whose hungry maws are only bent
> On the fine feast of cent. per cent."

The closer we investigate the question of loss of the precious metals, the more astounding are the facts disclosed, the millions upon millions that have been allowed to escape from our hands can only be estimated by the amount produced. That all the fault of loss may not be laid on gold miners, I will now present some facts connected with silver mining, taking a few of the prominent, and most efficient cases of working on the Comstock lode, as evidence of what the loss is in the best class of mills, working on the best ore. By this means the reader can form some idea of what the loss is likely to be in this poorer class of mills and on ores less easy to manipulate. From the statistical tables now before me of the Hale and Norcross Co., I find that in one year 28,000 tons were worked, producing $1,135,220, with a loss of $762,516, The product of 14 mills, all working for several months on Comstock ore, was $816,977, while the assay value was $1,288,132.

It will thus he seen hy the most unquestionable statistics that the best of the Comstock mills do not average over 65 per cent., though some claim, but have not kept statistics to prove it, that they have worked up to 75 per cent. The Comstock has produced (without entering minutely into a calculation), about $140,000,000, making a loss of over *fifty millions of dollars in less than twelve years*. As corroborative evidence of the loss hy mill working in general, is the fact that the working over of tailings has grown into quite a business, the product of which in a measure lessens the percentage of loss for amount worked, hut the quantity retained is small in proportion to the amount of ore reduced; so that a deduction of 5 per cent. on gross loss will probably give full credit for that which is produced hy re-working.

It is a very singular fact that in no portion of the State of Nevada, are the ores as pure as those of the Comstock lode, and as all are worked on the same plan as the Comstock, their percentage of value is much less—excepting in cases where furnaces are used and no expense spared to purify the metal. I am speaking only of mill ores. The reason of this low percentage, is that lead, copper or antimony, in all their various combinations as sulphurets, carbonates and chlorides, is more or less intermixed with the ores, vitiating the mercury, and thus rendering amalgamation difficult. In gaining percentage in silver working, the question of expense is more to be considered than gold. The ores of Nevada, in fact I may say silver ores everywhere occur in such a multiplicity of combinations that it requires more skill, science and experience to manipulate them, than gold, and yet the percentage on the whole, is above that of gold working in California, showing, as I assert, that our system of silver mining is ahead of our gold mining. In silver districts, about every locality has its own peculiar combination of base and precious metals, which combination exacts respectful consideration, or great loss is the result. To be just, we must admit, that while some mills working on very troublesome ore do not produce over 35 per cent., there are few mills, as before remarked, working regardless of expense on rich ores, which do produce on the average as large as 85 per cent.

There is one marked difference, too, in our gold and silver mining, and that is, a clearer knowledge of what the loss is—if only 30 per cent. is obtained, they know it and seek to better it. The system of sampling ores, and the careful assaying of the same, is carried on now in nearly all the Comstock mills to a commendable degree of exactness, which is not only highly important in a statistical point of view to those interested directly, in a pecuniary way, but is of general value. This is worthy of imitation in California, hut, at the same time, no such correctness can he expected in gold, as in silver; for the reason, that silver is more universally disseminated in the ores, while gold is less so, and as one portion may have a small particle more than another, its greater value when multiplied into tons, often render erroneous values. It is only hy great care with a number of assays, that correct values can be obtained in general working. Tests, such as given in my last, are more to be relied on. The silver mills of Nevada surpass the best gold mills of California in order, system, neatness, expansiveness and of course expense—hut that expense pays. There are mills there costing over one million of dollars and but few less than $25,000, while the average will reach as high as $80,000 possibly $100,000.

If a California gold miner, who has not had experience out of his own State, should visit the best works of Nevada, he might he much benefitted hy what he saw, and possibly become less conceited of the perfectness and vastness of California mining. At all events he would be satisfied that there was something yet to do at home. There is one thing in favor of Nevada, that for silver mining she has had full command of capitol, while gold mining has had to hold its own the best it could; but let more interest be manifested in gold and it will in every way come fully up to the standard. With this I will close, although I could write more on the same subject, with a multitude of facts, setting forth the loss daily taking place—wealth which we all would like to handle, and are much in need of in the present condition of business. It is to be hoped at least, that the facts concerning these losses will he more closely investigated, all of which will rebound not only to individuals, hut to the general good.

I will not say hy what system it can he remedied. The point is *save the metal*, our home necessities demand it. The National debt demands it, trade and commerce demand, and above all the sciences and spirit of the age, the onward march of civilization demands it. With a great influx of the precious metals, comes a corresponding activity in trade and commerce, with their buoyancy comes a higher standard of intelligence elegance, and refinement. Our wasteful system is lahor, without reward, a more careful one, is wealth for industry. Let us remedy the evil, by doing it we can build homes for the poor. Do it, and there need he no poor, where there is muscle. Do it. Then begins the Golden Era of America, the splendor of which, like the noon day's sun, will give warmth, activity and good cheer to all.

ALABAMA has six cotton factories, which work up 20,000 bales of cotton annually.

The Badger.

The badger is a clumsy animal, with short, thick legs, and is nearly related to the hear. It is of the genus *meles*, and is found in Europe, Asia and North America, and is sometimes called the ground-hog. It is indolent, solitary, sleepy, and generally considered a stupid animal, feeds mostly on vegetables, and hy night. With its powerful claws it excavates deep and commodious hurrows, in which it remains during the day time. He seldom leaves his retreat at all during the severe winters of the north.

The word hadger is from *bloda*, the Latin for corn. This animal was called *bladarius*, by the Latins, because he carried away the corn from the fields of the farmers. So in every land, one who buys corn in one place and carries it to another to sell is called a badger.

The traveler on the wide prairies of Nebraska, Iowa and Kansas, and along the great thoroughfares of the Rocky mountains, often meets the hurrows of this animal. He is also found occasionally on the Atlantic Coast as far north as Labrador, which has given its name to a species of this animal peculiar to that locality.

The badger sometimes leaves his retreat in the day time. A traveler on the west-

ern plains relates the following incident: "We once surprised as many as five in a single day—two of them in company, as if upon a journey. We kept them before us for more than three miles—whenever they attempted to escape, we would rush upon them—when they would turn and fight most savagely—retreating backwards and contesting every inch of the ground in the retreat; and often rush at horse, man and dog in so determined a manner—that we were obliged to fall back—as we did not wish to kill them. After more than three miles fighting and retreating, they seemed to he in the latitude of home—as they made a sharp turn to the left, and came near reaching their hurrow; hut were killed not a rod from its mouth. From this circumstance as well as many others under our observation, we are led to believe that the hadger is given to making visits to far distant friends, or is sometimes of a wandering disposition."

The hadger can live many days without food or water; and even at the end of a three weeks fast has been known to give a most determined fight to a dog. The one which we have chosen for our illustration is one of the varieties peculiar to this continent, and is known as the *melis Americana*.

LIGHTING STREETS.—Since her reconstruction, Paris—always a city of municipal elegancies—has introduced a new and improved method of lighting her streets. We quote from a letter to the Philadelphia *Press* the following: "One novelty since the war is the use of a new electric gas for lighting the streets. Nearly all the half-circle of the Boulevards, on the Louvre side of the Seine, is not merely lighted hut illuminated in this manner. I do not know how this gas is produced, but it has all the brilliancy of a Bude light, and the cost is inconsiderable. In a short time, no doubt, every street in Paris will he lighted in this manner, with very little expense. There cannot he an explosion, it is stated, and as for an escape of gas that does not matter, as this is inodorous. It would he worth while for the ruling powers to send a Commissioner or two over to Paris to inquire into this new system of street illuminations. For domestic use—that is, in dwelling houses—the intensity of the light may be objectionable. In the open air, however, this is an advantage.

American Wonders.

The greatest cataract in the world is the Falls of Niagara, where the water from the great upper lakes forms a river of three-quarters of a mile in width, and then, being suddenly contracted, plunges over the rocks in two columns, to the depth of one hundred and seventy feet.

The greatest cave in the world is the Mammoth Cave in Kentucky, where any one can make a voyage on the waters of a subterranean river, and catch fish without eyes.

The greatest river in the world is the Misssissippi, 4,100 miles long.

The largest valley in the world is the valley of the Mississippi. It contains 500,000 square miles, and is one of the most fertile and profitable regions of the globe.

The largest lake in the world is Lake Superior, which is truly an inland sea, being four hundred and thirty miles long and one thousand feet deep.

The longest railroad in the world is the Pacific Railroad, which is over three thousand miles in length.

The greatest natural bridge in the world is the natural bridge over Cedar Creek, in Virginia. It extends across a chasm eighty feet in width and two hundred an fifty feet deep, at the bottom of which the creek flows.

The greatest mass of solid iron in the world is the great iron mountain in Missouri. It is three hundred and fifty feet high and two miles in circuit.

The largest deposits of anthracite coal in the world are in Pennsylvania, the mines of which supply the market with millions of tons annually, and appear to be inexhaustible.

Iron.

Five years ago, Illinois did not produce a ton of pig metal. Last year she made 65,000 tons.

Last year Missouri mined 268,800 tons of iron ore, and Michigan 910,985 tons.

Nearly one-third of the pig metal produced in the United States, is made from Michigan ore.

Illinois, as a rail-producing State is second only to Pennsylvania.

About 3,500 tons of 'black ore' is mined in Clay county, Indiana, every day, part of which is sent to St. Louis.

One mill in Wisconsin, places that State fifth on the list of rail-producing States. It made 25,774 tons, last year.

Michigan made nearly 100,000 tons of pig metal, last year, against 900 tons in 1854.

The Missouri ore companies are prepared to put 500,000 tons of ore in the market, this year.

The manufacture of rails in this country, has just doubled in the last six years.

The year 1872 opens on a very small stock of iron throughout the world. In the United States the aggregate is lower than at this period for many years, and the product of the furnaces for 1872 is largely contracted for. In England prices have been steadily advancing for several months and the stocks of finished iron increasing, until the scarcity there equals that here. In both, and, in deed, all countries, the various branches of manufacture are fully employed. The completion of projected undertakings, and the prosecution of new ones, will demand greater supplies than the production of 1872 will meet, and we may, consequently, look for higher prices.—*Ex.*

THE WING OF THE LOCUST.—If the tip of the wing of the so-called "seventeen-year locust," is placed under a low magnifying power, there will be seen near the fancied letter W (which has been observed hy some with superstition) a beautiful branching, arborescent appearance, which is probably due to certain vessels which supply nutriment to the wing. The branches are transparent, and are based on one of the muscular hands of the wing. They appear to be filled with some granular material. Why they appear only at this one spot on the wing has not been explained.

LARGE ARMOR PLATES.—A firm in Sheffield, England, have just lately succeeded in rolling the largest armor plates ever made. The plates are intended to protect the turrets of the great war ship Devastation, which is being built at Portsmouth. Each plate weighs twenty-four tons and measures twenty feet in length, nine feet in breadth and eight inches in thickness.

Useful Information.

Oatmeal and the Intellect.

At the annual meeting of the American Association for the Advancement of Education, recently held in this city, Professor Haldeman advocated the use of high phosphorized food for teachers, they having much expenditure of brain. He said "the reason why the Scotch were so intellectually acute and active must be attributed to the use of oatmeal in their youth. Oats contain more phosphorus than any other vegetable." He also recommended eggs as excellent food for teachers, in order to increase their intellectual capacities. But the mental acuteness and general intellectual strength which characterize the people of the above-named country cannot be due to the phosphorus of their oatmeal, which is their common breakfast food, for it so happens that wheat contains more of it than oats. The quantity of soluble phosphates in wheat, according to Professor Johnston—himself a Scotchman—is more than one per cent. greater than in oats. In his work on Agricultural Chemistry, pages 503 and 510, the composition of wheat and oats is given in tables.

Oatmeal is, no doubt, very excellent food for man and beast, and so is Indian cornmeal, but neither of them will confer intellectual acuteness upon any man. Dull teachers or dull men cannot be made philosophers either by the use of eggs or oats. We must look to some other cause than oatmeal for the metaphysical mind of the North Britons. That cause is, no doubt, to be found in their education. Common schools have been in existence in that country for two centuries, and the strict family training of children by catechisms being similar to that which use to prevail in New England, and various other parts of our country. The Welsh, the Norwegians and Irish use oatmeal extensive for food.—*Sci. Am.*

Patent Lunacy.

The *Railroad Guide*, in a very sensible article says: There is no more melancholy sight than a man afflicted with this mania—which in many of its aspects closely resembles the passion for gambling—who is poor and dependent upon his daily exertions for the support of himself and family. He has constantly before him the vision of affluence, and with it the pangs of poverty. Experience teaches often in vain, and one failure only seems to gild the brighter the next vagary of invention. We know of men who for years have spent all the time and money they could control to develop and bring into use inventions which it was quite easy to demonstrate would be practically useless. These same men, if remonstrated with for thus following a constantly losing career, are always ready to justify themselves by citing the great inventors whose beginning were equally discouraging and whose ultimate success was nevertheless most brilliant. Alas! if those who reason thus would only study, among other things, logic, so that they might see that because some inventors were in the beginning poor and had a hard time generally, but succeeded in the end, it does not therefore follow that all who exercise the inventive faculties in the midst of penury will emerge ultimately into success and affluence.

The Mysteries of a Hair Brush.—A writer in the *American Journal of Microscopy* has been exploring the forests of bristles in a hair brush surreptitiously purloined from a lady's toilet stand, and though it contained nothing which we are accustomed to regard with unqualified horror, the results of his investigations prove that there are mysteries ordinarily undreamed of in simple appliances of the toilet. There are concealed in the damp lint of hair brushes, unless kept clean by the use of bicarbonate of potassa or carbonate of soda, many living things, too small for detection by the naked eye, some of which, we are told, are of more than suspicious character, being known as the originators of scaldhead and other diseases of the scalp. The author concludes his article by a caution against wetting the head, recommending dry brushing instead. He also recommends the use of a weak solution of carbonic acid or sulphate of soda as a cleaning material for hair brushes.

The telegraph cable from Java to Australia has been successfully laid.

Japanese Tea.

A Japanese handbill, which we have found in a package of tea, from Hewes & Richards, reads thus:

"They are both kinds; Yeesay and Sanging; it is the name of the mountain; there very much foggy cover the top of the mountain to the foot are constantly. There quality are superior and genuine. Any person who was feeling indisposed may try take a cup of it in a few morning, and will feel much better and good spirit. With expressly packed for Imperial. By Foohing & Co., Yokohama."

This handbill is evidently written by a Japanese and it gives us an idea of Japanese progress in learning our language. Evidently the scholar has confidence that he can make himself understood, and in this he is not mistaken. We learn something from it that may be useful to us. This tea is presented as a superfine article, and its superiority is attributed to the foggy mountain-side on which the tea plants are grown. This suggests that our coast range elevations may be adapted to tea culture.

California experience in tea planting has been so interrupted by untoward circumstances, that a fair trial has not been made. All we have proved is that the plant will thrive if it arrives here in good condition—better one year old than more; and that it must be irrigated in summer. The seed will also germinate, and it is preferable to transplanting. But the tea nut is very oily. The oil even gets rancid and the nut is useless. Be sure, therefore, of your seed before you plant it. We are not certain that palatable tea can be made here. Change of climate often changes properties. Herr Schuell's samples from El Dorado tea plants were not decisive on that point.—*Alta.*

Immunity of the Pig From Injury by Serpent Bites.—The impression is generally prevalent in the United States that the common domestic pig is an especial enemy of all kinds of serpents, and that it is capable of receiving the bite of the rattlesnake and copper-head without the slightest personal inconvenience or injury. This same immunity from harm would seem to exist in other countries, as a late writer in the London *Field* remarks upon the fondness of the pige in India for the cobra de capello, and states that he has repeatedly seen them in conflict, and has observed the pig to be bitten over and over again in the snout and about the face by the writhing reptile, and in no instance with the slightest ill results to the aggressor.

Blue Glass for Greenhouses.—We find that Robert Buist, Sr., indorses the use of blue glass in greenhouses and other structures for forcing plants, etc. In a communication to *Tilton's Journal of Horticulture* he says:

I applied a coating of Prussian-blue paint, six inches wide, up the center of each row of panes; the result was electric, and in a few days the plants assumed their beautiful green color, and the trusses of bloom came to maturity. The greenhouse had been used to grow geraniums for bedding purposes, but they had lost their color every year about the first of April. The plants were completely rejuvenated by the blue glass.

Colored Candle Light.—Wax candles are made of different colors, but they all emit a white light. Why may not candles be manufactured, by introducing certain chemicals into the material from which they are made, so as to show a variety of colors, such as blue, red, green, etc.? By arranging such candles in tasteful groups, beautiful effects may be produced in illuminating buildings. If some ingenious chemist will devise a way of embracing a cheap chemical with any of the material used for illuminating candles so as to render the light emitted from them of any desired color, he will make a fortune by his discovery.—*Commercial Bulletin.*

Guinea Gold. — The French *Journal Official* says that gold production is rapidly increasing in the French colony of Guiana, of South America. The annual product has enlarged from 25,974 francs in 1856 to 1,685,643 francs in 1871. The product between 1856 and 1869 amounted to over ten million of francs. Gold mining industry in Guiana pays an annual tax of about twenty cents per acre, and an export duty of four per cent. upon bullion. The industry promises to attract to these tropical regions a numerous and energetic population.

Good Health.

Poisonous Exhalations.

Poisonous exhalations from drains are a far greater source of mortality than is generally supposed. Prince Albert, consort of Queen Victoria, no doubt came to his end from such a cause, and the heir "apparent" has just been snatched from the jaws of death, to which extremity he was undoubtedly reduced by breathing the exhalations from a defective drain. If all the guards that are usually thrown about royalty, fail to secure immunity from such exposure, what are we to expect in humble life, when, from necessity exposure is often knowingly submitted to. Only two or three weeks since the English mail informed us that a large number of operatives in a factory in Preston, England, became suddenly ill, and had to cease work. Several had already died, and others were not expected to recover. An examination showed that they had been working over a defective drain. No doubt the list of mortality is largely swelled by such cause, operating in unknown ways and quarters in every large city in the world, to say nothing of less populous neighborhoods. It is time that the public was taught to have more regard to such dangerous exposures in less populous neighborhoods. It is time that the public was better informed with regard to the danger from such exposures, and that more attention was paid to the drainage system of our cities and houses by those have who immediate official authority in such matters. Defective drainage and impure milk, lead to more deaths than any other ten or a dozen causes combined.

The Cause of Whooping-Cough.

The germ-theory of disease, which some pathologists seek to extend so widely, has been applied by Dr. Letzerich to explain the extremely infectious disease, whooping-cough. He thinks he has discovered a form of fungoid growth which vegetates in the air-passages, and by its irritation causes the convulsive attacks of coughing. The expectorated mucous in patients suffering from this disease is said to contain masses of brownish red spores with occasional threads of mycelium, which in later stages of the disease become very abundant. The spores are colored blue by iodine and sulphuric acid. These observations were controlled first by cultivation of the spores on pieces of bread soaked in milk, and further, by introducing masses of the fungous growth thus obtained into the trachea, of young rabbits. This was effected by tracheotomy, but the animals rapidly recovered from the effects of the operation, and in a short time became affected with a cough of a very violent and noisy character; in fact, a genuine whooping-cough. The rabbits thus effected were killed, and their air-passages and lungs found to contain an enormous quantity of the same fungous as that met with in the sputa from human whooping-cough; and, in fact, the mucous expectorated by the rabbits showed precisely the same appearance.—*Miscroscopical Science.*

Care of the Feet.—Concerning this subject the *Scientific American* very truly says: "Many are careless in the keeping of the feet. If they wash them once a week they think they are doing well They do not consider that the largest pores are located in the bottom of the foot, and that the most offensive matter is discharged through the pores. They wear stockings from the beginning to the end of the week without change, which become perfectly saturated with offensive matter. Ill health is generated by such treatment of the feet. The pores are not repellant but absorbent, and this fetid matter, to a greater or less extent, is taken back into the system.

The feet should be washed every day with pure water only, as well as the armpits, from which an offensive odor is also emitted, unless daily ablution is practiced. Stockings should not be worn more than a day or two at a time. They may be worn one day, and then aired and sunned and worn another day, if necessary.

Ammonia as a Cure for Snake Bites.—As many as 8,000 persons die annually, in British India and Burmah, from the effects of snake bites. The Inspector of Police to the Bengal Government now reports that of 939 cases, in which ammonia was freely administered, 702 victims have recovered, and in the cured instances, the remedy was not administered till about 3¼ hours after the attack, on the average. In the fatal cases, the corresponding duration of time was 4¼ hours.

Physical Development.

T. W. Higginson has taken pains to compare the vital statistics of several generations of two old New England families, and he finds to the dismay of those who mourn the physical degeneracy of woman since the days of our great grandmothers that the stock has improved, if anything. He adds:

No man of middle age can look at a class of students from our older colleges without seeing them to be physically superior to the same number of college boys taken twenty-five years ago. The organization of the girls being far more delicate and complicated, the same reform reaches them less promptly, but it reaches them at last. The little girls of the present day eat better food, wear more healthful clothing and breath more fresh air than their mothers did. The introduction of India-rubber boots and water proof cloaks alone has given a fresh lease of life to multitudes of women who otherwise would have been kept housed whenever it so much as sprinkled. It is desirable, certainly, to venerate our grandmothers but I am inclined to think on the whole that their great-granddaughters will be the best.

Big Sunday Dinners.—A Sunday's dinner is made the most sumptuous meal of the week in a great many households, and the guests retire from the table more like gorged anacondas than intellectual human beings, with the result that during the whole afternoon there is such an amount of mental, physical and religious sleepiness, if not actual stupidity, that no duties whatever are performed with alacrity, efficiency, and acceptableness The Sunday dinner made of a cup of hot tea, some bread and butter, with a slice of cold meat, and absolutely nothing else, would be wiser and better for all; it would give the servants more leisure; the appetite would be as completely satisfied half an afterward, while body, brain and heart would be in a fitting condition to perform the duties of the Sabbath with pleasure to ourselves, with greater efficiency to others, and doubtless with larger acceptance to him toward whom all our service is due.—*Hall's Journal of Health.*

Exposed Arms.—A very distinguished Paris physician says: "I believe that, during the twenty years I have practised my profession, twenty thousand children have been carried to the cemeteries, a sacrifice to the absurd custom of exposing their arms. Put the bulb of a thermometer into a baby's mouth and the mercury rises to ninety degrees. Now carry the same to its little hand; if the arm be bare and even cool, the mercury will sink to fifty degrees. Of course, all the blood that flows through these arms must fall from ten to forty degrees below the temperature of the heart. Need I say, when these currents of the blood flow back to the chest, the child's vitality must be more or less compromised? And need I add that we ought not to be surprised at the frequently recurring affections of the tongue, throat, or stomach? I have seen more than one child, with habitual cough or hoarseness, entirely relieved by simply keeping the hands and arms warm."

Singular Death.—Mr. E. C. Chambers, the Park street station agent of the Medforth branch of the Boston & Maine railroad, met with his death in a very singular way, some days since. His little daughter was sick with the diptheria, and he put his hand on her mouth for some purpose or other, and the child seized upon his hand and bit it. The marks of the teeth were very slight, comparatively, but the skin was broken slightly, and the poison from the teeth was transmitted through Mr. Chambers' system, and after a week's illness, during which his body became much swollen, he died.

The prospects of medical education for women are brightening. The medical faculty of Moscow, Russia, it is stated, have not only decided that the privilege of acquiring a thorough medical knowledge would be of utility to women, but have "resolved to admit them to the educational courses and lectures of the University, and to the privilege of following all the labors of the Medico Chirurgical Academy."

Cundurango has had a fair trial at Bellevue Hospital, New York, and has proved a failure.

Cure for Diptheria.—A simple treatment of diptheria may be found in the use of lemon juice. Gargle the throat freely with it, at the same time swallowing a portion, so as to reach all the affected parts.

Scientific Press.

W. B. EWER.....SENIOR EDITOR.

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San Francisco:

Saturday Morning, Mar. 23, 1872.

Gold and Legal Tender Rates.

San Francisco, Wednesday, March 20, 1872.—Legal Tenders buying 91⅜; selling, 92. Gold in New York to-day, 109¾.

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Volcanic Specimens.—Among the late additions to the cabinet of Mr. H. G. Hanks, No. 649 Clay street, is a case of lavas, etc., from the Sandwich Islands and from other volcanic regions. The specimens comprise stalactites and stalagmites from the cave of Kilauea, sulphur crystals, lava with sulphur coating, and with gypsum coating, Peles hair, pumice, red and black scoriae, etc. The specimens from the Sandwich Islands were recently sent here. The volcano from which they came, Kilauea, on the Mauna Loa mountain, is the largest in the world, rising 9 miles in circumference, and 6,000 feet above the sea.

Giant Powder Strikes.—The "strikes" occasioned by the use of Giant powder in the Grass Valley mines have come to an end. A meeting of the Miners' Union was held on the 15th inst., and after some discussion on the subject the following resolution which appears in the *Union*, was passed:

The Miners' Union at an adjourned meeting held last evening, resolved that it no longer obliges its members to avoid the use of Giant powder."

W. E. Reed, President.

Wastage of the Precious Metals.—Mr. Paul requests us to state that if any of our subscribers desire the article on the above subject in pamphlet form, that they may have the same, free of expense, by forwarding address to A. B. Paul, 318 California street, in this city.

Fossil remains of great size have been found on Wagner Creek, Wagner County, Oregon.

Increase of Taxation.

The question of taxation has become one of serious import, and notwithstanding our plain and supposed economical habits, there is no country where this burthen is making greater inroads upon the general industry and earnings of the people than in these United States. In 1860 our National expenses, including interest on the public debt, were confined within the limits of $75,000,000. In 1871 they had advanced to $186,000,000, exclusive of all moneys paid out on account of national debt and interest. Including the latter class of payments, the total footed up $411,000,000—or $10.42 to each man woman and child in the Union. It will be seen from the above, that the ordinary expenses of the general government increased 148 per cent. in eleven years.

Contrasted with Great Britain.

The expenses of the English Government for 1851, including the interest on her immense national debt, were, in round numbers, $273,000,000. During the next two decades they had increased to $348,000,000—or only 27 per cent. in 20 years, against 148 per cent. by the U. S. government in 11 years. The percentage of increase noted in the expenses of the U. S. government is exclusive of payment on both interest and principal of our war debt; while the percentage of increase in the expenses of the English government includes the added cost of interest on the debt created by the Crimean war. The *per capita* expenses of the English government is $11.60; but when it is borne in mind that a large portion of this expense is employed in keeping up and protecting her immense colonial possessions, the population of which is not taken into account, but from which both the government and people receive indirect benefit, it will be seen that the *per capita* tax bears no proportion to the magnitude of that of the United States.

The local taxation of England and Wales for 1868—corresponding to our State and county taxes—including the poor rates, was $83,916,000, or $3.87 per capita, against $10 to $15 for the local taxation in several of the States of the Confederated United States.

State Taxes.

The State taxes for New York increased three fold during the decade from 1850 to 1860; and from $18,000,000 to $50,000,000 during the last decade. Massachusetts, which paid $7,600,000 of taxes in 1861, raised $21,900,000 in 1869—an increase of nearly 300 per cent. in about eight years, and a per capita of about $15.60. Of course our state taxes have been very much increased since the war, in consequence of annuities paid to disabled soldiers and for other extraordinary purposes growing out of the war of rebellion. They are moreover largely increased for school purposes, an item which does not enter into the element of English taxation. But still the facts of the terrible and increasing burthen of taxation remains to hinder our industry and general national prosperity. The increase of local taxation was generally about as great for the decade preceding the war as for the last decade, and is altogether out of proportion to the increase of population.

Municipal Taxation.

We give below the per capita rate of taxation for the cities mentioned:

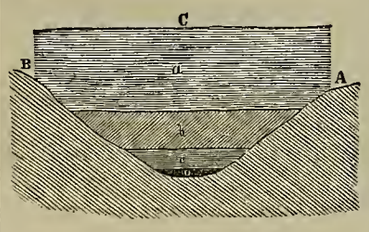
Boston, per capita.....	$36.10
New York " "	29.54
Chicago " "	21.65
London, including poor rates.....	5.85
Montreal, " " "	5.23

In the cities of London and Montreal, there is, of course no tax for education, which in those cities is made an individual expense. If this tax was added to the rates of those cities it would increase them about $3.00, or $8.85 and $8.23 respectively.

There are many other things besides the mere detail of dollars and cents in our system of taxation to which attention is being drawn. The conditions, irregularities and absurdities which characterize the various systems adopted by the different States and the United States for raising revenues, are utterly surprising and inconsistent with the reputation which the American people sustain for general intelligence and practical character. This matter is now being prominently placed before the country by a board of commissioners, appointed by the Governor of the State of New York, under authority of the Legislature. Their report has already been published, and the year has produced few public documents of half its importance or general interest, or one which has more astonished the reading and reflecting people throughout the commercial centers of our Atlantic sea coast. So much general interest has attached to the document that, as we have seen it stated, the Harper Brothers of New York have proposed a special edition of the report for extended circulation.

Table Mountain.

The Table Mountain of Tuolumne County is a flow of basaltic lava extending for a distance of nearly forty miles in a northeast and southwest direction from Murphy's, Calaveras County, to the foothills of the Sierra Nevadas on the borders of the San Joaquin valley, near Knights' Ferry, Stanislaus County. The greater portion of this remarkable landmark is situated within the limits of Tuolumne County. The mass of lava of which it is composed, naturally found a depression in which to flow and in doing so covered up the ancient river where the auriferous gravel is found. The denudation and erosion of the surrounding country has totally changed and reversed its topography. The former banks of the river have been washed away, leaving the lava stream standing in the position it occupied during the flow—its hight above the modern stream, the Stanislaus, being nearly 2,000 feet. When the existence of this river bed became known, the miners immediately went to work by tunnels, shafts and inclines and have been ever since extracting the precious metals from the gravel which lies under the deposit of lava. The Geological Survey have given a detailed description of the peculiar character of this mountain, which is very interesting as one of the striking features of the topography and geology of the State and also as showing the surprising changes which have taken place there, caused by volcanic overflows and remodelling of the surface of the country. The tendency of the channel has been to work to the east. May not this account for the existence of the rich placers on the limestone belt, on which are situated the towns of Jamestown, Sonora and Columbia.



Mr. W. A. Skidmore during a recent trip through our State collecting material for the Mining Commissioners' Report, took barometrical observations of the altitudes of several points, which may be interesting to our readers. An observation taken on Main street in Copperopolis, Calaveras Co., establishes the elevation at 998 feet above sea level. Chinese Camp, Tuolumne Co., 1,290 feet; Jamestown, same county, 1,382 feet; Sonora, 1,720 feet; Shaw's Flat, 2,148 feet; Columbia (estimated) 2,200; Summit of Quartz Mt., Tuolumne Co., 1,624.

The observations taken at Table Mt., near Jamestown, Tuolumne Co., are particularly interesting, for by the accompanying diagram it will be observed that this rim rock of the ancient river is 33 feet higher on the west side than on this east.

The observation taken at A was made at the hoisting works of the Table Mountain Co.'s claim, on the eastern side of Table Mt. (formerly known as the "Humbug" claim) 87 feet above this rim rock of this ancient river, covered by the lava flow known as Table Mt.: elevation 1,680 feet.

Observation B was made at the hoisting works of Hughes' mine, on the west side of the mountain (formerly known as the Maine Boys' Tunnel) 110 feet above the rim rock of the ancient channel: elevation, 1,736 feet. This claim is next adjoining and south of the Table Mt. Tunnel Co.'s ground.

Observation C was taken on the summit or plane of Table Mt. and at a point equidistant from observations A and B—elevation 1,882 feet.

The above diagram of a cross section of Table Mt. is a representation of the stratification at this point: *a* is the basaltic lava rising in precipitous cliffs from the surrounding country; *b* a strata of compacted sand nearly hard enough to be designated as sandstone; underneath this is a layer of gravel, represented by *c*; and *o* shows the position of the auriferous gravel.

The auriferous gravel is extracted by means of inclines running respectively from *A*, and *B*, to the bottom of the channel, a distance of 320 feet.

At the bottom of the inclines, drifts are run up and down stream and the channel "breasted" for a width of from 30 to 100 feet, and a hight of 4 to 6 feet; the best pay lies on the bottom. There are two channels—so called—underlying the mountain, the most easterly being the most recent—geologically speaking. The gravel at present taken out varies in yield from $2.50 to $5 per car load of 16 cubic feet. A run of several months at the latter figure would, however, be considered as exceptionally rich. The gravel is not cemented and is more readily treated than that of the northern counties. The method of treatment here is by use of the "Cox Pan." One of these pans will treat 40 car loads per day.

Guano.—What is it? It is only until lately that any question has arisen as to the character of guano. It has heretofore been universally supposed to be the excrement of birds and the remains of those which have died. But of late this same substance has been found on the bottom of the ocean, and at considerable depths. It has also been found under circumstances which tend to show that it is a *mineral*. Following up this hint, Dr. Hahel has been studying it by the aid of the microscope, and finds that so much of it as is insoluble in acids consists entirely of skeletons of diatomaceæ, sponges, etc., all of which are universally of marine origin, and none of which, in their present form, could ever have formed from or in the excreta of animals of any kind. Patches of these remains have been found exactly as they occur in Nature. From these and other facts there appears to be but little doubt that guano is an accumulation of the bodies of animals and plants—not their excreta—which, either by heat, by chemical action, or both combined, has had its organic matter converted into bitumen, while the mineral constituents have been preserved in those beautiful forms which make up the infusorial strata in various parts of the world.

Rewarded.—The Cresson medal of the Franklin Institute has been awarded to Mr. R. C. Tilghman for his discovery of the uses of the sand blast.

Notices of Recent Patents.

Among the patents recently obtained through Dewey & Co's. Scientific Press American and Foreign Patent Agency, the following are worthy of mention:

Safety Lamp.—Emil Boesch, San Francisco. This improvement relates to that class of argand burners in which the flame is regulated by turning the outer case of the burner, and it consists in a novel arrangement for regulating the flame by turning this case without raising or lowering the chimney, and by this means the relative position of the chimney and the flame which is so essential to excellence in these burners, is maintained unchanged. The lamp is also provided with one or more ducts or passages either of which may be used for conveying the gas which may be formed in the oil holder, to the central tube which feeds air to the flame, so that the gas and air will be mingled previous to their coming in contact with the flame, and by this means all danger of explosion from an excess of gas in the oil holder will be averted.

Dish Washing Machine.—Catharino Woodruff, Antioch, Cal. This invention relates to an improved machine for washing dishes and consists mainly in. the employment of wire racks for supporting the dishes and partitioned baskets of the same material for the different kinds of dishes. It also consists in the use of a revolving agitator which throws the water forcibly through the meshes of the racks and baskets, thus thoroughly cleansing the dishes in a short time.

Grain Thresher and Separator.—Joseph Esse, Rodwood City, Cal. The object of this invention is to provide an improved arrangement of devices for more thoroughly threshing and cleansing wheat and other grains, and it consists in the use of two or more thresbing cylinders and their concaves in succession. It also relates to an improvement in the straw-carrying devices, and finally to a novel shoe and screens for cleansing the grains after it is threshed.

Recent Publications.

We have received from Roman & Co., 11 Montgomery street, a very neatly bound volume of "Half-hours with Modern Scientists," containing a discourse on the Physical Basis of Life by Huxley; the Correlation of Vital and Physical Forces by Barker; as regards Protoplasm — Reply to Huxley, by Stirling; On the Hypothesis of Evolution, by Cope, and Scientific address, by Prof. Tyndall, on the method and tendencies of physical investigation; On Haze and Dust; and on the scientific use of the imagination. The work is neatly printed and the names given above are sufficient guarantee that the contents will be interesting to all who have a taste for scientific investigation.

A little volume containing two sermons, by President Woolsey of Yale College, on "Serving our Generation, and God's Guidance in Youth," comes with the compliments of the same publishers, as does also the "Elementary Music Reader," which consists of a progressive series of lessons which have been prepared expressly for use in the public schools by B. Jepson, instructor of vocal music in the New Haven public schools. The latter work is marked Book First and another one is to come. It is a revised series containing a number of songs set to music and is intended as an elementary guide to the study of vocal music.

We are also under obligations to Henry Carey Baird the Industrial Publisher, 406 Walnut street, Philadelphia, for a copy of "Guettiers' Metallic Alloys." It is a practical guide for the manufacture of metallic alloys; comprising their chemical and physical properties with their preparation, composition and uses. The work is translated from the French of A Guettier, engineer and director of foundries, and author of "La Fonderie en France," etc., by A. A. Fesquet, chemist and engineer. It contains general observations on the metals which are commonly used for alloys; physical and chemical properties of alloys; their preparation and composition; those most used in the arts; those of iron with copper, zinc, tin and lead; alloys of metals of secondary importance in the arts, of precious metals; of metals rarely used in the arts; bronzes of art; alloys for coinage; for pieces of ordnance, arms, projectiles, etc.; for rolling and wire drawing; for ship sheathings; for type, engraving plates, etc.; for bells and musical instruments; philosophical and optical instruments; for jewelry, gold and silver wares, Brittania wares, etc.; white alloys; fusible alloys; those for machinery, anti-friction metals, etc.; solder and miscellaneous alloys. The work is classified under different heads and will be found a useful and convenient reference for all matters concerning the subjects of which it treats.

Arizona Affairs.

The people on this coast have been naturally indignant at the manner in which the Government has acted with regard to Indian affairs in Arizona, and desire that some definite steps be taken to ensure safety for the lives and property of individuals in that Territory as well as in other parts of the United States. When General Crook went there he immediately started in upon a plan which his Indian-fighting experience suggested and one which was kindred to the feelings of the people he was protecting. His plans have been frustrated, however, by the policy of the Government in sending more "Peace Commissioners to do the business in some way, so that some official may make a little money out of the matter. These proceedings are obnoxious to the people of this Coast and we are glad to see that the Legislature of California has taken the matter in hand, passed a series of resolutions and sent them on to the President.

The preamble sets forth the facts that inhabitants of Arizona are now and have been for some years victims to the outrages of the Apaches, and that hundreds of them including women and children have been killed; that life and property are not safe there, and that the nation should enforce protection to its people living under its own flag as well as those in other lands. One clause reads thus:

"That for the murder of the fewest number of citizens who have been slain by these savages in Arizona in any two months during the last two years, the United States Government would have declared war against every power in Europe, had its citizens been so murdered there for want of proper protection from European powers."

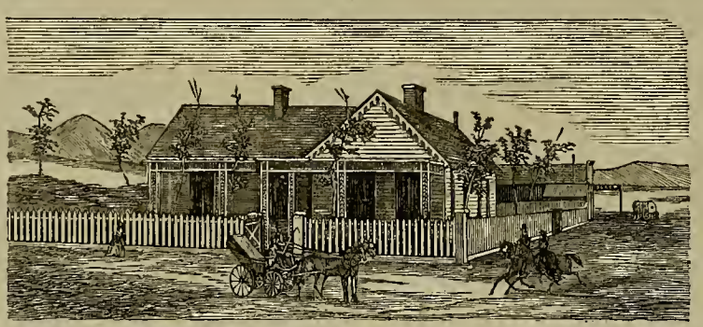
General Crook's course is commended, and it is believed that he will if let alone, in a short time give security to the people in the Territory. The resolutions state that all attempts to treat with or otherwise appease the Indians will be futile until they are made to feel the power of the Government; that the protection of the citizens can in no way be so promptly and efficiently extended as by furnishing General Crook with ample means and large discretion on the course to be pursued towards the savages. The President of the United States is urged to prevent further interference with the military affairs of General Crook, otherwise than by aiding his designs, until the Indians are subdued. The Senators and Representatives from our State are requested to urge upon the Government such action as the regulations indicate.

If proper cognizance is taken of the resolutions by the authorities at Washington we may at last hope the Indians will be made to sue for peace and that they will receive a wholesome lesson from the hands of General Crook, that they will be likely to remember. Business of all kinds has been retarded long enough by the Apaches, and it is high time that the whites had their turn in dictating terms of peace.

Settlement and Development of the Gallatin Valley.—Concluded.

[By our Travelling Correspondent.]

Col. Black saw that tenement accommodations in Bozeman City were insufficient—immediate expansion was evidently a necessity of the town. Other local capitalists hesitated to invest in buildings while they could get 3 per cent. a month on their money in other channels—the prevailing interest rate in Eastern Montana. They would prefer purchasing ground and letting it lie unimproved if they could not loan at that figure. Thus they would take from, without directly adding to the general wealth. No such a cramping, strangling policy as this found countenance from Colonel Black. Bozeman needed more house, and he at once bought a large tract of land lying contiguous to Main street, and began the work of building. All the carpenters in the country were put to work, and the sawmills were taxed to their utmost capacity. Now, Black street, Boze-



RESIDENCE OF COL. BLACK, BOZEMAN, MONTANA.

man, is one of the finest residence avenues of the frontiere, some of its structures being of a character that would be creditable to any city; and it gratifies me to be able to say, every finished house is occupied, and those unfinished are all engaged. Besides these improvements, Col. Black has caused the erection of and owns some fine buildings on Main street. His own residence, represented in our cut, is a neat and modest little cottage, situated on the street which bears his name. The house is in a pleasant location, and back of it is the warehouse where goods are stored for distribution to the Indians of the Yellowstone.

The enterprises of Col. Black is not confined to Bozeman—it embraces the whole of Eastern Montana. In the Yellowstone Valley—three years ago a forbidden region to white men—he has a large mercantile house, and another in the Musselshell Valley, further north. And he is now giving his attention to the opening of a wagon road from Bozeman City to the mouth of the latter stream, which it is thought will virtually give the metropolis of Eastern Montana control of the navigation of the Upper Missouri.

Fort Ellis.

Another powerful influence in inducing settlement and development in the Gallatin Valley was the establishment, in the fall of 1867, of the military garrison of Fort Ellis, at the mouth of Bozeman Pass, three miles southeast of Bozeman. And thus, too, was the General Government at last forced to acknowledge the necessity of having called into the field the Territorial militia, which, indeed, had been done by the express order of General Sherman. After the establishment of Fort Ellis the settlers pushed forward their enterprises with greater confidence, feeling that in the future they would enjoy the fruits of their industry in peace and security; and a steady tide of immigration again set in, stimulating all branches of industry. From that time forward the history of the Gallatin Valley, if we except an occasional Indian "scare" in the most exposed places, has been a career of uninterrupted prosperity. The garrison opened a new and nearer market for the products of the farm, and has had much to do with making Bozeman as it now is, and for the last four years has been, one of the best cash vegetable and dairy markets in the Territory; it seemed to open a demand for the surplusage over and above what was called for by the miners and trappers scattered along the Yellowstone, so that since then only flour, grain and bacon have been shipped in large quantities from the Gallatin Valley to the more distant mining camps.

Early next spring Fort Ellis is to be increased from a four-company to a twelve-company post—orders for more extensive barracks, with that object in view, having already been promulgated. The garrison, thus increased, will undoubtedly be permanent for several years, or until some time after the completion of the Northern Pacific Railroad, as it is the natural base for all military operations between eastern Montana and the Dakota border. And when, finally, the necessity of maintaining it shall have passed away, the Gallatin producer will have an inexhaustible market in the development of the contiguous mines of gold, silver, copper and iron.

The Pick and Plow.

The settlement and development of the Gallatin Valley was materially assisted by the establishment at Bozeman city in 1869, of the Montana *Pick and Plow*, a well printed journal, with H. N. Maguire, a journalist well and favorably known throughout the Territority, as editor. The *Avant Courier* as successor to the *Pick and Plow*, has a local patronage enjoyed by but few mountain journals. Capt. Joseph Wright, one of the best printers on the frontier, and a good writer is the conductor of the *Courier*, while Mr. Maguire, the projector of the *Pick and Plow*, finds a more congenial field for his energy in the real estate business.

A General View.

Now let us take a general view of the condition of affairs in the Gallatin Valley. Between five and six hundred farms are under as high state of improvement as could be expected, considering the time they have been cultivated, many of them boasting thriving young orchards and first-class barns and dwelling houses. Maguire's Bozeman Land Agency is crowded with applicants to make additional land entries. In the last year the property valuation of the county has almost doubled; in the last year and a half the population of Bozeman has nearly trebled; and permanent settlements are rapidly being made in the adjacent valley of the Yellowstone. I have frequently spoken through your columns of the general productiveness of those regions; no better quality or more bountiful yields of wheat, oats, barley and rye, or root crops, are produced anywhere in the temperate zone. That the great Northern Pacific Railroad will traverse the Yellowstone and Gallatin valleys within the next three years is no longer doubted.

Gallatin City

Is situated in the Gallatin Valley at the confluence of the Jefferson, Madison and Gallatin rivers, which form the headwaters of the great Missouri. It was first settled by a band of 60 men in 1864. The banks of the rivers are covered with the most luxuriant vegetation, furnishing an abundance of food for stock. Fair grounds are laid out adjoining the city. It is probable that the Northern Pacific Railroad will pass through the town and follow up the Jefferson river. A water power flour mill is situated in the town, owned by Geo. D. Thomas; it is run night and day, and during last fall turned out 7,000 sacks of flour. It is a great convenience to the farmers near by and does its work well. The average yield of wheat in this vicinity is 30 bushels per acre. Major J. B. Campbell is one of the oldest settlers in this country and owns some very fine stock. His daughter Fanny has had enterprise enough to locate 160 acres of land adjoining the town, and having complied with the requirements of the law now holds possession of it in her own name. This is a somewhat novel idea for the fair sex, but her example has already been followed by Miss Ray, who raised 60 acres of wheat last year on a place of her own.

Eastern Montana is to-day the objective point of colonies which are being organized in, Missouri, Illinois and other Western States and the increase of population the present year will undoubtedly be greater than that of the last two preceeding years. But there is little danger of the field being soon overcrowded. It is estimated that the main Gallatin Valley will alone support a farming population of fifteen thousand. There is still in Gallatin County, I am assured, over half a million acres of the best of farming lands, subject to entry under the homestead and pre-emption laws.

W. H. M.

The Overland for April contains articles of more than ordinary merit. The contents embrace Sea Studies; A Ride through Oregon; South Sea Bubbles; Three Days of Sanctuary; The Northern California Indians; Evelyn; Wants and Advantages of California; In the Shadow of St. Helena; Exhumed; Yosemite Valley in Flood; Juanita; Abigail Ray's Vision; Sam Rice's Romance, and Transition. The book notices and "Etc." are as usual, good.

The Michigan Southern R. R. Co. have ordered 131 locomotives, twenty of which are to be built at the Taunton works, twenty-three at Manchester, N. H., twenty-six at the Rhode Island works, and the others at New York and Paterson, N. J.

The Marysville Foundry is making six Little Giant nozzles for Dutch Flat; they are constructed so as to stand a pressure of 400 feet fall of water and weigh over 1,000 pounds each.

Domestic Economy.

Hints to Poor Housekeepers.

The duties of housekeeping do not occupy all the time of women who keep from one to a half dozen servants. Almost every housekeeper tells about heing drivon with care. Many complain that servants are the pest of their lives, the ourse of housekeeping.

In the faco of all this it is safe to holieve that a good mistress makes good servants, and to act upon that belief.

Those who fully understand how to systematize house-work, and to practice all the practical ecouomies of time, strength aud expense iu each department, have very little trouble with help.

The irregularities of a household do more to spoil a good servant than auything else.

Late to breakfast, lato to diuner, late to supper, each taking their own time, aud straggling in to eat alone, requires many more steps; and taxes the patience of dining-room girls. For there is grumhliug about bad coffe, cold toast and hard beefsteaks, when everythiug was palatable when first cooked.

Where such habits are permitted, the washing and ironing drag around all the week, keeping girls in the vapors and discouraged. It is all very well that you "hire a girl to do your work, no matter at what time of day it pleases you to have it done"—if you allow a family of six or eight to leave things topsy turvy, one or two girls cannot follow them to keep things in order, hesides doing justice to the other duties of housekeeping.

A great trouhle is that girls are compelled to be both mistress and maid through ignorance of their superior officers.

"Do you wish your clothes rubbed through two waters?"

"Do you use washiug fluid, Ma'am?',

"Shall I use flour or sale starch for dresses?"

"What shall I get for breakfast?"—and all such questions requiring a positivo and intelligent answer directing girls how things shall he done.

But many womon answer "Do the washing as you havo been accustomed to do it. Get what you please for breakfast, only let it be something good"—giving girls free sweep in the kitchen, to waste and cause twice the expense they should, if it happens to be their custom.

Some women call that housekeepiug.

One of Dickens' characters is a woman who has seasons of striking terror to tho hearts of her household hy putting ou gloves and tying her head up in a rag, to storm around and givo things a thorough going over and dusting up—ill temper being the invariahle accompaniment of such bursts of industry.

That character is the representative type of quite a class of housekeepers. It would be far hetter if their iudustry did uot come in streaks. If they would exercise a little of it every day, it would prove a benefit to themselves and those around them.

Kindness to servants and a disposition to help them along make things go smoothly.

Working people have hearts, and those who best appreciate that fact aro the ones who make most friends among them.—*Pomeroy's Democrat.*

A Good Way to Cook Meat—Is to seal it in a vessel hermetically tight. Cooked thus a long time in its own juices, it is rendered very tender, and has a peculiar appetizing flavor. Take an earthern jar that will stand heat, with a tight fitting cover. If beef is to be the dish for dinner cut in convenient pieces, lay them in the jar, rub each piece with salt and pepper and a little sugar, put in a little water; lay on a piece of thick buttered paper, and press down the cover. If you think it will allow any steam to escape, mix short or rye meal with water to a paste; press strips of this all round the edge of the cover. Bake iu a moderate oven four or five hours according to tenderness of meat. Chickens or turkeys, are excellent cooked in this way. The toughest old hen can be rendered toothsome by this process.

To Pickle Meat in One Day.—Get a tub nearly full of rain or river water and put two pieces of thin wood across it and put the beef on them, distant ahout au inch from the water. Heap as much salt as will staud on your beef and let it remain twouty-four hours; then take the meet off and boil it, and you will find it as salt as if it had beeu in pickle for six weoks, the water haviug drawn the salt completely through the beef.

Cleaning Soiled Marble Slabs.

Much annoyance is frequently experienced by the soiling of marble tahle tops or other marble objects, and a perfectly satisfactory method of removing such stains is a desideratum. It is said that if slacked lime be mixed with a strong solution of soap into a pasty mass aud spread over the spot in question, aud allowed to remain for twenty-four to thirty hours, then carefully washed off with soap aud water, and finally with pure water, tho stain will he almost entirely removed, especially if the application be repeated once or twico.

Another preparation consists in mixing an oxgall with a quarter of a pound of soap-boiler's lye, and an eighth of a pound of oil of turpentiue, aud adding enough pipe-clay earth to form a paste, which is then to be placed upon the marble for a time, aud afterward scraped off, the application to be repeated until the marble is perfectly clean. It is quite possihle that with all our endeavors a faint trace of the stains may be left; but it is said that this will be almost inappreciahle. Should the spots ho produced by oil, these are to be first treated with petroleum for the purpose of softening the hardened oil, and the ahove mentioned applications may be made subsequently.

Ink spots may be removed by first washing with pure water, and then with a weak solution of oxalic acid. Subsequent polishing, however, will be necessary, as the luster of the stone may become dimmed. This can he best secured by very finely powdered soft white marble, applied with a lineu cloth first dipped in water and then into the powder. If the place he suhsequeutly rubbed with a dry cloth the luster will be restored.—*Western Rural.*

Canary Birds.—Haug the cage always where drafts do not strike the bird. Give healthy birds canary and rape seed, plenty of fresh water, cuttle fish bone, and clean gravel ou the bottom of the cage often. Also, give the hirds fresh water to hathe in every day. After they have bathed remove the dish, which should be shallow. Never have the room overheated. At night, when the fire has gone down, if it is very cold, throw a thiu cloth over the cage. A little pepper occasionally regulates them. Do not give them cake or sugar. When moulting, feed them on rape seed slightly moisteued. Hard boilod egg and cracker grated are excellent. Bad seed will kill hirds. Cabhage and sweet apples are good for them, and now and then a fig. With moderate care the little songsters will ropay your attention with sweet notes of joy.—*Western Rural.*

To Clean Lamp Chimneys.—When you wish to clean a lamp chimney hold a liuen cloth against one end of the chimney and place the other end in your mouth, breathe iu it uutil it is covered inside with moisture, push the cloth iuto the ohimney with a smooth slender stick and rub it around until the moisture is absorbed, repeat tho process and breathe over the outer surface also, ruh this with a cloth until dry and you have a clean, bright chimney as the result. This method saves time, labor and patience, and gives a result highly satisfactory; soft newspaper will take the place of a liuen cloth—do not use cottou cloth on any glass-ware.

Substitute for Bed Blankets.—Here is a hint for housekeepers, and a very important one. Merely coveriug up a bed with blankets and counterpanes will no more protect it from dampness or keep it dry than a pane of glas will keep out light. The atmospheric moisture will penetrate all woven fabrics. Hence the importance of keeping the beds in spare rooms regularly aired. Many a dear friend or welcome visitor has been sent to an untimely grave, or afflicted for life with disease by being put into a bed which had been permitted to stand unoccupied. Keep the spare beds, when not in use, free from all covering but a light spread.

Plain Apple Pudding.—Pare, quarter and core apples to fill a small dish rather more than half, and pour in water two inches deep. Make a crust of one pint of flour, one-half teaspoonful of salt, and bakiug powder enough to make it light. Add a level teaspoonful of lard, and flour enough to make a wet dough, and roll it out quickly, put over tho pudding dish, and place ou a hot stovo. Cover tightly with a tin cover on which put a flat irou. The steam produced cooks the pudding quickly. Fifteen minutes will he found long enough. Serve hot with hard sauce made of butter and sugar.

Why Some are Poor.—Cream is allowed to mold aud spoil. Silver spoons are used to scrape kettles. The scruhhing hrush is left in the water. Nice-haudled kuives are thrown in hot water. Brooms are never hung up, and soou are spoiled. Dishcloths are thrown where mice cau destroy them. Tubs and harrels are left in tho sun to dry and fall apart. Clothes are left on the line to whip to pieces in the wind. Pie crust is left to sour iustead of making a fow tarts for tea. Dried fruit is not taken care of in season, and becomes wormy. Vegetables aro throwu away that would warm for breakfast. The cork is left out of the molasses jug, and the flies take possession. Bits of meat are thrown out that would mako hashed meat or hash. Coffee, tea, pepper and spices are left to stand opeu and lose their strength. Pork spoils for the want of salt, from floating on top of the brine, and because the hrine wants scalding.—*Ex.*

Potash vs. Rats.—A gentlemau of large experience, and claiming to he as humane as the rest of us, communicates to the *Agriculturist* tho fact that he rids his premises of rats by putting potash in their holes aud runs. The poor wretches get it over their feet and fur, theu thoy lick it, and dou't like the taste of it; it burns them somewhat, and the more thoy see of it the less they liko; and so they clear out almost as soon as the application is made. To get rid of mice, the same person uses tartar emetio, mingled with any favorite food; they take it, take sick, and tako their leave.

A Winter Evening Desert.—In the wiuter, when there has heeu a fall of light suow, tho following makes a delightful dish for desert and refreshmonts during the long winter evening (wheu the stove is hot): Take of the thickest sweet cream you cau get, oue pint; to it add ouc teacup full of white or light sugar, beat well togethor, then add euough cloan dry suow stirring well all the time, to mako it the consistency of ice cream; add flavoriug of lemon, vanilla, strawberry or raspberry syrup made for the purpose.

Puddings and Pies.—Dr. Hall says that puddings and pies aro considerod unhealthful, hocause, beiug eaten after we have made a full meal of other things, the stomach is oppressed by them, and, if the process is repeated, becomes eventually dyspeptic; that is, has not powor to work up the food, hecause it has been "worked to death" already. It would be quite as philosophical to say, he asserts, that if a mau has becomo very tired by plowiug all day, and afterwards by chopping wood had "worked himself out," it was very unhealthy to chop wood.

Mechanical Hints.

A New Metal, au alloy of which the composition is only known to the discoveror, has been compounded. This metal is said to resemble gold in color, ductility, and malleability. It does not tarnish nor is it affocted hy dampness. From its lesser cost aud superior qualities it is expected that it will to a great extent supercede brass.

To Make a Varnish that will Imitate Ground Glass.—Mr. J. Garratt has favored us with the following:—To make a varnish to imitate ground glass dissolve 90 graius of sandarac and 20 graius of mastic in two ounces of washed methylated ethor, and add, in small quantities, a sufficiency of benzine to make it dry, with a suitable grain—too little making the varnish too transpareut, and excess making it crapy. The quantity of heuzine required depends upon its quality—from an half ounce to an ounce and a half or even more; bnt the hest results are got with a medium quality. It is important to use washed ether, free from spirit.—*British Journal of Photography.*

The Brittleness of Drawn Wire may be ohviated in a short time by subjecting it to a glowing heat or it losses this at the ordinary temperature within two to four months.—*Oesterreich. Ztschr.*

In Order to prevent the ebullitiou of boiling liquids a small fragment of sodium amalgam or of sodium tin, is added, when the solution is acid. The efficacy of these depeuds on the evolution of a small amount of hydrogen during the process.—*Dingler's Polytech. Journal.*

Impurities in Gold.—Slight traces, even the 1-1900 of lead, antimony, bismuth or arsenic, render gold crystalline and hrittle; these impurities may be removed by chloriue. Silver from aucient graves iu the Island of Cyprus was fouud to he brittle in consequence of changes in its molecular conditiou in the course of centuries.—*Polytech. Central-Blatt.*

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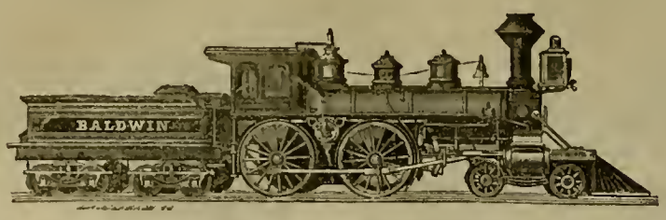

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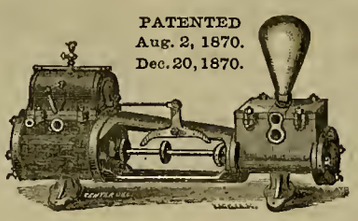
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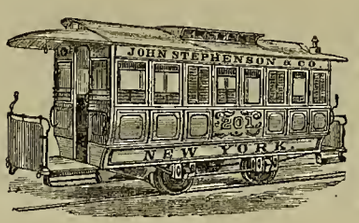

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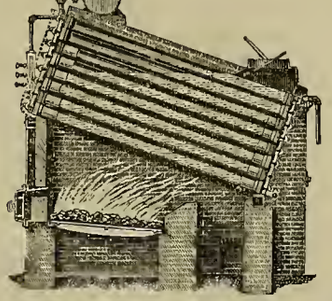
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Ransome's Patents International,
For which Commissioners for the Exhibition of 1862 awarded the Prize Medal, and Gold Medal at the Mechanics' Institute Fair, 1871, of San Francisco.
REMOVAL.
This Company have removed from the corner of Turk and Larkin streets, to their new and Commodious works corner of Greenwich and Octavia. They have established an office and salesyard at the Junction of Market and Bush, where they will keep constantly on hand an assortment of ORNAMENTAL, BUILDING, CEMETERY and GRINDSTONES. Orders will be received at the above office from all who wish to get good work at low prices. Send for Circular. 5v24-3amslamrly

The California Powder Works
No. 314 CALIFORNIA STREET,
SAN FRANCISCO.
Manufacturers and have constantly on hand
SPORTING,
MINING,
And BLASTING
POWDER,
Of SUPERIOR QUALITY, FRESH FROM THE MILLS. It being constantly received and transported into the interior, is delivered to the consumer within a few days of the time of its manufacture, and is in every way superior to any other Powder in Market.
We have been awarded successively
Three Gold Medals
By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others.
We also call attention to our
HERCULES POWDER,
Which combines all the force of other strong explosive now in use, and the lifting force of the BEST BLASTING POWDER, thus making it vastly superior to any other compound now in use.
A circular containing a full description of this Powder can be obtained on application to our Office.
16v20-3m JOHN F. LOHSE, Secretary.

Dupont's Gunpowder, Safety Fuse,
—AND—
WINCHESTER REPEATING ARMS.
DUPONT'S Superior Mining Powder (saltpetre), F FF-FFF.
DUPONT'S Blasting Powder, in air-tight corrugated Iron Kegs, C-F-FF-FFF.
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DUPONT'S Cannon, Musket, Meal and Fuse Powder.
EAGLE SAFETY FUSE (manufactured near Santa Cruz, Cal., by the L. S. & P. Co.) Constantly on hand full supplies of their Celebrated Brands, Waterproof and Submarine, Triple Taped, Double Taped, Single Taped and Hemp Fuse. Fuse made especially to explode the Giant Powder and Hercules Powder Caps.
The above named Fuse are warranted equal to any made in the world.
WINCHESTER REPEATING ARMS (Henry's Improved) and FIXED AMMUNITION.
A large and complete stock of those celebrated arms constantly on hand, to wit:
Repeating Sporting Rifles—Oiled Stocks.
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Gold, Silver and Nickle-plated Rifles—beautifully Engraved.
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Full stock constantly on hand of all the different parts of the Winchester Arms.
Cartridges in cases (Brand H), manufactured by the W. R. A. Co. expressly for their arms.
A full and complete stock of the above named merchandise always on hand and for sale by
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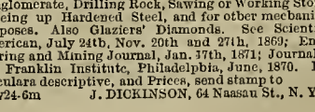
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1v24-6m J. DICKINSON, 64 Nassau St., N. Y.

Mineral Lands.

A euit in equity has heen instituted in the U. S. Circuit Court, hy Proeecuting Attorney Letimer, against J. F. Houghton and E. H. Miller, Jr., to eet aside letters patent for lande in Siskiyou county on the ground that they were mineral not agricultural lande. The complaint allegee that on the 14th of Dec. 1868, Jamee F. Houghton, not heing a eettler upon the lends hereinafter described, epplied to the Land Office of the United States for the Lend District of Humboldt, to make entry of and purchase at private sele of the following described parcels of pnhlic lande, sitneted in the county of Siskiyou: Southeast querter of eection 20, northeast qnarter of section 29, the northwest eection of quarter 28, and the southwest quarter of section 21, ell in townehip 47, north of renge 6, weet Mt. Diahlo hase and meridian, containing 640 acres. That the entry was allowed hy the Register and Receiver of the Land District, and the eaid entry and purchase wes made by Houghton.

On the 11th of Septemher, 1869, United States letters patent were issued to Houghton for the enid parcele of land. The hill states that theee lands were at the time Houghton applied to enter the seme, and ever since have heen and now are, mineral lande of the United Statee, containing veluehle gold deposits; that for more than twenty years the lands have heen eettled upon and occupied hy persons engaged in mining in and upon seid lands, that the mineral character of the lande has heen well known and notorioue during all the time it has heen settled upon and occupied; that as early as 1850 there was located and huilt npon the southeast quarter of section twenty the town of Cottonwood, which etill doee exist and etand upon the locality aforeseid, where trade and commerce are cerried on, and where many persone resided and still reeide, engaged in mining and mercantile pureuits; that in consequence of the minerel character of the lands they were wholly unfit for cultivation and agricultural purposee, and were not suhject to private entry or purchase.

The complaint further statee that Houghton knew at the time he applied for, entered, and attempted to purchase enid lende, that they were mineral lande and occnpied as euch, and wholly unfit for cultivetion and agricultural purposes; thet his applicetion to enter the seid lands was knowingly, falsely and fraudulently made, with the intention of securing the title to said lands; that the officers repreeenting the United Statee were deceived hy Houghton, and that their acte were done unadvisedly and through mistake.

It states further thet Houghton has refused to return the United States patent, and that he hae transferred the same to E. H. Miller, Jr., who has now the same in hie poseesion; that Miller knew when the transfer wee made, that the lands were cleesed ae mineral lands, and had notice of the fact thet they were not in the market. The bill prays that the letters petent he decaired to he null end void and for euch other relief as the Court may seem proper to grant.

New Incorporations.

The following have filed certificates with the County Clerk, San Francisco.

American Tobacco Co.—March 12. Object, to cultivate and deal in tohacco in its various forms and to purchase, hold and deal in patents and licenses. Capital stock, $250,000 in 25,000 shares. Trustees: Joseph W. Stow, Joseph Brandenstein, J. A. Drinkhouse, J, D. Culp, Wm. L. Hoover; place of business, San Fransisco.

Ohio Con. G. M. Co.—March 12. Location: West Point District, Calaveras county. Capital stock $2,500,000, in 25,000 shares. Trustees: W. G. Wayman, A. Bateman, Ben. Dore, Geo. O. Ecker and Joseph Fulton.

Schell Creek M. Co.—March 18. Location: Schell Creek Mining District, White Pine county, Nevada. Capital stock, $5,000,000, in 50,000 shares. Trnstees—Wm. T. O'Neal, E. M. Hall, W. T. Robinson, F. Vassault, J. B. Overton. Place of bnsiness, San Francisco.

Ivanhoe S. M. Co.—March 18. Location: Ely District, Nevada. Capital stock, $3,000,000, in 30,000 shares. Trustees—Wm. Norris, George D. Roberts, George C. Shreve, R. A. Swain, Tyler Curtis. Place of bnsiness, San Francisco.

Vincent M. Co.—March 19. Location: Camp Floyd District, Utah. Capital stock, $2,500,000, in 50,000 shares. Trustees—W. B. Payne, E. Vassault, S. H. Howard, P. M. Van Winkle and H. L. Lightner.

Condor S. M. Co.—March 19. Location: Ely District, Lincoln county, Nevada. Capital stock, $2,500.000, in shares of $100 each. Trustees—J. D. Fry, Jesse S. Wall, George A. Treadwell, Wm. H. Sears and William Cline.

Maggie M. Co—March 20. Location: Lincoln county, Nevada. Capital stock, $2,500,000, in 2,500 shares. Trnstess—George A. Treadwell, William Blanding, John W. Shaw, J. B. E. Cavalier and William L. Ryckman.

Tobacco Culture.—The tohacco crop of Connecticut has come to he one of the first importence. It is raised in almost all parts of the Conneoticut valley. Hertford county alone is said to have produced $4,000,000 worth last year. One mau realized over $12,000 from the product of only seveu acres. The tobacco raised in thet region now commands a much hetter price then it did two or three years ago—in moet ceses nearly or quite twice as much. The value of the article raised there is now freely acknowledged hy manufacturers and it is bought in large quantities to go out of the State for manufacture.

Farmers are generally increesing their crops hy plenting more land, and many that never hefore engeged in the busiuese are now planting largely. The tobacco produced there is not only a superior article, hut the yield is also very large. Both of these facts are the result of careful tillage and thorough dressing of the soil. Stahle manure has been found by experience to be the heet fertilizer.

The ahove facts should operate as a stimulue to Californians. The few experiments that have been made in this State have heeu very euccessful, hoth in quelity and amount of yield, end we are pleased to etate thet the indications now are that tohacco will soon become au important item of farm product in Celifornia. We notice that 1,000 acres near Gilroy is to he planted with tobacco this season, and that large areas are to he planted in many other sections of the State.

Agricultural Enucation. — An esteemed correspondent deprecates the indifference manifested hy our State Legislators and hy the people generally in the matter of egricultural education. We fully agree with him in the necessity for more interest in this matter, but fail to see how it can he brought ahout by estahlishing an egricultural school in every county until we cen get eomething like a fair attendance and interest in the *one* echool already established in the very heert of one of the best agricultural counties in the Stete. Something of the plan he suggests has been put in practice iu the most densely populated portions of Germany, and may eventually he made practical in some portion of this coutinent; but not until the country is filled up with manufacturing enterprisee which will furnish so good a home market for our agricultural productions that an individnal can make it more profitahle to devote his entire time to the cultivation of five acres, than to epread himself out over a hundred or more. Our correspondent's suggestion that agricultural text books should be prepared and introduced into our common schools is a good one. The general principles of agriculture should be made as much a regular hranch of etudy in our schools as natural philosophy, astronomy or English grammar even.

Meteorological Report, San Francisco,
For week ending March 20th, 1872.

Date.	*H. B.*	*Th.*	*R. H.*	*D. W.*	*V. W.*	*F. W.*	*S. W.*
Mar. 14	30.27	50	65	N.	3	Gentle	Clear
Mar. 15	30.30	48	78	W.	2	Fresh	Clear
Mar. 16	30.29	51	72	W.	20	Brisk	Clear
Mar. 17	30.15	51	80	N.	10	Fresh	Clear
Mar. 18	29.97	49	93	Calm		Fresh	Clear
Mar. 19	29.97	50	100				Clear
Mar. 20	30.22	51	86	W.	3	Gentle	Cloudy

Explanations.—H. B., hight of barometer; Th., thermometer; R. H., relative humidity; D. W., direction wind; V. W., velocity of wind; F. W., force of wind; S. W., state of weather.

$5 to $20 per Day and no Risk.—Do you want a situation as salesman at or near home to introduce our new 7-strand White Wire Clothes Lines, to last forever. Don't miss this chance. Sample Free. Address Hudson River Wire Works, 75 William street, N. Y., or 1 Dearborn street, Chicago, Ill. 23v1-12mhp

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The Hamilton Road Scrapor.
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A Drinking Fountain for Fowls.
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Shears for Cutting Grapes and Flowers.
Aikin's Furnace for Roasting Ores.
A New Sash Tightener.
A Bed Spring that has no equal.
Kennedy's Screw Propeller.
Gustafson's Tree Box.
A Grate Bar that don't burn out.
A Machine for Packing Flour.
Novin's Sand Cap for Hubs.
Westfall's Potato Digger.
A New Collar Stud and Neck Tie Holder.
A Combination Household Tool.
Bonney's Grain Lifter.
A New Wire and Picket Fence.
Self-Acting Churn Power.
A Machine to Roast Nuts.
A Gas Generator.
An Improvement on Thill Attachments.
Paine's Culinary Apparatus.
A Superior Cider and Wine Press.
A Self-Opening Gate.
A Plow on a New Principle.
Wait's Improved Hay Press.
A Vegetable Cutter.
An Improved Plow Clevis.

We invite parties who feel interested in any of the above named patents to call and examine samples or send for description. Also, various other valuable patents on hand for negotiation.

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DEWEY & CO., Publishers,
No. 338 Montgomery St., San Francisco, Cal. Nov., 1871

Change of Form.—With the commencement of the New Year, Crofutt's Western World was enlarged to 16 page—64 columns—of the same size and shape as Harper's Weekly, of N. Y., or the Scientific Press, of San Francisco. This change is demanded by the pressure of important information constantly collecting in our hands. Its advantages for the better arrangement of reading matter will be obvious at a glance to our subscribers.—*Publisher of the Western World.*

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Subscribers will notice that the figures found on the right of the pasted slips, represent the date to which they have paid. For instance, 21sp70 shows that our patron has paid his subscription up to the 21st of September, 1870; 4j72, that he has paid to the 4th of January, 1872; 4j73, to the 4th of July, 1873. The inverted letters (¼ ½, etc.,) occasionally used are marks of reference, simply for the convenience of the publishers.

If errors in the names or accounts of subscribers occur at any time an early notice will secure their immediate correction. Please notify us if you are not properly credited within two weeks after paying.

☞ *Postmasters, please send corrections also.*

Our Agents.

Our Friends can do much in aid of our paper and the cause of practical knowledge and science, by assisting Agents in their labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

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I. N. Hoag—Sacramento, General Agent.
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L. P. McCarty—California.
A. O. Knox, City Soliciting and Collecting Agent.

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The Library of Reference, the Library, Reading Room and Chess Room are open from 8 A.M. until 10 P.M. every day, (except Sundays and Legal Holidays).

The Society possesses a Library of 18,000 volumes—the most valuable technical and scientific library on the Coast, embracing the transactions of the leading Scientific Societies of the United States and Europe, (among which are the philosophical transactions of the Royal Society of Great Britain, complete), and the standard, scientific and technical works; and is in immediate receipt of all new standards publications.

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This device is just what its name indicates. As a Kitchen Tool it is indispensable. It will fit and lift with perfect safety, any Stove Lid, Frying Pan, Pie Pan, Pot, Kettle, or any other vessel or dish used about a stove. It is a complete tool for stretching carpets, driving tacks, pulling tacks, &c., &c. It answers the double purpose of hammer and pincers, and is also a good Nut Cracker. It is made of the best malleable iron, and the Hammer, Pincers and tack puller, are all hardened so as to stand the roughest usage. An Agent is wanted in every town on the Pacific Coast to sell this valuable little implement. Retail price fifty cents.

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The flame is as white and brilliant as coal gas, and produces neither Smoke nor Smell. No Chimney is Required.

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Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the Scientific Press we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

Shareholders' Meeting — Office of the Eagle Quicksilver Mining Company.

In accordance with a resolution adopted at a meeting of the Trustees of the Eagle Quicksilver Mining Company, duly held on the 15th day of March, 1872, a special meeting of the stockholders of said company is hereby called, to be held at the office of the company, Room No. 5, No. 30 Montgomery street, San Francisco, California, on Monday, the 25th day of March, 1872, at the hour of 4 o'clock P.M. of said day, to elect two Trustees to fill vacancies in the Board, and for the transaction of such other business as may lawfully come before it. WM. H. WATSON, Secretary.

San Francisco, March 16th, 1872. mar16-2t

Kincaid Flat Mining Company—Location of works, Tuolumne County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 14th day of February, 1872, an assessment of three dollars per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Sec'y, at his office, No. 220 Clay street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 18th day of March, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 8th day of April, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

By order of the Board of Trustees.

R. G. CORNELL, Secretary.

Office, 220 Clay street, San Francisco. fe24-td

Marcelina Silver Mining Company.—Location of Works: Eureka District, Lander County, Nevada.

Notice is hereby given that at a meeting of the Board of Trustees of said company held on the eighth day of March, 1872, an assessment of ten cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company, Room 21, Hayward's Building, 419 California street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the fifteenth day of April, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the seventh day of May, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

CHAS. E. ELLIOTT, Secretary.

Office, Room 21, Hayward's Building, 419 California street, San Francisco, California. mar19-3w

Nuestra Senora de Guadelupe Silver Mining Company.—Location of Works: Tayoltita, San Dimas District, Durango, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twelfth day of May, 1869, an assessment of two dollars per share was levied upon the assessable capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, A. Blumelmann, No. 637 Washington street, San Francisco, to settle the indebtedness of the said Company.

And whereas there has been an error in the course of proceedings for the collection of said Assessment, by reason of which, as provided by law, all previous proceedings, except the levying of the Assessment, are void, and publication required to be begun anew. NOW, therefore, by order of the Board of Trustees of said Company, at a meeting of said Trustees, held on the eighth day of March, 1872, said Assessment is hereby re-published, and notice thereof given as follows, to wit:

Nuestra Senora de Guadelupe Silver Mining Company.—Location of Works: Tayoltita, San Dimas District, Durango, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twelfth day of May, 1869, an assessment of two dollars per share was levied upon the assessable capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, E. J. Pfeiffer, No. 210 Post street, or to the Treasurer, A. Blumenmann, No. 637 Washington street, San Francisco, to settle the indebtedness of the said Company.

Any stock upon which said assessment shall remain unpaid on the fifteenth day of April, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the eighth day of May, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

E. J. PFEIFFER, Secretary.

Office, No. 210 Post street, San Francisco, California.

Piermont Milling and Mining Company—Location of works, Piermont District, White Pine county, Nevada.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the 25th day of January, 1872, the several amounts set opposite the names of the respective shareholders, as follows:

Namee.	No. Certificate.	No. Sharos.	Am't.
Brigge, Chae A.	15	5833½	$466 67
Brigge, Chae A.	47	111	88 80
Fliut, Benj.	6	1750	1400 00
Fliut, Benj.	27	2525	2020 00
Flint, Benj.	44	814	651 20
Perkins, J E, Trustee	32	1500	733 33
Perkins, J E, Trustee	40	236	139 83
Perkins, Jae E.	4	1750	1400 00
Perkins, Jae E.	42	719	575 20
Perkins, Jae E.	34	2025½	1620 26

And in accordance with law, and an order of the Board of Trustees, made on the 25th day of January, 1872, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the said Company, on Saturday, the 23d day of March, 1872, at the hour of 2 o'clock P.M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale,

J. W. CLARK, Secretary.

Office, 418 California street, San Francisco, Cal. 2w

Pocahontas Gold Mining Company—Location of works, Mud Springs, El Dorado County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 26th day of February, 1872, an assessment of Five Dollars per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, Room No. 26, Hayward's Building, No. 419 California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on Saturday, the 6th day of April, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before will be sold on Monday, the 6th day of May, 1872, to pay the delinquent assessment thereon, together with costs of advertising and expenses of the sale.

D. A. JENNINGS, Secretary.

Office, Room No. 26, Hayward'e Building, 419 California street, San Francisco, Cal.

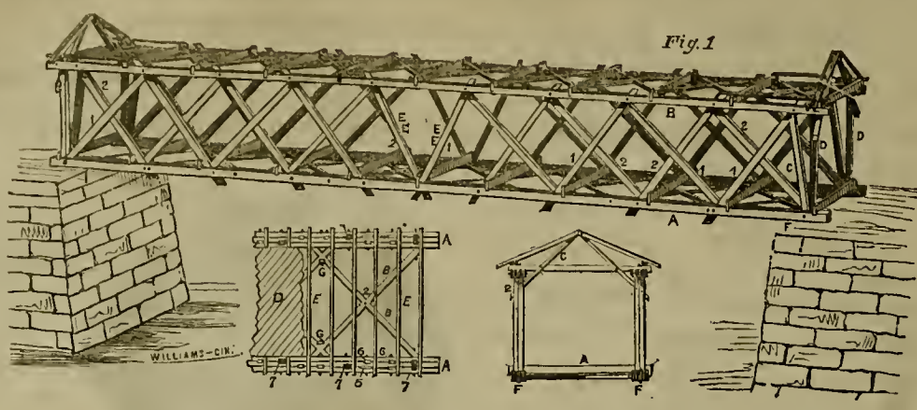
February 26, 1872. mar2-5w

Quail Hill Mining and Water Company—Location of works, Salt Springs Valley, Calaveras County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 15th day of February, 1872, an assessment of 25 dollars per share was levied upon the capital stock of said Company, payable immediately in United States gold coin, to the Secretary, at the office of the Company, No. 409 California street, up stairs, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 26th day of March, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 16th day of April, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. T. F. CRONISE, Secretary.

Office, 409 California street, San Francisco, Cal. fe24-td

PACIFIC BRIDGE COMPANY,



OAKLAND, CAL.,

ARE PREPARED TO BUILD ALL KINDS OF WOODEN BRIDGES ON

Smith's Patent Truss Plan.

These Bridges have been thoroughly tested in the East for Three Years, and wherever tried have proved superior to any other Bridge in the following points:

Being built of wood entirely, they are not affected by change of temperature.

The timber used is placed so directly in the line of strain, that less material is required to support the same load.

It is not perceptibly affected by shrinkage. It is the most Economical Bridge built. It is adapted to any practicable LENOTH OF SPAN.

Plans, Specifications and Terms will be sent to any County, Township or Person wishing to build a Bridge, and no charge made unless the Plan is used. For all Public Bridges the Plan will always be open to competition.

Smith's celebrated CAST IRON PIER, economical, and adapted to heavy currents, built at low rates.

C. H. GORRILL, Secretary. **W. H. GORRILL, President.**

P. DAVIS' WIRE AND PICKET FENCE.

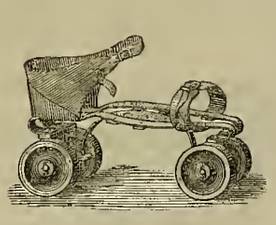
Although about two hundred different stylee of fences have been invented and patented in the United States within the past ten years, yet this Fence, for GENERAL FARM USE, etands at the head of the list. This is a Virginia invention, and the actual cost of the Fence complete in that State is lessthan fifty cents per rod. Three men can put up six hundred yards per day. Price of territory, and circular with full description of fence, sent on application.

WIESTER & CO.

No. 17 New Montgomery street (under Grand Hotel), San Francisco.

The C-Spring Roller Skate.

PATENTED 1871.



Rights and Skates for Sale.

This emperior Skate is now beginning to attract the attention of Rink Owners, it being the only Cramping Skate now before the public (except the Plympton Skate) that can run without infringing a former patent.

This Skate is Positively no Infringement

Of anybody's patent. It is made in the most substantial and workmanlike manner, and possesses the following points of merit: Beauty, Elasticity, Ease of Movement, Strength, Lightness, and does not injure the skating floor as much as the ordinary skate.

Every pair Warranted to be just what it is represented. Parties intending to

START A RINK,

Should examine and test this Skate. Sample pairs sent C. O. D. on application.

In ordering samples state the number of hoot or shoo worn, and whether for lady or gentleman.

☞ For City, County or Rink Rights, call on or address WIESTER & CO.,

No. 17 New Montgomery street (under Grand Hotel), SAN FRANCISCO.

Blowers, Steam Pumps, Hair Felt. Mining Tools

PORTABLE ENGINES, TURBINE WATER WHEELS, Wood and Iron Labor-Saving Machinery, Hardware, Belting, Lacing, Packing, and a general stock of Engineers', Miners', Farmers' and Mechanics' Tools and Mill Supplies.

TREADWELL & CO.,

At the Old Staud, } Cor. Market and Fremont Sts., SAN FRANCISCO.

12v23-oow

From a Lady Inventor.

ANTIOCH, Contra Costa county, Cal., Feb. 29, 1872.—Messrs. DEWEY & Co.: I take great pleasure in acknowledging the receipt of letters patent for dish-washing machine. Please accept many thanks for the expeditious manner in which you have done the business I intrusted to you. I am perfectly satisfied that your firm has no superiors as patent solicitors or legal advisers in patent matters on the Pacific Coast.

CATHERINE WOODRUFF.

Miners Using Powder

Containing Nitroglycerine, giving off deleterious odors, should read the description, in the SCIENTIFIC PRESS, August 5, 1871, of the patented process for instantly dispelling the noxious gases; and for further information address Dr. A. Blatchley, patentee, at SCIENTIFIC PRESS Office, S. F. 8v24tf

$1,000 REWARD! For any case of Blind, Bleeding, Itching, or Ulcerated Piles that **De Bing's Pile Remedy** fails to cure. It is prepared expressly to cure the Piles and nothing else, and has cured cases of over 20 years standing. Sold by all Druggists. Price $1.00.

O. F. RICHARDS & Co., Agents, corner Clay and Sansome streets, San Francisco, Cal. 8v24-1y

South Gulch Gravel Mining Company—Location of works: Bruchville Mining District, Calaveras County, California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the seventh day of February, 1872, the several amounts set opposite the names of the respective shareholders as follows:

Namee.	No. Certificate.	No. Shares.	Amount.
Gec. F. Sharp	1	200	$300
W. H. N. Cronise	2	200	300
G. B. Merrill	3	60	90
J. W. Griswold	4	50	75
J. W. Griswold, Jr.	5	100	150
E. J. Griewold	6	50	75
Geo. W. Merritt	7	50	75
A. C. Wallop	8	50	75
T. F. Cronlee	10	140	210
Mre. S. L. Griewold	11	50	75
B M. Griewold	12	50	75
Geo. W. Gilmore	13	50	75
H E. Watson	14	50	75
Waller Rohy	15	50	75
J. H. Brown	9	50	75

And in accordance with law, and an order of the Board of Trustees, made on the 7th day of February, 1872, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Company, 409 California street, San Francisco, Cal., on the 3d day of April, 1872, at the hour of 12 o'clock M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale. T. F. CRONISE, Secretary.

Office—409 California street, San Francisco, Cal.

mar16-3t

Spring Mountain Tunnel Company, Ely Mining District, Pioche, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 12th day of March, 1872, an assessment of fifteen cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, Room 37, Merchants' Exchange, California street, city and county of San Francisco, California. Any stock upon which said assessment shall remain unpaid on the 22d day of April, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 13th day of May, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. M. BUFFINGTON, Secretary.

Office, Room 37, New Merchant's Exchange, California street, San Francisco, California. mar6-td

San Francisco, March 16, 1872.

Tecumseh Gold, Silver and Copper Mining Company.—Location of works, Gopher District, Calaveras County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 20th day of March, 1872, an assessment of Three ($3.00) dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, F. J. Herrmann, at the office of the company, No. 634 Washington street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 23d day of April, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 14th day of May, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

F. J. HERRMANN, Secretary.

Office 634 Washington street, San Francisco, Cal. m23-4t

J. R. ANDREWS,

SUCCESSOR TO

F. MANSELL & CO.,

House and Sign Painters,

412 PINE STREET, SAN FRANCISCO,

Three doors above Montgomery st.

F. MANSELL still superintends the Fancy and Ornamental Sign Work.

Country Orders Attended to

With Punctuality, Cheapness and Dispatch.

26v23-3m-bp

Machinists and Foundries.

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO

IRA P. RANKIN, A. P. BRAYTON,
GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS

Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

☞ Particular attention paid to Jobbing Work and Repairs.

N. B.—Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR.

18v20-3m GODDARD & CO.

FULTON
Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

E. corner of Tehama and Fremont streets, above Howe street, San Francisco. 8-qy

GEORGE T. PRACY,
MACHINE WORKS,

109 and 111 Mission Street,

SAN FRANCISCO.

These Works have lately been increased, by additional Tools, and we are now able to turn out any kind of work, equal to and cheaper than any establishment in the State; that is to say:—

STEAM ENGINES,
Flour and Saw Mills,
QUARTZ MACHINERY
Printing Presses,

AND MACHINERY MADE OF EVERY DESCRIPTION.

Improved Safety Store Hoists,

Fitted with Cutting's Patent Cams, unequaled for safety, convenience and cheapness. This Hoist can be built for about half the price of any other in use. To be seen at HAWLEY & CO.'S.

ALSO, MANUFACTURER AND SOLE AGENT FOR

Pracy's Celebrated Governor.

TURNING LATHES, Etc., constantly on hand.

4v23tf

UNION IRON WORKS,
Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR

WILCOX'S PATENT WATER LIFTERS,

Dunbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,

SACRAMENTO CITY

PACIFIC
Rolling Mill Company,

SAN FRANCISCO, CAL.

Established for the Manufacture of

RAILROAD AND OTHER IRON

—AND—

Every Variety of Shafting,

Embracing ALL SIZES f

Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames

—ALSO—

HAMMERED IRON

Of every description and size.

☞ Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention

☞ The highest price paid for Scrap Iron 9v14-3m

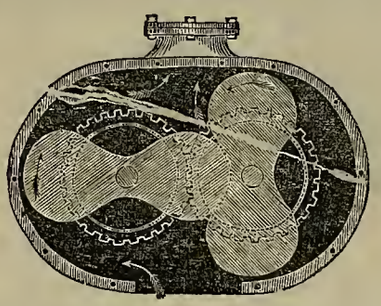
ROOT'S PATENT FORCE BLAST ROTARY BLOWER

MANUFACTURED AT

The Globe Iron Works, Stockton, Cal.

AWARDED THE FIRST PREMIUM AT THE PARIS EXPOSITION—PATENTED NOV. 1, 1864; JULY 24, 1866; AND OCT. 9, 1866.

Adapted FOR Smelting, Foundry, Mining and Steamships.



Requires **50 Per Cent.** LESS POWER Than any Blower Now in Use.

One of these Blowers may be seen at W. T. Garratt & Co.'s Brass Foundry, San Francisco; Gould & Curry and Savage S. M. Co.'s, Nevada; and at C. P. R. R. Co.'s Works, Sacramento; and other places on this coast.

CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

QUARTZ, SAW AND GRIST MILL, IRON, STATIONARY AND STEAMBOAT ENGINES, HORSE-POWER AND PUMPS, OF ALL SIZES.

For Circulars and further information, Address

4v24tf GLOBE IRON WORKS, STOCKTON, CAL.

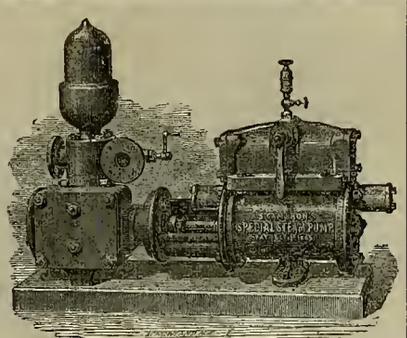
CAMERON'S
STEAM PUMPS.

PICKERING'S
Engine Regulators.

GIFFARD'S
INJECTORS.

BARTOL'S
STEAM TRAP.
Surface Condensers.

DAVID STODDART,
114 BEALE STREET, S. F.

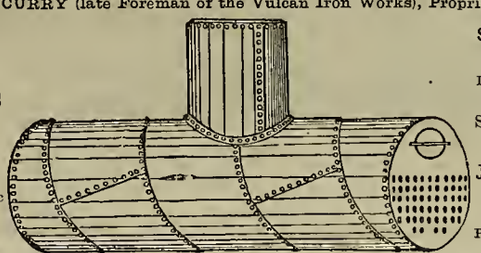


San Francisco Boiler Works, 123 and 125 Beale Street, San Francisco.

F. I. CURRY (late Foreman of the Vulcan Iron Works), Proprietor.

High and Low Pressure **BOILERS** of all descriptions.

SOLE Manufacturers of the CELEBRATED **SPIRAL BOILER.**



Sheet Iron Work of every DESCRIPTION done at the Shortest Notice.

All kinds of **JOBBING** and Repairing Promptly Attended to.

22v22-3m

THE RISDON
Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1868.
CAPITAL.....$1,000,000.

LOCATION OF WORKS:
Corner of Beale and Howard Streets,
SAN FRANCISCO.

Manufacturers of Steam Engines, Quartz and Flour Mill Machinery, Steam Boilers (Marine, Locomotive and Stationary), Marine Engines (High and Low Pressure). All kinds of light and heavy Castings at lowest prices. Cams and Tappets, with chilled faces, guaranteed 40 per cent. more durable than ordinary iron.

Directors:

Wm. Alvord, C. J. Brenham, C. E. McLaue,
Wm. Norris, Wm. H. Taylor, Lloyd Tevis,
James D. Walker.

WM. H. TAYLOR.....President.
C. E. McLANE.....Vice President.
JOSEPH MOORE.....Superintendent.
LEWIS R. MEAD.....Secretary.

24v17-qy

OCCIDENTAL FOUNDRY,

137 and 139 First st., near the Gas Works, San Francisco.

STEIGER & BOLAND,

IRON FOUNDERS.

IRON CASTINGS of all descriptions at short notice.

NOTICE.—Particular attention paid to the making of Superior Shoes and Dies. 3v24-3m

Miners' Foundry and Machine Works,

CO-OPERATIVE,

First Street, bet. Howard and Folsom, SAN FRANCISCO.

Machinery and Castings of all kinds.

COPARTNERSHIP NOTICE.

We have this day admitted Mr. William R. Eckart as a member of our firm, the business of which will be hereafter conducted under the firm name of Prescott, Scheidel & Co. PRESCOTT & SCHEIDEL.

Marysville, Jan. 8, 1872.

MARYSVILLE FOUNDRY.

Referring to the above, we respectfully solicit the patronage which has for the past twenty years been enjoyed by our predecessors, pledging our best attention to the wants of all who may so favor us.

Quartz and Amalgamating Machinery,

SAW AND GRIST MILLS,
STEAM ENGINES,
HYDRAULIC MACHINES,
HOUSE FRONTS, ETC.

Repairs upon all kinds of machinery promptly made and at moderate charges. Having unrivalled facilities, we are prepared to make to order, at short notice, everything required in our line.

Specimens of our work may be seen in all the mining regions on this coast.

6v24-3m PRESCOTT, SCHEIDEL & CO.

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,

SAN FRANCISCO.

ALL KINDS of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch

☞ PRICES MODERATE. ☜

J. H. WEED. V. KINGWELL.

H. J. BOOTH & CO.,
UNION IRON WORKS,

(The Oldest and most Extensive Foundry on the Pacific Coast).

Cor. First and Mission Sts.,

SAN FRANCISCO.

Marine, Locomotive and Stationary Engines, Quartz Crushing and Amalgamating Machines, Mill Irons and Brass and Iron Castings, of every description, made to order.

Steamboat Repairing, Boiler Making, Turning and Finishing,

EXECUTED WITH DISPATCH.

Beet Sugar Machinery complete in every part—made a specialty.

OIL MACHINERY.

A complete set of Machinery of our own design and patent for extracting oil from Castor Bean, dispensing with Hair Cloth. Also Machinery for Flax Seed Oil, Mustard Seed Oil, and Sun Flower Seed Oil.

MARBLE MACHINERY

For sawing Marble of any thickness or size.

Irrigating Pumps. Steam Pumps.

Plans, Estimates, and Advice promptly supplied.

H. J. BOOTH. GEO. W. PRESCOTT. IRVING M. SCOTT

4v24-1yslamr

THOMPSON BROTHERS,
EUREKA FOUNDRY,

129 and 131 Beale street, between Mission and Howard San Francisco.

LIGHT AND HEAVY CASTINGS,

of every description, manufactured 24v16qr

SAN FRANCISCO
SCREW BOLT WORKS,

PHELPS BROTHERS, Proprietors,

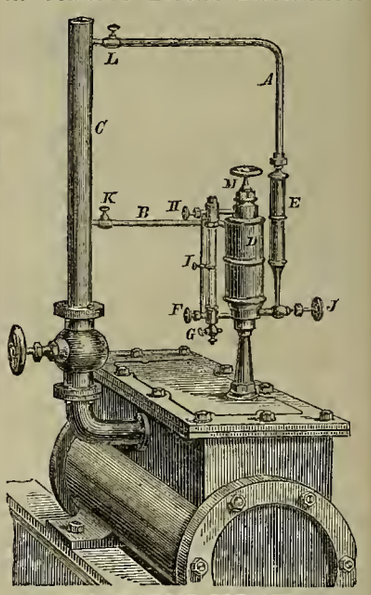
MANUFACTURERS OF ALL KINDS OF

Machine Bolts, Bridge Bolts, and Ship or Band Bolts.

13 and 15 Drumm Street, San Francisco. 4v24ly

Machinery.

N. Seibert's Eureka Lubricators.



THE HIGHEST PREMIUM

Awarded by the Mechanics' Institute Fair, San Francisco, and State Fair, Sacramento, 1871.

These Lubricators are acknowledged by all engineers to be superior to any they have ever used; feed constantly by pressure of condensed water, supplied by pipe A, regulated under the oil by valve J, and forced out through check valve and pipe B into the steam pipe C; it then becomes greasy steam, passes to all the valves and cylinder at every stroke of the engine; glass tube I indicates amount used per hour. Packing on rods and stems lasts longer, and the rings on the piston will not corrode. One pint of oil will last from three to six days, according to speed and size of engine; L, sliding gauge; K, valve to shut off when engine stopps; H, F, valves to shut off in case of frost; steam does not enter the cup; it is always cool; warranted to give satisfaction. Patented February 14, 1871. Manufactured by California Brass Works, 125 First street, S. F. 2v23tf

POWER, TAINTER & CO.,

MANUFACTURERS OF

WOOD-WORKING MACHINERY,

3003 Chestnut street (West end Chestnut street Bridge) PHILADELPHIA.

☞ Woodworth Planers a Specialty. 2v23-1y

McAFEE, SPIERS & CO.,
BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco.

California File Manuf'g Co.

Potrero, Solano street, bet. Tennessee and Minnesota streets, SAN FRANCISCO.

Manufacturers of New Files.

Old Files re-cut and warranted equal to new.

REAPER AND MOWER SECTIONS, BARS AND KNIVES COMPLETE,

at a saving of 50 per cent. Orders from the country promptly attended to. 9v19-by

---

Notice is hereby given, that the copartnership heretofore existing between A. J. Severance, Charles W. Randall and J. Gus. Burt, under the firm name of "Severance, Holt & Co.," is this day dissolved by mutual consent. A. J. Severance, having purchased all the interest of his late partners, will continue the business of manufacturing and selling Diamond Drills, as before, under the style of A. J. Severance & Co.

Dated San Francisco, Nov. 24, 1871.
Office, 315 California street. A. J. SEVERANCE,
CHAS. H. RANDALL.
22-v23-tf J. GUS. BURT.

THEODORE KALLENBERG,

MACHINIST,

and Maker of Models for Inventors. All kinds of Dies, Stamps and Punches made. Also, all kinds of Small Gears Cut.

Repairing done on very Reasonable Terms and in the best manner. No. 32 Fremont street, S. F. 19v23-3m

---

WM. M. BETTS & BROTHER,

CARRIAGE SPRING WORKS,

218 Fremont street, bet. Howard and Folsom, SAN FRANCISCO.

LOCOMOTIVE, CAR.

And all kinds of Carriage and Wagon Springs made to Order and Warranted.
3v24-3m

CALDWELL'S

Improved Stop Governor,

Manufactured at the CYCLOPS MACHINE WORKS, 113 and 115 Beale street, San Francisco.
3v24-3m WM. CALDWELL.

JOS. THORNHILL,

Bricklayer and Contractor.

Particular attention paid to all kinds of Fire Work, such as Boilers, Furnaces, Ovens, Grates, Ranges, etc.

Orders left with C. W. WHITE, 47 Clay street, JOS. THORNHILL, 1612 Mason street, near Green, will be promptly attended to. 24v21-3m

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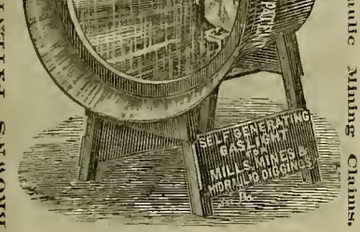
BROWN'S PATENT LAMP.



One of these Lamps, when placed at a distance of 200 feet from the bank, will light up a bank surface 250 feet in length and 160 feet high, and to a much better advantage than any other light heretofore tried, and at an expense not to exceed five cents per hour. Lamps furnished at short notice.

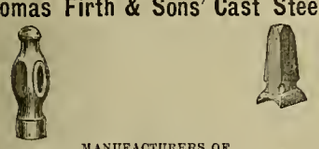
For further particulars address

C. B. BROWN,
7v24-t Placerville, Cal.

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.



MANUFACTURERS OF

Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools.

13 and 15 Fremont street, near Market, San Francis
10v14qr

SHEET IRON PIPE.

THE

Risdon Iron and Locomotive Works

Corner Howard and Beale Streets,

Are prepared to make SHEET IRON AND ASPHALTUM PIPE, of any size and for any pressure, and contract to lay the same where wanted, guaranteeing a perfect working pipe with the least amount of material.

All kinds of OAR WHEELS, AXLES and RAILROAD WORK made to order. Standard sizes of Wheels constantly on hand. Wheels bored and pressed on, Axles turned, etc., at Reasonable Rates.

☞ All kinds of Machinery made and repaired.

24v22-3m JOSEPH MOORE, Superintendent.

J. M. STOCKMAN,
Manufacturer of

PATTERNS AND MODELS,

(Over W. T. Garratt's Brass Foundry).

N. W. corner Natoma and Fremont streets, S. F. Entrance on Natoma street. 6v23-3m

---

BLAKE'S PATENT STEAM PUMPS.

WHAT IS SAID BY THOSE WHO USE THEM.

SALEM, Oregon, January 16th, 1872.

MESSRS. BERRY & PLACE, San Francisco—Gentlemen: In answer to your query regarding the working of the large Blake Steam Pump, our company purchased of you, we would say in all sincerity that the pump *has exceeded our expectation*. It has been in use since the 27th of September, 1871, and has thus far given the most perfect satisfaction. It does its work with ease, does not get out of order, and requires but little or no attention to run it. It is SIMPLE, DURABLE, and PERFECT in its construction. We have found it entirely satisfactory and just the pump *in every respect* needed for our work.

Yours, respectfully, W. F. BOOTHY, Pres't Salem Water Works.

PHŒNIX MINE, Napa County, January 16th, 1872.

MESSRS. BERRY & PLACE, San Francisco—Gentlemen: The No. 8, Blake Steam Pump we bought of you last fall is doing good service. We are having a large amount of water to contend with during this stormy weather; but the pump throws it all out of the main shaft (165 feet deep) with perfect ease, and is only working from 60 to 80 strokes a minute. It is a complete pump and no mistake. We are well satisfied with its working, and if you wish to use the name of our company, as a reference, you are at liberty to do so. Very resp'tly, GEO. FELLOWS, Supt. Phœnix Quicksilver M. Co.

OFFICE STARR MILLS, VALLEJO, Cal., January 13th, 1872.

MESSRS. BERRY & PLACE, San Francisco—Gentlemen: We are pleased to state that the No. 3 Blake Pump purchased of you, has constantly supplied our three boilers for the past year, with water heat to above boiling point with one of Armstrong's Patent Heaters. It has given us no trouble nor expense, and has in fact fully come up to your recommendations.

Yours, Etc., STARR BROS. & CAMPBELL.

OFFICE S. J. WOOLEN CO., SAN JOSE, January 29th, 1872.

MESSRS. BERRY & PLACE, San Francisco—Gentlemen: We have used a No. 6 Blake Steam Pump now for about two years, both as a Tank Pump and as a Fire Pump in case of need, and it has given excellent satisfaction. *It suits us in every respect.*

Very respectfully, R. F. PECKHAM, Pres't San Jose Woolen Co.

BELMONT, Cal., February 6th, 1872.

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Yours, Etc., J. E. BUTLER, Supt. Water Works and Engineer at W. C. Ralston's.

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6v21-eowhp

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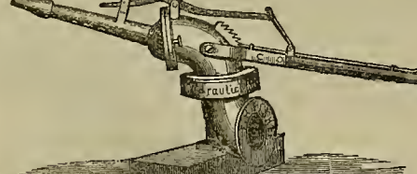

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March 10th, 1872.

San Francisco & Sacramento.

Leave going East.			Arrive from East.	
*4.00 P M	7.00 A M	San Francisco	8.30 P M	*2.20 P M
4.35 P M	7.35 A M	Oakland	8.00 P M	1.50 P M
4.10 P M	7.50 A M	San Jose	8.30 P M	2.10 P M
5.35 P M	8.35 A M	Niles	7.05 P M	12.45 P M
8.25 P M	11.28 A M	Lathrop	4.42 P M	9.45 P M
8.48 P M	11.50 A M	Stockton	4.07 P M	9.07 P M
10.45 P M	1.45 P M	Sacramento	2.20 P M	7.15 A M
Arrive from West.			Leave going West.	

San Francisco & San Jose.

Leave going South		Arrive from South	
.....	3.00 P M	San Francisco	10.40 A M	.....
.....	4.40 P M	Niles	8.35 A M	.....
.....	5.30 P M	San Jose	7..0 A M	.....
Arrive from North.		Leave going North		

Stockton, Lathrop & Merced.

Leave going South			Arrive from South	
.....	7.35 P M	Stockton	10.20 A M	.....
*9.45 A M	8.25 P M	Lathrop	9.30 A M	*8.20 P M
11.35 A M	9.45 P M	Modesto	8.13 A M	6.45 P M
2.40 P M	12.15 A M	Merced	5.45 A M	3.30 P M
Arrive from North			Leave going North	

Sacramento, Colfax, Reno & Ogden.

Leave going East.			Arrive from East.	
	2.00 P M	Sacramento	2.00 PM	
	5.40 P M	Colfax	10.20 A M	
	1.00 A M	Reno	2.10 A M	
	9.10 A M	Winnemucca	4.15 P M	
	12.00 M	Battle Mountain	1.25 P M	
	4.40 P M	Elko	8.45 A M	
	6.20 A M	Ogden	5.20 P M	
Arrive from West.			Leave going West.	

Sacramento, Marysville & Red Bluff.

Leave going North			Arrive from North	
*8.45 A M	2.35 P M	Sacramento	1.05 P M	*4.45 P M
10.25 A M	3.25 P M	Junction	12.15 P M	3.25 P M
1.50 P M	5.15 P M	Marysville	10.20 A M	12.00 M
8.00 P M	8.35 P M	Tehama	6.50 A M	5.30 A M
.....	9.30 P M	Red Bluff	6 00 A M	.....
Arrive from South			Leave going South	

San Francisco, Vallejo & Calistoga.

Leave going North			Arrive from North	
*4.00 P M	7.30 A M	San Francisco	8.00 P M	*11.30 A M
6.30 P M	9.30 A M	Vallejo	6.05 P M	9.30 A M
7.18 P M	10.40 A M	Napa	4.50 P M	8.30 A M
8.50 P M	1.00 P M	Calistoga	3.00 P M	7.00 A M
Arrive from South			Leave going South	

San Francisco, Vallejo & Knight's Landing.

Leave going East.			Arrive from East.	
†7.30 A M	*4.00 P M	San Francisco	*11.30 A M	*8.00 P M
9.35 A M	6.35 P M	Vallejo	9.30 A M	6.05 P M
12.05 P M	10.10 P M	Davisville	6.45 A M	3.3 · P M
1.00 P M	11 45 P M	Knight's Land'g	5.00 A M	2.30 P M
Arrive from West.			Leave going West.	

San Francisco & Healdsburg.

Leave going North			Arrive from North.	
.....	*2.30 P M	San Francisco	*11.00 A M	.....
*7.10 A M	4.35 P M	Donahue	8.45 A M	*5.25 P M
8.20 A M	5.00 P M	Petaluma	8.20 A M	5.00 P M
9 45 A M	6.00 P M	Santa Rosa	7.30 A M	3.30 P M
10.20 A M	6.45 P M	Healdsburg	6.45 A M	2.00 P M
Arrive from South			Leave going South	

Stockton, Milton & Oak Dale.

Leave going South			Arrive from South	
.....	*11.25 A M	Stockton	*4.25 P M	.....
.....	11.52 A M	C.P.R.R. Depot	3.52 P M	.....
.....	12.42 P M	Peters	3.02 P M	.....
.....	1.32 P M	Milton	2.12 P M	.....
.....	1.44 P M	Oak Dale	2.00 P M	.....
Arrive from North			Leave going North	

CAL. P. R. R. CO.'S STEAMERS.

Leave going East.			Arrive from East.	
*4.00 P M	*4.00 P M	San Francisco	*10.00 P M	*8.00 P M
6.00 P M	.....	Vallejo	.....	6.00 P M
7.00 P M	6.00 P M	Benicia	8.00 P M	5.00 P M
.....	2.00 A M	Stockton	2.00 P M	.....
2.00 A M	.....	Sacramento	.....	12.00 M.
Arrive from West.			Leave going West.	

☞ **Explanation.**

For trains running "from" San Francisco, take the left hand columns and read downwards.

For trains running "towards" San Francisco, take the right hand columns and read upwards.

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LEAVE BROOKLYN, *5 30, 6 40, 7 50, 9 00 and 11 00 a. m., 1 30, 2 40, 4 55, 6 10, 7.40 and 10 10 p. m.

LEAVE OAKLAND, *5 40, 6 50, 8 00, 9 10, 10 00, and 11 10 a. m., 12 00, 1 40, 2 50, 3 50, 5 05, 6 20, 7.50 and 10 20 p. m.

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LEAVE HAYWARDS, *4 30, 7 00 and 10 45 a. m., and 3 30 p. m.

LEAVE FRUIT VALE, *5 25, 7 35, 9 00 and 11 20 a. m., 1 30, 4 05 and 5 30 p. m.

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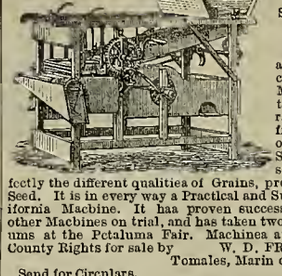

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SAN FRANCISCO, SATURDAY, MARCH 30, 1872.

VOLUME XXIV. Number 13.

The Dank's Rotary Puddling Furnace.

It will doubtless be interesting to most of our readers to learn the progress which is being made in introducing this important invention into practical nse. Nine of these furnaces are in operation at the Cincinnati Railway Iron Works, and the tenth is now about ready to go into operation. No other puddling furnaces are now used at these works. There aro also nine at work at the Roano Iron Works, Chattanoooga, Tenn. Four furnaces have been completed at the Indianopolis Rolling Mills, Indiana, and six others are in process of erection. A single furnace is at work near Louisville, Ky. This makes the number already erected, thirty-nine. There are may others in operations, of which we have seen no notice.

The general opinion of practical men in this country, is that the machine is a decided success. Thus far, however, no other class of finished work has beeu turned out from iron puddled by this furnance, except railroad iron; and of courso the doubt exists that possibly iron puddled in the Dank's rotary may not be sufficiently pure for general purposes. Bnt in answer to this we have the report of experiments made by the Enghsh commission, at the Cincinnati works, where the English and Welsh specimens of iron, (several tons) brought over for the purpose, were pnddled and rolled into various small sections, plates and sheets, as sample tests of the purity of the production. These experiments were pronunced by the commission as perfectly satisfactory.

The royalty paid per ton for the use of the furnace in this country is said to be one dollar per ton for puddled bar. But the English commission in their report, state that they arranged with Mr. Danks that the royalty to be paid in Great Britain shall not exceed fifty cents. If such is the case it is probable that the inventor will reduce his American to a similar figure.

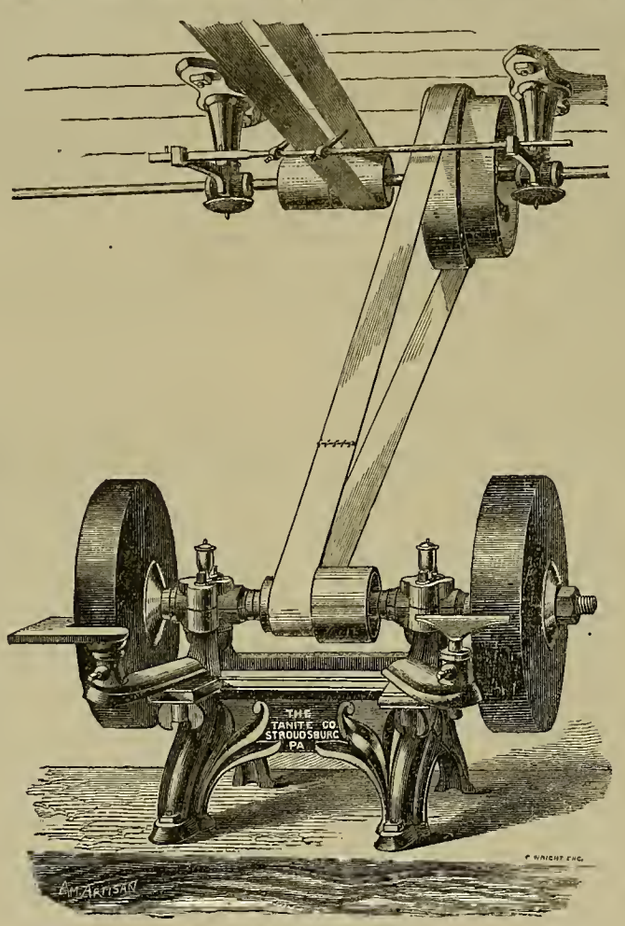
A New Blasting Powder.

A new blasting agent, called the Miners' Patent Safety Powder, is just coming into notice. It is said to be very effective and, at the same time, to possess the merit of heing cheap. One great advantage claimed for it, lies in the fact that it is free from any nnpleasant odor. A series of experiments have lately been made to test its efficiency, and, according to the Nevada *Transcript*, 100 tons of rock was blasted out at an expense of $2.70. Another blast threw out 60 tons at a cost of $2.60, a second quality of powder being nsed. A hole 11 inches deep was drilled in the bottom of a tunnel ahove the Dartmouth mine, aud a 3-ounce cartridge used. The rock was penetrated by the explosion 12 inches below the bottom of the hole made by the drill. The powder is made of different grades, numbering from 1 to 6. The experiments made are said to have been successful, and the absence of any disagreeahle or unhealthy odor, without taking into account superiority of power, will do much towards introducing it into general use.

PROFESSOR SILLIMAN delivered a highly interesting lecture on the "Scientific man," last week, hefore the members of the City College.

Solid Emery Wheels.

Among the specialties of manufacture which have hardly as yet found their way to the Pacific Coast, is that of solid emery wheels and emery grinding machiuery. In this specialty none have done so much to develop the new industry, and to bring it before the pnhlic as the Tanite Company of Stroudsburg, Monroe Co. Pa. This company having taken up the manufacture of solid emery wheels, spent some years



EMERY WHEELS.

in bringing their manufacture to perfection. They are the originators and inventors of Tanite, and the only company in the world which employs for auy object the processes which they have by years of patient application, and by the employment of the greatest mechanical and chemical skill, at last fully developed.

Recently they have erected a machine shop; and giving np the contract system, under which they had, for some years, been putting emery grinding machinery of their own designing and patenting in the market, they have began the direct manufacture of their own celebrated goods. Dealing directly, as they do, with all the principal manufacturers of every kind in the country, and makiug the application of solid wheels and the incidental machinery a careful study, they are able in every case to send just snch goods as are suited to the work on hand. In the steel plow factories of Illinois and the West; the stove fouudries of Albany, Troy, Peekskill, Pittsburgh, Detroit, Philadelphia and Scranton—among the agricultural implement makers all over the United States —and in a largo number of the sawmill and wood-working shops of the country, these goods are justly celebrated, and included among the indispensahles of the business.

The solid emery wheel is to the file what the circular saw is to the hand saw. It is a rotary file, whose points, which never grow dull, aro as hard as adamant. Whilo the file, with slow motion, moves with rasping cut on the metal, say 60 feet per minute at the most, the Tanite Emery Wheel is moving 5,500 feet per minute, and every touch cuts!

Every Tanite wheel is tested before it leaves the factory, at a speed about double that at which it should he run. Every wheel is of uniform density, and perfectly centered and true. These Tanite wheels are entirely devoid of any offensive smell —they generate less heat than some other wheels, and they contain no ingredients which are calculated to affect the health by the inhalation of noxious or poisonous dust. We helieve that these, and other facts, which we have no room to state, show clearly the great superiority of these goods, and entitle them to be ranked among the great labor-saviug tools of the day

The illustration herewith presented represents two of these wheels, in position for use. They are made of varions faces —square, beveled, round, etc., according to the work for which they are desired.

The cutting qualities of the Tanite wheels are said to he so great they will do more work in a given time than any other wheel. The grain of emery in these wheels are not surrounded with a *gummy* suhtance, as in the vulcauite wheels; nor are they emhedded in a stony mass, as in the wheels made by the various processes in which soluble glass—the silicates of soda and potash, etc., etc.—are used; but they are so blended with the Tanite that the two substanoes wear off evenly together, and a constant succession of fresh cutting surface is exposed.

GEOLOGICAL REPORT.—A bill has been introduced in the Assembly by Mr. Pendegast providing that 100 copies of the Geological Report be placed in the Secretary of State's office, subject to order of the Governor, to be distributed to the libraries, colleges, and institues of learning in the United States, and 100 copies to be sent to similar institutions in Europe. It also provides that one copy of the work shall be kept by each county clerk throughout the State, so as to be accessible to any citizen. We hope that this measure will pass, as now it is rather difficult for persons not having access to a public library, or means to buy, to examine the report. The report should be placed where it may be subject to the inspection of all, so as to assist in disseminating a knowledge of the resources our State to those most interested in her welfare.

UTAH MINING BUREAU.—An association has been lately incorporated, known as the "American Bureau of Mining Information for Utah." The organization is intended to foster legitimate and discountenance fraudulent mining enterprises. The objects are to gather reliable information and statistics relating to mineral locations and mining property throughout Utah, their extent, development, value, etc.; keep a record of leading mines; furnish information; advance legitimate enterprises, etc. Mines aro to be registered and bulletins distributed at business centers in this country and Europe. E. M. Barnum, of Salt Lake City, is Secretary.

EDUCATION OF MINERS.—At a recent council meeting of the Miners' Association of Cornwall, it was announced that eleven classes were now in active operation in as many mining centers, teaching chemistry, mineralogy aud geology to upwards of a hundred miners. Of this measure we cannot speak too highly.

CORRESPONDENCE.

Quartz in Tuolumne County.

EDITORS PRESS:—Tho Mount Jefferson mine is owned by San Francisco capitalists, and is being worked on a large scale. A few years since a large amount of geld was taken from the mino with horso power, but at reaching water level, the expense was found to he teo heavy; work was stopped until recently, when a fine steam hoisting works was erected, a shaft sunk 170 feet and two levels run with winzes for air and stoping facilities. All about the premises havo the air ef activity and thrift. Connected with the property is a 10-stamp steam mill and chlorination works in operation; the mill reducing about 500 tons of ore per month, while the sulphurets are saved, exceedingly clean and cheaply by a riffle invented by the euperiutendent, Mr. Lewis, who is a part owner in the property. The

Rutherford Mine

On the same lode or vein is being opened, and ore shipped two miles to mill for reductien. This vein extends a loug distauce as shown hy develepment on and near the eurface, and at the depth of 170 feet, with over 1,000 feet of drifts as seen in the Mt. Jefferson claim, gives evidenco of one of tbe largest deposits of ore in the State, the vein being from 4 feot to 22 feet wide.

Farmiug interests in the county were never hetter tban now; large tracts of land heing cultured; grain looking well, so far as up, with prospect of fine crops.

L. L.

Utah Ores.

BY PROF. B. SILLIMAN.

The ores of the mines thus far openod in the Wahsatch Mountains are largely composed of species resulting from the oxidation of sulphides, especially galenite and antimonial galena, with some ealts of zinc and copper, all containing silver and rarely a little gold. Iron and maganese ochers occur in considerahle quautity in some of them; but the process of oxidation has prevailed very extensively, so that the ochraceous character of the ores is the striking feature of most of the mines in this range.

The great chamber of the Emma Mine, which is an ovoidal cavity measuring, so far as explored, about 110 feet vertical hy about 80 by 110 feet transverse, was found to be filled almost exclusively with epigene species, the product of oxidation of sulpbides, and capahle of removal without tbe aid of gunpowder for the most part. Tbe study of this mass reveals the interesting fact that it is very largely composed of metallic oxides, with but comparatively small proportions of carhonates and sulphates. Fortunately I am ahle to present an analysis of an av(rage sample of about 82 tons of first-class ore from tho Emma Mine, made by James P. Merry of Swansea, April, 1871 which is as follows, viz.

Silica	40.90	Silver	0.48
Lead	34.14	Alumina	0.35
Sulphur	2.37	Magnesia	0.25
Antimony	2.28	Lime	0.72
Copper	0.83	Carbonic Acid	1.50
Zinc	2.92		
Manganese	0.15		90.42
Iron	3.54	Oxygen and water by diff'c.,	9.58
			100.00

The quantity of silver ohtained from this lot of ore was 156 troy ounces to tho gross ton of 2,240 pounds.

This analysis sheds important light on the chemical history of this remarkahle metallic deposit, and will aid us iu the etudy of the paragenesis of the derivcd species. It is pretty certain that all the heavy metals bave existed originally as sulphides, and we may, therefore, state the analysis thus, allowing 8.52 sulphur to convert the heavy metals to this state.

Silica	40.90
Metallic sulphides	52.60
Al .35, Mg .25, Ca .72, Mn², Mn .20	1.52
	95.02
Water, carbonic acid and loss	4.95

This calculation assumes that the sulphides are as follows, viz:

Galenite	38.69
Stibnite	3.30
Bornite	1 03
Sphalerite (blende)	3.62
Pyrite	5 42
Argentite	0.54=52.60

This statement excludes the presence of any other ganguo than silica, aud considering that the ores exist in limestone, the almost tetal ahsenco of lime iu the composition of the average mass is certaiuly remarkable. The amonut of silica found is uoticeable, since quartz is not soeu as such iu this great oro chamber, nor se far as I could fiud, in other parts of the mine. The silica can have existed in chemical comhinatien only in the most inconsiderahle quantity, since the hases with which it could have comhined are present to the extent of less than 1½ per cent, nor do we find in the mine any noticeahle quantity of kaolin or litbomarge, resulting from the decomposition of silicates, nor are there any feldspathic minerals. It is most probable that the silica existed in a state of minute suhdivisiou diffused in the sulphides as I havo seen it in some of the unchanged silver ores of Liou Hill in the Oquirrh range.

The ahsence of chlorino and of phosphoric acid iu the analysis corresponds well with ahsence of the species *cerargyrite* and *pyromorphite*, of which no trace could be found by the most careful search among the contents of the mine. The miners speak of the "chlorides," and the unscientific ohservers have repeated the statement that silver cbloride is found in the Emma Mine, but the ores indicated to me as such are chiefly antimonic ochers.*

The general (perhaps tetal) absence of the phosphates of lead iu the Wahsatch and Oquirrh Mountains, so far as explored, is a strikiug peculiarity of the mineralogy of these ranges. On the other haud, the absence of chlorino in the mines of the two Cettonwoods and the American Fork is in striking coutrast with the constaut occurreuce of cerargyrite (horn silver) iu the Oquirrh and also in the southern extension of the Wahsatch. I have sought in vain for a trace of this species in the dietricts of the Wahsatch just named, and the occurrence of pyromorphite is extremely douhtful.

Molybdic acid, however, exists pretty uniformly disseminated in the mines of the Wahsatch; in the form of *wulfenite*. Although it occurs iu minute quantity, it is rarely ahsent, and may ho regarded as a mineralogical cbaracteristic of the districts of the two Cottonwoods and of the American Fork. For this reason a few particulars will he iu place hero.

Wulfenito is found associated with calamine, (Smithsonite), cerusite, malachite, azurite and more rarely alone in little cavities in the ochraceous ores. In the "Emma Mine," vugs, or geodes, are occasionally found lined with hotryoidal, apple-green calamine, rarely crystallized, often brownish and sometimes colorless, but invariahly associated with wulfenite. Thc calamine encloses and covers the crystals of wulfenite, which form a liniug of considerable thickness. The wulfenite is in thin tuhular crystals of a yellow color, resemhliug the Cariuthian variety of thie species. The crystals aro very brilliant and perfect, but quite minute, rarely two or three millimoters in width, and not over 1mm. in thickness, often less. They are quite ahuudant in this association, no piece of the calamine which I have seen being without them. They sometimes, but rarely, penetrate througb the globules of the calamine so as to show themselves on the upper surface of that species. But the calamine has obviously formed hotryoidal masses around the wulfenite, a crystal of this epecies heing often seen forming the nucleus of the calamine globules.

These facts are of interest in the paragenesis of these epigene species. The oder of production has ohviously heen, first tbe cerusite resting on ochraceous iron, manganese, and other metallic oxides; next, tbe wulfenite crystale were deposited upon and among the crystals of cerusite, and lastly came the calamine, crystalline at first, and as it accumulated becoming fibrous and amorphous, completely enclosing and capping the other species.

Wulfenite occure also in this minc, as likewise in the "Flagstaff," the "Savage," and "Rohert Emmet," without the calamine, hut never, as far as observed, without cerusite and other carhonates. In the "Savage," masses of cerusite with various oxides are interpenetrated hy the tahular crystals of wulfenite.

Although wulfenite forms a very minute factor of the entire ore mass in these mines, by the law of minoral association it may he considered as the characteristic species of the ores of these districts, occuriug in the magnesian limestones. So far as I am informed, or have observed, wulfenite hae not been hitherto found in any of the other mining districts of Utah; but by the same law, it may be reasonahly looked for whenever deposits of epigene minerals are explored in the same geological and mineralogical relations in the Wahsatch rauge of mountains.

The oxiding and desulphurizing agency which has acted upon the great ore mass ef the Emma mine, whatever it was, has performed its work with remarkable thoroughuess. A carefnl study of its action discloses some other facts of interest in the paragenesis of species. From the appearance of numerous large blocks of ore forming solid houlders in the general mass, a concentrio arrangement is easily recognized. On hreaking these masses across, the fresh fractures disclose a dark center which consists almost entirely of decomposed sulphides, composed chiefly of cerusite blackened by argentite and metallic silver in pulvcrulent form. This dark center, chiefly of corusite, is often pseudomorph of galenite in its fracture. Next is usually a zoue of yellowish and orange yellow antimeuial ochre, cervantite, ofteu quite pulverulent, at times only stainiug the cerusite; theu follows a narrow zene of green and hlue copper salts, malachite, azurite, cupreeus anglesite, witb, rarely, wulfenite; then follows cerusite, sometimes etained with antimony ochre, and not unfrequently associated with wulfenite; outside all are the irou and manganese ochres. This concentric arrangement I havé ohserved in a great number of cases; and the ahove order of species, while not invariable, is believed to reflect accurately the general arrangement. Well crystallized species, as mineralogical specimens, are rare in this great mass, hut tbe following may he recognized as its chief components.

Galenite, sphalerite, pyrito, jamesonite (?), argentite, stephauite, boulangorite(?), *antimonial*, *galenite*, *cervantite*, mimetite(?) limonite, wad, kaolin, lithomarge, *cerusite*, anglesite, linarite, *wulfenite*, *azurite*, *malachite*, *smithsinite*. Those most ahundant or hest crystallized are in italics. This list can no doubt he extended as opportunity occurs for the more careful study of the ores, the great mass of which, amounting to many thousand tons, have gone into commerce without passing under any mineralogical eye.

In a subsequent paper will he presented some remarks upou the Oquirrh range and some of its ores, and noticos of minerals from other districts of Utah.

New Haven, January, 1872.

The Gold of the Black Hills.

The reported discovery of gold in the Black Hills is attracting much attention throughout the West, and if the statements in regard to the matter prove to be as well founded as they seem, the discovery will he one of great national importance. For several months past the Indians and whites connected with Spotted Tail's trihe of Sioux have showu rich specimens of gold-bearing quartz, but until a very recent date they have persistently refused to make known the exact locality wbere it was ohtained. At different times adventurous frontiersmen have penetrated this almost wholly uuknown region, and have brought hack specimens of gold tbat certainly left no douht of the existence of the precious metals in paying quantities. In J. Ross Browne's Report it is stated that the explorations of Lieut. G. K. Warren, in 1847, aud of Capt. W. F. Reynolds, in 1859-60, under direction of tbe United States Topographical Office, satisfactorily established tbe fact that the Black Hills of Dakota Territory, were rich in gold and silver, as well as coal, iron, copper, and pine forests. The report further says: "The area occnpied by the Black Hills, as delineated on a map which accompanied Lieut. Warren's report, is 6,000 square miles, or ahout the surface of Connecticut. Tbeir hases are elevated from 2,500 to 3,500 feet, and the highest peaks are about 6,700 feet above the ocean level. The whole geological range of rocks, from tho granite and metamorphosed azoie to the cretaceous formatious of the surrounding plains, aro developed hy the upbeaval of the mountain mass. Thus at the junction of the silurian rocks, gold becomcs accessihle, while the carboniferous strata brings coal measures within reach." "With the pacification of the Sioux Indians, and the establishment of cmigraut roads, this district of Dakota would doubtless he tbe ecene of great mining excitement, as the gold-fields of the Black Hills are accessible at a distance of 120 miles from the Missouri Rivor."

As far hack as 1867, the people of Dakota wore firm iu tho helief that the Black Hills were rich in gold and other minerals. In the year uamed, an expedition was organized hy B. M. Smith, for the purpose of exploring that region, hut the Government, inetead of furnishing an escort of cavalry, as was expected, ordered it to disband. In 1868, Capt. P. B. Davey of Minnesota etarted a similar echeme, hut the Government again refused to allow an expedition of that kind to euter the Indian country.

Last season a party of men, having the same object in view, proposed to explore the Big Horn River, hut were compelled to disbaud for the samo reasou. About a year ago Spotted Tail, the nominal head of a trihe of peaceful Sioux, was prevailed upon to ask for the removal of his agency from the Missouri River hack into the interior about 200 miles. The movement was considered a very strange one at tbe time, and it has since come to light that money and presents were freely used, the prime object sought for being tbe opening of this region for mining purposes. Spotted tail soon found tbat he bad heen deceived, and, taking a large portion of his followers, moved into tho Platte Valley, where he hae since remained, leaving tbe reservation in possession of a large party of white and half breed adventurers. It is now generally believed that the Government will throw no further obstacles in the way of any expedition exploring thie region, and unless scientific explorations, dating hack for yeare, and present indications are wholly at fault, gold fields of extraordinary richness would reward such an enterprise.—*N. Y. Tribune.*

Lead.

The production of pig lead on this coast has been considerahle during the past year or two, and ie likely to he steadily increased. Tbe imports of foreign pig lead at New York for 1871 were 516,900 pigs or ahout the same average for the two previous years. It is well known that important lead mines exist in Wisconsin, Iowa, Illinois and other Western States. The deconnial shipments from the Upper Mississippi mines since January 1, 1821, have heen as follows:

	Pigs.	Tons.
From 1821 to 1831	664,118	23,244
From 1831 to 1841	1,591,950	55,718
From 1841 to 1851	6,170,857	215,979
From 1851 to 1861	4,609,553	161,334
From 1861 to 1871	2,419,985	84,700

The increase for the first 30 years was immense. Since 1851 tbere has heen a steady decrease. The diminished production, we are assured, has not been the result of an exbausted condition of the mines, but is due to the refusal of owners to have them worked. It is estimated that our importations of foreign lead last year cost us $4,000,000. During the past 22 years there was imported at New York alone upwards of 77,000,000 pigs lead, equal to 350,000 pigs per annum. It is eaid tbat a pig of foreign lead is fully equal to two pigs of American. With the immense quantity of lead in tbis conntry it is eingular tbat we ehould send from $3,000,000 to $4,000,000 gold coin every year out of the country to pay for foreign lead. We are not only able to supply the home demand, but ought to be large exporters. We are glad to know that the manufacture of pig lead is attracting increased attention in this city and tbrougbout this coaet.

NEW DISCOVERIES.—The excitement regarding the new discoveries made in the north part of White Pine mining district, and about one mile from tbe city limits, is unabated. Rich specimens of ore are on exhihition from the Silver Plate mine, showing as rich as any ore ever found in the district. This mine ie in a formation of slate and limestone, with well-defined foot and hanging walls, showing a ledge 4½ to 6 feet wide. In every foot made ahead tbe ore improves. The mine has been self-sustaiuing since operatione first commencod. The ore at first was of a low grade, and from several crushings made of ore obtained in einking, the owners realized ahout $2 por day—hardly enough to pay the expensee of provisions and tools. A few days ago the ore-body changed in character and gradually increased in grade, now ehowing a hody of ore that will work $150 per tou at the mill. Six men are employed at present, and ahont 10 tons of ore are extracted daily. There are three owners in the location. Adjoining tbis location ie the Silver Owl Company. The location is 600 feet in length—owned by Wm. N. Osborne and others. The company ie sinking a shaft on the ledge in ore of the same character as the Silver Plate worked in at the same depth. Tbe prospects for finding rich ore at a greater depth are good. Next adjoining ie the Silver Central, recently located. The owners are sanguino of finding a deposit of ore equal to the Silver Plate. A force of men will be put on immediately.—*White Pine News.*

MECHANICS, write for your paper.

*There exists generally among the mining population of the central territories of the United States a distinction between *horn silver* and *chloride of silver*, an error arising, as I am persuaded, from supposing the ochraceous ores to be chlorides not so perfectly developed as to be sectile.

MECHANICAL PROGRESS.

Metal for Bearings.

The following alloy has been found to give highly satisfactory results for plummer blocks, axles, brasses, etc. To 30 parts of melted copper are added 70 parts of antimony; the mixture is melted and run out into thin plates. These are then re-melted with tin in the proportion of 90 parts of tin to 10 parts of the copper and antimony, and run out again into thin plates. When used it is re-melted, and run into the form required. M. Volk, of Regensburgh, has employed an alloy for many years, of which the following are the component parts: Copper, 5.6 per cent.; antimony, 11.2 per cent.; and tin, 83.2 per cent. He also employs the following mixtures to produce metals for various purposes.

For slide valves:		
Copper	81.8	per cent.
Tin	14.8	"
Zinc	3.3	"
	100.0	
or		
Copper	67.0	"
Old brass tubes	22.9	"
Tin	10 2	"
For pump barrels, stop-cocks, and valve-boxes:		
Copper	87.1	"
Zinc	10.7	"
Tin	1.6	"
For stuffing-boxes, valves, etc.:		
Copper	86.2	"
Zinc	2.6	"
Tin	10.3	"
For eccentric rings:		
Copper	90	"
Zinc	10	"
For piston rings:		
Brass cuttings	94	"
Copper cuttings	6	"

PNEUMATIC DESPATCH TUBES.—At the meeting of the (English) Institute of Civil Engineers, C. Siemens read a paper on this subject, which is published in *The Engineer*. The first system mentioned was laid in London and consisted of a tube through which carriers, containing messages, were forced in one direction by compressed air, and in the other by means of an exhausted receiver. This has a limited power of dispatch as one carrier must complete its passage in one direction before another could be sent in the other direction, and it did not admit of intermediate stations.

In 1863, Messrs. Siemens & Halske introduced their system at Berlin. This consisted of two 2¼ inch tubes, forming a circuit. Through these flowed a continuous air current, of course passing in one direction in one tube and in the opposite direction in the other. Carriers could be put into the tubes at any point. The continuous air current was produced by means of a steam engine working a double-acting air pump. In Paris there was also a circular system, but without a continuous air current, the carriers being driven from one station to another by air compressed by means of water from the city mains. This was very limited in capacity and required a large expenditure of water. In London there was a large cast-iron tube of a ⊏ section for carrying parcels. Here, in 1870, the Siemens Brothers introduced their circuit system with continuous air current, and this has been found to work well and has since been extended. As above, carriers can be sent or received at any point. As to the speed of the carrier it was found that it traveled 4,116 yards, or over the whole circuit in 7 min. 45 sec. Instead of a steam engine and air pumps, the necessity of which was a hindrance to the general introduction of pneumatic tubes, a simple and cheap arrangement, something like the Giffard Injector, has been used with very good success for producing the continuous air current.

CASE-HARDENING.—It is often desirable to convert the surface of small iron articles into steel, to prevent wear and tear, and also to prepare them for a high polish. To do so is much quicker and cheaper than to make these articles in the first place out of steel. The older process consisted in placing them in an iron case with burnt bone dust or other charcoal, exposed for from two to eight hours to a dull red heat, and plunged into oil or cold water, which cooling is called "quenching." The process is varied at times by leaving its subjects to cool in the case, and afterwards tempering them. A later mode is to use prussiate of potash. This consists of two atoms of carbon and one of nitrogen to one of potash. Its decomposition leaves no solid residium that can interfere with the chemical change or injure the quality of the steel. It is rubbed on the iron at a dull red heat; the metal is then put in the fire for a few minutes, and then tempered in water.

It was formerly customary to case-harden burglar-proof safes, the iron doors of banks, etc., so that they might resist the drills of thieves. Such articles are now made mostly from Franklin iron, which is manufactured from an ore found at Franklin, N. J., and nowhere else in the world. This iron is peculiarly hard, and is found to be about as effective as if case-hardened.

THE ST. LOUIS BRIDGE is progressing rapidly. The concrete or foundation of the last pier has been laid, the masonry is two-thirds completed and the superstructure is commenced. The cast-iron plates at the piers have been placed and prepared for the reception of the steel tubes forming the spaces. It will be completed in about a year from now.

Steeled Wheels.

This novel title is given to railway wheels made by a process which must rank among the great improvements recently made in the working of metals, by Mr. W. G. Hamilton, engineer, of the Ramapo Wheel and Foundry Co., which, after 4 years of experimental trials, is now brought prominently before the public.

Mr. Hamilton, who is well known to the railway profession, through his "Manual of Useful Information to Railway Men," has worked out the problem of making chilled car-wheels out of non-chilling irons, and at the same time increasing the strength of the mixture above that of the most expensive charcoal irons.

The process consists in part in melting scrap steel, with the ordinary charge of pig metal, in the cupola, by which an increase of strength of from 20 to 50 per cent. is given to the metal.

Messrs. A. Whitney & Sons, the extensive wheel founders of Philadelphia, have been testing the practical utility and value of the process, have made some 15,000 wheels, during a continuous working during the last 3 months, and report it a most complete success.

That this process will enable them, by adding to their usual chilling charcoal irons a portion of non-chilling soft charcoal irons, or anthracite metal, to produce a car wheel of greater strength, and at a much less cost, than with high-priced chilling charcoal irons alone.

To the railway community the value of this improvement will be understood, when it is known that the supply of charcoal irons is yearly diminishing and the cost increasing, and that the steeled metal gives greater security to their rolling stock.

CURVED LOCOMOTIVE SMOKE-STACK.—According to the Boston *Transcript* a Massachusetts invention has lately been tried on the Fitchburg railroad with good results. It consists of a curved smoke-stack, of nearly the shape of a "horn of plenty," attached as ordinary smoke-stacks are, the mouth running backward. Within, near the enlargement at the upper curve, is placed a wire screen at an angle of about 45° with the direction of the smoke, and the usual screen is placed over the immediate outlet. Just below the first screen a perforated steam pipe runs horizontally through the smoke-stack, and is connected with the boiler by a valve-pipe under the control of the engine-driver. As the refuse matter from the furnace passes through the stack, it is moistened by the fine spray ejected through the perforations, thus deadening the particles and increasing their weight. Striking against the inclined screen, they are deflected downwards and led through a proper tube below the engine, falling on the track in a moistened and consequently harmless state. The arrangement does not hinder the draft. Not only is the trouble of cinders upon the train obviated, but damage from fires along the track is also prevented.

BROAD AND NARROW GAUGE.—A writer in *Van Nostrand's Mag.* argues in favor of the broad (6 feet or more) over the narrow (4 7-10 feet) gauge for railroads, claiming a gain in all respects for the former. In regard to the present general use of the narrow gauge he says that it has been adopted "for reasons which it would not be creditable to our railway managers and to the profession to state"—a statement which may be satisfactory to the author, but which the general public can hardly be expected to swallow. In his comparison, however, he gives figures to prove that the cost of building and running roads of broad gauge is less than for those of narrow gauge. His argument is by no means complete. In conclusion he says that it is now understood that several leading engineers in Europe, dissatisfied with the narrow gauge of 4 7-10 feet or 5 feet, are seriously considering the question of recommending the 6-foot gauge as the best uniform gauge for the entire of Northern Europe and Asia.

IRON CARS.—A model of a freight car is attracting considerable attention at St. Louis. It is cylindrical in form, and is constructed of iron. By the peculiarity of its form, pressure on the sides is avoided, and having a false floor, better ventilation is attainable—a matter of great importance in the transportation of fruit, grain, flour, and many other perishable commodities. It is, moreover, fire-proof, and when constructed with equal strength and capacity weighs one ton less than a wooden car. We are not informed as to the comparative cost of construction.

ENAMEL FOR METALS.—M. Pleischl, of Vienna, claims to have discovered a vitreous enamel for metals which combines the properties of extreme hardness, durability, freedom from noxious ingredients (lead and zinc), and malleability by contact with the substances to which it is applied.

IRON VESSELS of a thousand tons are now built which draw only eighteen inches of water, and a company has been formed in New Orleans to provide such vessels for the transportation of the products of the Mississippi Valley to that city.

THERE are eight large establishments in the United States engaged in the manufacture of pins, one factory turning out an average of about eight tons a week. American pins are considered the best in the world, and the demand from foreign countries is constantly increasing.

SCIENTIFIC PROGRESS.

Peculiar Phenomena Observed in Quarrying.

W. H. Nile, Prof. in the Massachusetts Institute of Technology, describes in the *American Journal of Science*, certain phenomena which are often observed in quarrying, such as fractures, sudden movements, and expansions of beds of stones connected with quarrying, and due apparently to the state of tension to which the bed was subjected when in its original state in the quarry. The Prof. mentions a spontaneous fracture in a bed of gneiss three feet and nine inches thick, which was sixty-one feet long, and mainly in the direction of the strike, but with some abrupt transverse turns. The transverse fractures were opened wider than the north and south—in two and a half months, the former five-eighths of an inch, the latter nowhere over one-fourth—showing that there was less resistance to motion in the direction of the strike. He mentions cases of anticlinals formed by movements in beds. In one instance a bed of gneiss twenty inches thick had been elevated an inch and a half, the northern slope of the anticlinal measuring twenty-three feet. The fold trended east and west, and at one end there was a crack three-sixteenth of an inch wide. In another instance in a bed three inches thick, the amount of elevation at the center was one inch, and there was a fracture along the whole length of the crest, trending east and west. Prof. Niles observed a bend form in a bed two and three-quarter inches thick; in a few hours the portion of the bed forming the crest was elevated three inches and a quarter, and the crest—five and a half feet long—had a fracture along it. Sudden sounds and explosions sometimes attend the movements and fractures; and the sounds occur in all seasons, though more frequent in summer. Sometimes they are louder than the report from a blast, and at one time led to the supposition that the powder magazine had exploded.

The following is the example of the expansion of the rock during quarrying. A mass split off along one side, by wedges in a series of drill holes, for a length of 354 feet (requiring 1,200 wedges) in the direction of the strike, or nearly north and south, had a width of eleven feet and a thickness of three. By one end it was still attached. Soon after the fracture was made, it was observed that the halves of the drill holes were not opposite, and at the free extremity the amount of dislocation amounted to an inch and a half; or in other words, the stone was an inch and a half longer after the fracture than before. The subsequent exposure of the stone to the varying temperature and conditions of the weather for two months produced no change. As the free extremity was higher than the other, the phenomenon was not produced by gravity. Three other instances are mentioned of similar effects; on a smaller scale.

TEHAUNTEPEC SHIP CANAL.—The Commission appointed to examine and report on the Tehauntepec ship canal project have published their report. It may be found in *Van Nostrand* for February. The eastern terminus of the canal, as proposed, is at the junction of the Coahuapa and Goatzacoalcos rivers, about 30 miles from the Gulf of Mexico, the latter river forming an excellent harbor for that distance. It runs west to the summit of Tarifa, 680 feet above the sea level, crossing on the way the Chalchijapa, Chicolote, Goatzocoalcos (at Old Mal Paso) and Malatengo rivers. From the summit it passes through a plain where a cutting 100 feet deep, for several miles is recommended, descends to the plains at the foot of the mountains—a descent of 360 feet, requiring 35 locks,—and thence with a fall of 240 feet in 14 or 15 miles reaches the Upper Lagoon. Thence to reach the Pacific one or both of the narrow peninsulas, separating the lagoon from the ocean, must be cut through, and an external harbor or entrance piers thrown out. The plan is for a ship canal with an available depth of water of not less than 20 feet, with locks 450 ft. long and 50 ft. wide. Total length of artificial canal, 115 to 120 miles; number of locks, 120, with 10 foot lift; total rise, 600 ft. The country is healthy and very productive, laborers are easily obtained and building material is abundant. The extensive use of timber instead of masonry is recommended.

ABSORPTION OF MOISTURE BY BRICK AND STONE. Prof. Draper, of University Medical College, New York, has been making some experiments with regard to the relative absorption of moisture by brick and stone, using brown stone, Nova Scotia stone of the best quality, fine red Philadelphia brick, and a compact, hard-burned, white brick from New Jersey. His experiment showed that brick absorbs more moisture than stone, but parts with its imbibed moisture more readily, and therefore preferable as a building material, and that the white brick is superior to the red, absorbing only half as much moisture. In cases corresponding to the dews of summer or fogs, brown stone absorbs more moisture than the Nova Scotia stone and both these more than brick, and hence are more favorable to vegetable growth and inferior for building purposes. On the whole the materials rank in relative value for building as follows: 1. White brick; 2. Red brick; 3. Novia Scotia stone; 4. Brown stone.

The Late Solar Eclipse.

Accounts are slowly coming in, mostly by telegraph, from the various stations established to make observations upon the late eclipse. It will be some time yet before full reports will be received, and still longer before these reports will be collected, compared and properly worked up so as to determine their real value.

So far as yet appears, the observations have not developed any new facts; but have in several instances furnished important confirmation of conclusions which had already been measurably attained on previous occasions, but not with sufficient evidence to secure the entire acquiescence of all astronomers.

One important point thus definitely attained is the assumption that the corona is not to any considerable extent the effect of the atmosphere of either the earth or moon, but that rings, rays, rifts, streamers and all is a true solar appendage only slightly modified by our own atmosphere.

Dr. Janssen, one of the observers at Hindostan, writes to Prof. Newton that his observations proved that, independently of the cosmical matter which should be found near the sun, there exists about this body, an atmosphere of great extent, exceedingly rare, and with a hydrogen base. This atmosphere which doubtless forms the last gaseous envelope of the sun, is fed from the matter of the protuberances which is shot up with great violence from the interior of the photosphere—in the manner shown in the recent illustrated description given of one of these phenomena as observed by Prof. Young. Prof. J. supposes that it is this atmosphere which produces the large part of the phenomena hitherto denoted by the name of *solar corona*.

The question of the polarization of the corona light seems to be still left in doubt, owing to the puzzling inconsistencies, as heretofore noticed, between different instruments and observers.

Prof. Young, the American astronomer, who has pretty carefully analyzed the brief reports already received, writes to the Boston *Journal of Chemistry* that when we get the full reports, with photographs, etc., it may possibly happen that their comparison may lead to some entirely new discoveries, and almost certainly some new question will be raised which can be settled only at the next eclipse.

SOLID IRON FLOATING ON MELTED IRON.—E. Schott writes concerning this to the *Berg. u. Hutt. Ztg.* In casting wheels he divided the molds in two parts and surrounded these with a spring ring. As soon as the melted iron poured into the mold began to cool the ring opened and that up to ¼ inch, the wheel being 18 inches in diameter. After cooling the casting shrunk to less than the original size of the mold. From this it follows that iron when heated has a greater, and when cooled a smaller volume than when fluid. The larger volume must, therefore, possess a less specific gravity, as is confirmed by the phenomenon of solid iron floating on melted iron. Commonly thin pieces of iron are employed for observing this phenomenon. The iron being a good conductor of heat, speedily acquires the temperature of the fluid mass up to a bright red heat—the degree necessary for the greater expansion—and thus acquires a smaller specific gravity than the fluid bath and consequently swims on it; and this it does the more quickly, the thinner it is, and *vice versa*. Thicker pieces sink at first, but rise to the surface as soon as they are expanded by the heat,—somewhat analogous is the relation of ice to water.

SEC-SYSTEM OF NOTATION.—Dr. Lehmann, of Leipzig, according to the *Mechanics' Magazine*, proposes a new system of notation with 6 as a basis, counting and reckoning with half-dozens instead of tens. To avoid confusion, the name *six* may be changed to *sec*, so that we would count one, two, three, four, five, sec. The higher figures might be called twosee, threesec, foursec, secsec or sess. This latter would be equivalent to 36, but would be written 1 and 2 noughts. It is further proposed to change the type so as to suit the new system. Among the advantages noted is the reduction of the extent of the multiplication table so tremendous now to school-boys and others. The following shows the extent of the tables under the sec-system. In making use of the ordinary type, it must be borne in mind that 10 is equivalent to 6:

2×2= 4	3×2=10	4×2=12	5×2=14
2×3=10	3×3=13	4×3=20	5×3=23
2×4=12	3×4=20	4×4=24	5×4=32
2×5=14	3×5=23	4×5=32	5×5=41

The greater ease of addition, subtraction, multiplication and division would guarantee the decrease of errors in arithmetical calculations, etc., etc.

EXPLORATION OF ROME.—Renewed interest is now being shown in the exploration of the buried relics of Rome. The new government shows a disposition to take the matter in hand and private parties also are in the field. Two schemes have been prominent of late. One is to divert the river Tiber from its channel, with the idea that from its bed many relics of value will be obtained. Another is that of an Englishman, J. H. Parker, who has already made excavations and discoveries of no small interest, and who now proposes to form a company with a paid up capital of $250,000, with the object of purchasing land in Rome, exploring it to the utmost, and then reselling it at an advanced price.

MINING SUMMARY.

THE following is mostly condensed from journals published in the interior, in proximity to the mines mentioned.

California.

ALPINE COUNTY.

HOISTING WORKS.—Silver Mt. *Chronicle*, March 16: Both the Excbequer and I X L mines will soon be supplied with hoisting works, and the mills and mines this summer will furnish employment for upwards of 100 men.

AMADOR COUNTY.

BARLOW MINE.—Jackson *Ledger*, March 16: The rock in this mine coutinues equally as rich as when first struck.

BUTTE COUNTY.

BUTTE CREEK MINES.—Chico *Enterprise*, March 16: The Cberokee Co. commenced "piping" on Butte Creek above Centerville, on Wednesday. They have an ample supply of water, and are washing down the side hill with great rapidity. Hupp, McNair & Co. turned the water on, in the vicinity of Centerville, on Mouday, aud are workiug their claims day and night.

CALAVERAS COUNTY.

HUDSON LODE.—San Andreas *Citizen*, March 23: The developmeuts in this lode are very extraordinary. The Co. are running 3 shifts—3 men each, working 8 hours—and are down 100 ft. The veiu here is 9 ft. wide. Next to the hauging wall there is ahout 4 ft. of rock filled with sulphurets of hoth gold and silver. In the ceuter there is a little over 2 ft. of decayed rock partaking of a limestone nature, which is very rich. Outside of this, aud next to the hanging wall, is about 3 ft. of decayed, though not soft, rock literally filled with gold.

CENTRAL HILL.—The gravel claim of John Shear is paying remarkahly well. Other claims are also paying.

CALAVERAS HYDRAULIC CO.—Nineteen hundred ft. of 11-inch iron pipe will be laid, calculated to convey 300 inches of water through a "Hydraulic Chief," with a 4-inch nozzle, against the immense hanks of auriferous gravel belouging to the Co. The sluice hoxes will be some 300 ft. in length hy 24 inches in width and depth, with a grade of 9 inches to 12 ft., carrying tbe tailings to a spacious dump in Chili Gulch.

ANGELS QUARTZ M. CO.—This Co. are dropping their whole 30-stamps on rock from tbe 500-ft. level, which yields $30 per ton.

WEST POINT.—Calaveras *Chronicle*, March 23: In the Zacetara tbe shaft is 200 ft. deep and the lead has widened out until it fills the fissure, the walls being 5 ft. apart.

The Bartolo mine is making favorahle progress.

STEGER MINE.—The Co. have erected a water-power pump of sufficient capacity to keep the shaft dry, and the work of sinking is progressing rapidly. A first-class quality of rock is being ohtained.

REED & HILLARY are preparing for active operations as soon as Spring fairly opens. There are a number of other mines in the dist. in which favorable developments are heing made.

SCIFFORD MINE.—Rock of extraordinary richness has heen developed in the miue, near San Andreas. At the depth of 19 ft. the ledge shows 8 ft. in width, nearly all of which will pay largely for crushing. The lead exbibits every indication of heing a permanent one, and will unquestionably develop into a valuable miue. It is reported that the proprietors have heen offered $20,000 for the ledge.

STICKLE MINE.—A clean up was made a few days ago, after crushing ahout 120 tons of rock, which netted 200 ozs. crude bullion. The rock averages $7 a ton.

EL DORADO COUNTY.

EL DORADO.—Cor. Placerville *Democrat*, March 23: N. Gilmore and Tom Stapleton, have sold out one half of their "Diamond Hill Claim." Ellsworth & Co. have commenced work on their claims iu the western part of the town.

Innumerahle prospectors range the hills and valleys in search of leads, and many with marked succese. The old Pocahontas Mine has again developed a vein of rich ore in the 400 ft. level.

THE DAVIDSON MILL made a short run, though a very satisfactory one. They have a splendid 20-stamp mill and a fine lot of ore on the dump.

THE Montezuma is doing finely.

Snyder & Co., on Mathenas Creek, have struck a rich lead, and are in negotiation with some S. F. capitalists. Their rock will pay anywhere from $300 to $500 per ton.

A Santa Clara Co. have struck an old ledge about a mile west of here on Dry Creek. They will soon have a mill and machinery for hoisting on the ground.

SPECIMENS. — Placerville *Republican*, March 21: On Monday we were shown several specimens of very rich quartz taken out near Grizzly Flat. Two lbs. of rock cleaned up $15 one day last week.

DIAMOND SPRINGS.—Cor. same: A very rich strike in quartz was made a few days ago ahout one mile from tbis place by Schneider & Co. The ledge is from 2 to 3 ft. in width, and will average at least $100 per ton. A large Co. has commenced work on Diamond Hill.

MARIPOSA COUNTY.

HORNITOS DIST.—In and ahout Washington miue 40 men are employed. The lower level is ahout 420 ft. in depth. The quartz makes an excellent showing of free gold aud sulphurets.

Ex-Assemblyman Pool struck a very rich quartz claim early in the winter, in his garden. He has pounded out several thousand dollars, in a hand mortar, and crushed about 30 tons which averaged 2 ozs. of pure gold to the ton. At the deptb of 20 ft. it is over 6 ft. in thickness, and apparently richer than on the surface.

NEVADA COUNTY.

GREENHORN.—Nevada *Gazette*, Mar. 16: This mine is progressing finely. A ledge of from 4 to 6 ft. in width is opened, and first grade rock is being extracted.

GOOD ROCK.—The Murchie Bros. have struck some spleudid quartz in their tunnel, paying from $50 to $75 per ton. This mine is on the Red Dog road, about 2 miles above Nevada City.

LOCATION. — Little York township—Bird's Eye Cañon Co. have located a water privilege of 2,000 inches, in Steep Hollow Creek.

OMEGA.—Nevada *Transcript*, Mar. 21: Some 7 or 8 claims are heing worked, and the prospects are good for an excellent season.

SELBY FLAT.—Considerable miuing is heing done this season, and large heads of water are running in ravines where mining has not heen done for several years.

IDAHO.—The owners are making arrangements for extensive improvements. A 20-stamp mill is to he erected, aud a new incline is to be sunk, requiring new steam machinery.

THE St. Patrick's Q. M. Co. have located 1,600 ft. on the Manhattan ledge on Negro Hill, in Grass Valley towuship.

BLOOMFIELD. — Cor same: The N. Bloomfield Gravel Co. are washing vast bodios of gravel dowu into the Yuha river.

ROUGH AND READY.—The striking of a rich lead on Randolph Flat, nearly opposite, and in a westerly direction from the Exchange, is creating considerahle excitement in that township. On Thursday Reese & Depew cleaned up 68 ozs., and have taken out since they commenced there—only 2 or 3 weeks' time—upwards of $5,000. They claim only 300 ft. of the grouud and other Co's. are taking up extensions. Reese & Depew have only worked ahout 20 ft. on their ground and about 12 ft. deep. The quartz is mostly decomposed. On Friday last they struck harder rock and a hetter ledge was coming in. Our informant saw one pan washed which yielded over $5. The ledge is ahout 5 inches in thickness and as they prospect it it increases not only in richness but in size.

Gashweiler & Co. have taken up an extension about 150 ft. from the Depew ground. They sunk down about 5 ft. and struck a good ledge. They got a fiue prospect which contained over 100 colors.

PLACER COUNTY.

RICH ROCK.—Placer *Herald*, March 23d: At the bank of Hubhard & Andrews can he seen some splendid gold quartz, taken from the Greene mine, 2 miles west of here. This ledge has heen rich from the top down, the sample we refer to being taken from the shaft at a depth of 215 ft. The 8 or 10 lbs. we saw were taken from the foot wall, at the ahove depth, and is solid, hluish quartz, inpregnated with fine bright gold, the surface next the wall rock being almost a sheet of gold.

BELLEVUE.—The last crushiug of Bellevue ore at the St. Patrick mill yielded well. Ahout 90 tous were milled, yielding over 164 ozs. of pure gold, making $30 per ton.

HARRISON LEDGE.—Last Saturday Mr. Harrison pounded up 3½ lbs. of rock, and got $50 out of it.

ST. LAWRENCE MINE.—The ledge is about half a mile north of the mill, and runs nearly east and west, crossing a small ravine near the St. Patrick mill. The owners have 1,200 ft., and a shaft sunk on it 50 ft. deep, the best rock coming from the hottom. Supt. Prudy lately crushed 40 tons, taking it as it came from wall to wall of the ledge, which yielded an average of over $22 to the ton. The ledge is 20 iuches thick, and the capacity of the mill is 300 tons per month.

PLUMAS COUNTY.

STARTED UP.—Plumas *National*, March 16: The Indian Valley Co. started their mill one day this week, and their prospects for large returns are said to be good.

NEARLY THROUGH.—The Devil's Elhow Co. have nearly finished tbeir bed-rock tunnel, only having about 20 ft. to run to find daylight.

WORK COMMENCED.—Work has been commenced to drain the Crescent mine, and the indications are that operations will soon be iu full hlast.

RICH ROCK.—Compton's mine, at Cherokee, is looking hetter than ever, and the rock being takeu out yields well.

SAN DIEGO COUNTY.

BULLION.—San Diego *Union*, March 14: There was shipped to S. F. yesterday, bullion amounting to $1,300, from the San Diego mines.

CLEAN-UP.—The Stonewall mill cleaned up on Friday last. The result was a $1,000 gold brick.

THE MINES.—All the mills are running on full time. Work on the Butler is going on steadily. Their last crushing gave them $53 per ton.

SIERRA COUNTY.

NEW QUARTZ MILL.—Downieville *Mcssenger*, March 19: Jim Olin is going to huild a new quartz mill on the river above town for crushing Good Hope rock.

BALLY HACK.—Cor same: The Monumental Claim is the ouly one at present paying.

The Hawk Eye Co., at Howlaud Flat, have made but little progress with their shaft.

The Union Co. are still pushing their drain tunnel ahead to tap the water at the foot of the incline.

YUBA COUNTY.

BROWN'S VALLEY.—Marysville *Appeal*, March 23: W. Hoyle and otbers are opening a quartz claim in a ravine, near tbe town of Brown's Valley, with flattering prospects of success.

Nevada.

EUREKA DISTRICT.

MCGEARY. — Eureka *Sentinel*, March 17: Water was struck on the Josephine, at 65 ft. This necessitated the runuing of a tunnel which is progressing finely.

SILVER WEST.—The main incline has been eunk 46 ft. Ahout 20 ft. from the surface a level was opened up and a chamher of fair grade ore wae extracted. The amount of ore in sight is upwards of 1,200 tons. The ore is chiefly gray carhonate of fine grade. A lot of 150 tons smelted a short time since netted $69.11 per ton, gold and silver, and 52 per cent. lead. There are about 150 tons on the dump, which is estimated to he worth $100 per ton in gold and silver, and 65 per cent. lead.

ELY DISTRICT.

PIOCHE BULLION.—S. L. *Tribune*, March 22: W. F. & Co. received on the 15tb, from Raymond & Ely, 14 bars, worth $16,-054.51. On tbe 17th, they received 21 bars, worth $34,181.75, from R. & E., and 7 bars from Meadow Valley Co., worth $9,280.97. On the 21st they received 21 hars, worth $31,669.55, from R. & E., and 6 hars worth $7,872.03, from Meadow Valley Co. On the 17th they forwarded to N. Y. 20 bars from R. & E., worth $32,183.52, and 17 hars worth $20,461.14, from Meadow Valley Works. Durant & Cutting shipped yesterday, one car load of bullion to the Omaha S. and R. Works.

BULLION.—Pioche *Record*, March 14: W. F. & Co. ehipped to-day, bullion valued at $86,726.93.

PIOCHE.—The ledge shows in all the works dowu to the 360-ft. level. The shaft has been sunk to the 460-ft. level, and tomorrow there will be a drift started from this level for the ledge.

MAGNA CHARTA.—This claim is being prospected with favorable indications. The shaft is down 60 ft. on a ledge 4 ft. wide at the hottom.

HUHN AND HUNT.—The Supt. has commenced to drift, taking ore from hoth drifts and from the inclines. There are 100 tons of ore on the dump.

HUMBOLDT.

BULLION.—Unionville *Silver State*, March 23: Amount ehipped from the Arizona mine, since our last issue, was $5,353.

PROSPECTING.—A prospecting expedition left town on Tuesday for Sacramento Dist.

VALUABLE.—The price paid S. D. R. Stewart, for his interest in the Arizona mine, was at the rate of $750,000 for the whole mine.

ARABIA DIST.—Last month Mr. Lovelock discovered the Brazil veins wbich consist of 5 parallel ledges, a few ft. from each other, and averaging 2 ft. wide. A 40 ft. shaft has heen sunk on the hack ledge, the ore yielding $137 per ton, in silver, the tailings assaying $28 per ton. He has also discovered a lead, 150 ft. wide, which has been traced 15 miles; the croppings of which assay from $10 to $20 per ton.

ARIZONA.—At no time has the mine looked hetter than at present. In the new shafts and levels, hlack sulphuret is exposed, and in the southern end of the works the lead is larger and the ore richer than ever hefore.

STAR CITY.—Cor. same: The priucipal miue, and the only oue worked in the dist. is the Sheba on the north side of the main cañon. Under the present management the main tunnel was carried into the hill 650 ft. where a cross drift again disclosed the vein, regular in its course and richer than ever hefore. Since the discovery of the Sheha, a force has heen employed in making further explorations upon the ledge, and in extracting ore. The character of the ore is argentiferous galena, and if carefully selected, brings in the S. F. market prices ranging from $500 to $2,000 per ton.

REESE RIVER.

FIRST SHIPMENT.—Reese River *Reveille*: Three hars of hullion valued at $2,415.30 were shipped to-day by W. F. & Co. from the Twin River Co. consigned to S. F.

RICH STRIKE.—The largest and richest body of ore ever yet discovered in the mine was struck a few days since in the El Dorado South at Belmont at the hottom of the south level, ahout 350 ft. from tbe surface. The ledge is 10 ft. thick, ahout half of which is the richest kind of pay ore.

WASHOE.

STARTED UP.—Virginia *Enterprise*, Mar. 22: The Justis Co. have started up their works.

DEEPER.—Capt. Taylor of the Yellow Jacket informs us that in 60 days he will open a new level 70 ft. helow tbe level of the Sutro Tunuel.

PARKE & BOWIE still keep their hig tailings mill, on Six-mile Cañon, in full hlast.

OVERMAN.—Gold Hill *News*, Mar. 18: The new shaft of the Overman M. C. is down 600 ft.

WHITE PINE.

BULLION.—White Pine *News*, March 16: W. F. & Co. shipped hullion yesterday to the amount of $27,903.37. Ten hars amounting to $13,695.93, are credited to the Eherhardt & Aurora Co.

TREASURE HILL MINES—EBERHARDT.—Work was resumed in the Keystone shaft last week, with a force of 5 men breasting out in a huuch of rich ore on the south side of the shaft. The tunnel connecting with the Keystone shaft will be cleaned out and put in order, for the purpose of running out the ore from the workings.

NORTH AURORA.—At work hreastiug out in the uortheast end of the chamber, and sinking the shaft. The ore taken out last week milled $80 per ton. Since tben tbe grade of the ore has run up to $100 and $120 to the ton. There is 50 tons of this grade of ore shipped away to mill. The ore from the Lady's chamher mills $50 per ton. About 50 tons per day are sent to mill.

WARD BEECHER.—Sinking winze in east end of Philpotts' chamber.

SILVER WAVE.—The Perkins shaft has a depth of 125 ft. The Supt. proposes to let a new contract to sink 50 ft. deeper. The chances are favorahle that the ore channel will be reached inside of 50 ft. from the present workings. The halance of tbe force employed is breasting out in the Boswell chamher. There are about 100 tons of ore on the dump.

SOUTH AURORA.—There are 20 contractors, 2 carmen and 1 blacksmith engaged about the works. The main tunnel is in 520 ft. There are 3 drifts running east and one running north from the main tunnel. For the purpose of making the situation of the drifts running east from the tunnel understood, they are designated by numhers. No. 1 starts 250 ft. from the mouth of the main tunnel—in ahout 50 ft, in a formation of hlaek limestoue. No. 2 is ahout 370 ft. from the mouth of the tunnel—in 49 ft. The formation is hlack limestone and spar. Drift No. 3 is at the end of the tunnel—in 150 ft. eastward. The contractors are pushing work ahead. Halfway in the drift a shaft is sinking, and down 50 ft. The North drift, running to prospect ground north of the tunnel, is in 55 ft.

GROUP MINES.—The mines known as the Group are on the west side of Mahogany Cañon, below the Eberhardt. They comprise the Grant & Colfax, Indianapolis, Eureka, El Dorado, and Sharp. All of them are well prospected and show fair ore. Assays of 27 samples of ore from the El Dorado went from $57 to $256 per ton. Assays from the Indianapolis have turned out equally as well; and the Grant & Colfax, Eureka and Sharp show a good quality of milling ore.

GEN. LEE.—The contract on the drift is completed. Another contract will be let in a few days. The ore has improved for the last few feet, in running ahead.

MAMMOTH.—A force of 8 men breasting out, and extracting 8 to 10 tons of ore per day.

LIVE YANKEE.—This mine is west of the San Juan Del Rio ground in Mazeppa cañon. Work was resumed last week. At 25 ft., there is a body of high grade ore in sight that it is estimated will mill $300 to the ton. Joining this location is the Miner's Dream, showing a good body of ore. Eight tons were milled a few months ago that worked $125.

SECOND SOUTH EX. OF HIDDEN TREASURE. The drift running to connect through the shaft near the North line, from the Anchor incline, is in 60 ft., showing a spar wall the whole length. A drift south to meet the Anchor drift, is in 60 ft.

BEECHER CON.—The foreman and 3 men are breasting out and piling back the ore in the stope. A large force of men will be put on and the Manhattan mill started up when a supply of ore is on hand.

EAST SHEBOYGAN. — The Exchange incline is in the hands of contractors, who are making fair progress sinking.

COPPER GLANCE.—A body of ore was recently developed of fair grade, which opens out in a larger body as the drift goes ahead.

SILVER HILL MINES—SILVER CENTRAL.—A contract was let last week, at $15 per ft., to sink a vertical shaft 40 ft., or to the ledge, if within that distance.

OWYHEE.—There is one shift of men employed sinking on the ledge from the face of the old cut. A showing of fair ore is in sight in the incline.

SILVER PLATE.—Five men are breasting out in the face.

SILVER OWL.—There is a shift of 2 men at work.

SILVER CLOUD.—Two men are engaged to cut the ledge.

Arizona.

MINES AND MINING.—Prescott *Miner*, March 9: In the Tiger the Supt. has a force of men taking out ore for shipment to S. F.

In Pine Grove Dist., Jackson, Shoup & Co., are operating on the Del Pasco.

In Hassayampa Dist., a Co. of men are erecting the old Ticonderoga battery, which will be run by a water-wheel already erected.

The Benjamin, Bismarck and other lodes in the Benjamin belt are turning out well.

In Walker Dist., placer mining is "all the go." Billy Gavin is running a "long-tom," and one Co. is sluicing a little. Some 40 persons are working with rockers.

Placer mining is also being carried on with good success along Upper Hassayampa Creek.

In Maricopa county, work upon the Silver Queen and other silver ledges is being prosecuted successfully.

WALLAPAI DIST.—Cor. same: At the Keystone the breadth of rich ore in the bottom of the shaft has considerably increased and work is being pushed day and night.

Facilities for roasting ore are to be attached to the Hardy & Meacham mill at this place.

Work has been commenced on the Stark and Ewing—being the first N. W. extension of the Keystone; a shaft will be sunk on this mine to water level soon. The Fairfield, the second N. W. Ext. on the same lode is down 45 ft., exclusive of a 30 ft. cut which was made before sinking. This shaft will have to be sunk 90 ft. further before reaching water level. Work is being pushed with vigor.

A recent clean up at the mill from Lone Star rock resulted in a fine quality of gold and silver bullion. Work is still going on in a drift at the latter mine.

Colorado.

SHERMAN MT.—Central *Register*, March 13: The Zillah, Zephyr, and Elkhorn lodes, have consolidated and are negotiating to either buy, sell, or divide with the Pelican.

During the last 2 or 3 days the Fisk lode has been cut by the Bobtail Tunnel. At the mouth of the tunnel is a very fine looking pile of ore.

SOUTH CLEAR CREEK.—Owing to the severity of the weather but little has been done during the winter on Chicago Creek, or in the vicinity of Idaho. Last week Judge Dickerson commenced operations on the Andy Johnson and D. D. lodes, in Chicago Creek Cañon, 6 miles above Idaho, and is raising a fair grade of ore. On the bars below Idaho, about 20 men are placer mining with fair results. The Edgar is worked by adits on the vein at different levels, the lower one of which has been driven about 270 ft. on the vein, and carries a rich vein of ore the entire distance, from 10 to 12 inches thick. The Wild Wagoner is worked on the same principle as the Edgar. A tunnel 260 ft. in length has been run, and discloses a breast of crevice matter 25 ft. between walls. On Fall River, parties are engaged developing a silver mine that gives great promise. Assays ranging from $250 to $1,000 per ton have been made. Work on the Hiawatha tunnel, near Mill City, is progressing finely. The tunnel is about 360 ft. from the mouth.

On the "Hidden Treasure" and in the vicinity, upwards of 200 men are at work.

Palmer & Nichols' mill, the only one in operation, is running up to its full capacity.

BOULDER CO.—Cor. same: Discoveries have been made at the head of Four-Mile Creek, which promise to equal if not surpass the Caribou.

CENTRAL *Herald*, March 13: For several weeks, O. F. Barnes, S. Flint and A. Van Camp have been working the Belmont lode, situated east of the road leading from the Bob Tail hill to the Lake Gulch road. One lot, of 2½ cords of quartz yielded 50 ozs. of gold per cord in a stamp mill, and a much larger quantity gave 21 ozs.

NICHOLS, FISHER & CO.'s claim on the Kent Co. lode is improving in appearance.

MR. LAKE continues to run his mill on North Clear Creek and expects to start up the old Dickinson mill below the Boston and Colorado Smelting Works within the next 2 weeks.

CARIBOU.—Cor. same: Breed and Cutter's Reduction Works have turned out 37,000 ozs. of silver since the first of Jan. last, although idle half the time since that date by reason of defective castings, etc.

Idaho.

BULLION.—Silver City *Avalanche*, March 16: W. F. & Co. shipped from here this week 3 bars valued at $6,880.50.

LOCAL RECORD.—Last Wednesday we visited the Golden Chariot. In the winze, down 18 feet from the bottom of the 8th level, we found the ledge from 3 to 4 feet in width, of ore that would pay from $30 to $40 per ton. The vein is getting somewhat smaller further down, but is increasing in richness.

In the Ida Elmore, the winze, 130 ft. north of the shaft, is down 30 ft. for the 8th level, showing a ledge from 12 to 14 inches wide, of fine milling ore. In the south drift of the 7th level the ledge is about 2 feet wide.

Idaho *Statesman*, March 19: Curlew's claim's, near the garrison reserve, are paying handsomely. An old channel has been struck in the hills, which prospects rich.

Montana.

PIONEER. — Deer Lodge *Independent*, March 9th: Ballard & Mellen have commenced putting down a 14 inch bed-rock flume in French Gulch. Tibbits & Bro. are putting up a hydraulic on the east side of French Gulch. Carter & Co. are preparing to put down a bed-rock flume in Upper Pioneer gulch. Thomas & Co. are engaged in repairing sluices, flumes, etc., for immediate operations. Ditches are being cleaned out and everything begins to present a business-like appearance.

NEW DIGGINGS.—We learn from B. R. Parks, of Mosse creek, that new mines have been discovered on the north fork of the Big Hole. Report says that new and good diggings have been discovered somewhere on a tributary of the Big Blackfoot.

Capt. Duane, Keunedy & Co. have started a bed-rock flume on No. 6, below in Bear, and expect to finish it by April, 1st.

HIGHLAND. — Marceau & Co., at the Head of Moose, have out 200 tons of ore on the "Nonpareil." The lead is looking very well—crevice averages 3¼ ft. Shaft 90 ft.

On the "Dixie," Parks & Dickey have raised 600 tons of ore this winter, that averages $25 per ton by arastra. Depth of shaft, 150 ft.

Flowers & Wnuderlich have commoucd operatious on the "Myers" (silver,) at Highland.

The Vipond leads are looking splendid so far as worked.

RADERSBURG.—Helena *Herald*, March 14: Keating & Blacker are vigorously at work on the Kenting and Ohio lodes. They have nearly 4,000 tons of fine ore on the dump, which will average $16 per ton. Their mill will commence crushing in about 2 weeks.

Utah.

TINTIC.—Salt Lake *Tribune* of March. 22d, has the following C. T. Meader is shipping ore in large quantities from the Sunbeam, Swansea, Lucky and other lodes. A number of smelters are to start up this spring.

A. Mr. Foley has bought the Joe Bowers and is running 3 shifts of 18 men. The S. L. M. Co. has resumed work.

Holcomb has lot a contract to sink 2 shafts on his Sunbeam claim. L. J. Whitacy is about commencing work on his claim on the Sunbeam; and Moore's claim on the same ledge is yielding marketable ore.

OPHIR.—Cor. same: Over one half of the Virgin mine was sold a few days ago for $12,000. The Lizzie, close by, is a well defined lead down about 50 ft. with a good quantity of ore in the mine and on the dump.

On Chloride Hill the ore averages $300 to $400. The Chloride Queen is being industriously worked. The San Joaquin just below, and the Chloride Gem just above, are both lying idle. The Gem has a 35 ft. shaft, also a cut and tunnel, all showing the best of chloride ore. The Jupiter has been worked some of late, but only to keep jumpers off. The Gray, a promising looking lead, is soon to be proven up. The Deardon and Annie mines are being worked with paying results. The Struck It has been run in 50 ft., and a shaft is being sunk in the tunnel.

CAMP FLOYD.—Cor. same: The 20-stamp mill of the Camp Floyd Co. will be running by the first of May. The Sparrow Hawk Co. have commenced 3 shafts which they are sinking fast, as well as blasting out in open cuts and tunnels. About 1,500 tons of ore are on the dumps. The Silver Circle is reported sold for $30,000. The America shaft is 50 ft. deep, 29 of which goes through rock that assays well.

A fine seam of coal, 6 ft. in thickness, has been opened on Chalk Creek.

S. F. Stock Exchange Board.

SAN FRANCISCO, March 27, 1872.

Mining Stocks have been steady and in good demand during the week. Sales at the Board for the week ending Wednesday 20th inst. amounted to $4,309,000. On March account thus far $289,839 has been shipped from the Raymond & Ely mine. The North Oro Fino company have elected as trustees, J. W. Coleman, P. F. Bradford, J. H. H. Williams, M. Hermau and J. P. Couch. The Secretary reports a balance of $4,600 on hand. The last weekly report from the Chollar-Potosi shows 930 tons of ore extracted, assaying $37.54 per ton, and $25,386 shipped; Crown Point, 2,858 tons of ore sent to the mill valued at $159,717; Savage, 1,669 tons of ore out valued at $27.20 per ton. On March accouut $86,000 have been received from the Meadow Valley Mine. The Laue & Kurtz' Carribou Company held a meeting on the 25th inst. and the following were elected trustees: Jos. Clark, (President), J. B. Haggin, Geo. Hearst, G. D. Roberts and Ira P. Rankin. Wm. Willis was elected Secretary.

Comparative Prices—Extremes. Advance and Decline.—S. F. Stock and Ex. Board.

	Feb. 21.	*Highest.*	*Lowest.*	March 28.	*Adv.*	*Dec.*
Alpha	$35	41	33	41	6	—
Amador	—	—	—	—	—	—
Belcher	610	650	600	650	40	—
Buckeye	5	6	4	4	—	—
Chollar-Potosi	71	71	66⅝	68	—	3
Caledonia	19¼	19½	17⅝	18½	—	1
Cons. Virginia	46	47	42½	47	1	—
Crown Point	—	900	810	900	—	—
Daney	3¾	4⅛	3¾	4	⅛	—
Eureka Cons	28	28½	27¾	27¾	—	¾
Eureka	23	23	16½	—	—	—
Excelsior	100	30	—	—	—	—
Gould & Curry	240	255	235	245	5	—
Golden Chariot	21	22	20	—	—	—
Hale & Norcross	320	330	307½	330	10	—
Imperial	130	160	123	150	30	—
Ida Elmore	14¼	14½	13	—	—	—
Kentuck	—	280	255	280	—	—
Mammoth	—	82½c	65c	—	—	—
Meadow Valley	23½	25	22	24	½	—
Mahogany	—	17	16	—	—	—
Ophir	80	80	70	67	—	13
Orig. Hid. Treas.	10	13½	8½	—	—	—
Overman	61	67	57	67	6	—
Ploche	16	19	14½	16¾	¼	—
Raymond & Ely	131	134	122½	131	—	—
Savage	232	242¼	230	225	—	17
Sierra Nevada	27¾	32½	27	32½	4¾	—
Succor	5½	5½	4¾	5	—	½
Wash. & Creole	7	7	6½	6¾	—	¼
Yellow Jacket	84	85	80	84	—	—
St. Patrick	—	—	—	—	—	—
Seg. Belcher	70	74	67	74	4	—

Latest Prices—Bid and Asked.

	BID.	ASKED.		BID.	ASKED.
Alpha Cons	39½	40	Ida Elmore	13	13
Amador	270	300	Imperial	154	156
Belcher	630	650	Kentuck	267	270
Chollar-Potosi	68	68	Meadow Valley	23½	24
Crown Point	900	1000	Ophir	68¾	67
Daney	3¾	4	Orig. Hid. Treas	13	13½
Eureka Cons	26½	27	Overman	65¾	66
Eureka	17	17	Savage	230	235
Golden Chariot	20	20½	Raymond & Ely	128	129
Gould & Curry	241	242½	Sierra Nevada	31	31½
Hale & Norcross	316	320	Yellow Jacket	82	83

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco Journals.]

ASSESSMENTS.

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	DAY DELINQUENT.	DAY OF SALE.
Alps S. M. Co. Nev., March 1, 75c	April 9	April 30
Bloomfield Gravel M.Co. Cal., Feb. 23, $3.	Mar. 27	Apr. 13
Buckeye M. Co., Nev., Mar. 23, $1.25	April 26	May 15
Cons. Virginia M. Co., Nev., Mar. 19, $4.	Apr. 24	May 18
Golden Age & Empire M. Co. Feb. 9, $2.50.	Mar. 12	Apr. 3
Gould & Curry, Nev., Jan 30, $15	Mar. 4	April 26
Golden Chariot, I. T., Jan. 31—$2 50.	Mar. 9, Mar	30
Grand Duke M. Co., U. T., Mar. 5, 25c	April 15	May 15
Ida Elmore, Idaho, March 6, $3	April 11	May 10
Hank & Hunt S.M.Co., Nev., Mar. 20, 25c	Apr 29	May 27
Rincald Flat M. Co., Cal., Feb. 14, $3	Mar. 18	April 8*
Knickerbocker, M. Co. Nev., Mar. 23, 50c	Apr. 27	May 17
Marcelina S. M. Co. Mar. 8, 10c	April 15	May 7*
Nuestra Senora de Guadelupe, May 12, $2.	Ap 15	May 8*
Ophir S. & G. M. Co. Cal. Mar. 18, 20c.	April 30	May 7
Overman S. M. Co, Gold Hill, Mar. 18, $4.	Apr. 13	May 13
Pacific Borax Co., Nev. Feb. 23, 15c	March 28	April 16
Peter Walter M. Co. Placer Co. Mar. 11, $1.	Apr. 18	May 6
Phœnix S. M., Nov., Mar. 19, 75c	April 24	May 15
Pocahontas O. M. Co., Cal., Feb. 25, $5.	April 6	May 6*
Quail Hill M. & W. Co., Cal. Feb. 15, $5,	Mar. 26	April 16*
San Buenaventura Co. Cal., Jan. 19, $1	Feb. 29	Mar. 29
South Charlot M. Co., I. T., Feb. 8, $1	Mar. 9	April 1
South Eureka, Nev., Mar. 2, 15c	April 4	April 43
Spriug Mt. Tunnel Co., March 12, 15c.	April 22	May 12*
St. Patrick M. Co. Placer co. Cal. Feb. 8, $4.	Mar. 13	Apr. 2
S. Gulch Gr. M. Co., Cal., Feb 7, $1.50.	Mar 13	April 3*
Succor M. & M. Co., Nev.. Mar. 20, $2.	April 23	May 15
Tecumseh G.S & C.M.Co. Cal. Mar. 20, $3.	Apr. 23	May 9*
Washingtou & Creole M. Co. Feb. 16, 50c.	Mar. 15	Apr. 11

MEETINGS TO BE HELD.

Arizona & Utah M. Co.	Annual Meeting April 8
Cadmus M. Co.	Annual Meeting April 1
Hale and Norcross	Special Meeting April 18
Knox G. & S. M. Co.	Annual Meeting April 8
Murphy M. Co.	Annual Meeting April 10
Phœnix S. M. Co.	Annual Meeting April 1

LATEST DIVIDENDS—(Within Three Months).

Belcher, $15	Payable March 9
Chollar Potosi, $1	Payable Feb. 10
Crown Point, $15	Payable March 15
Eastport, Coose Bay, Coal M. Co. 1 per ct.	Payable Feb. 12
Eureka Gold M. Co., $1	Payable March 11
Keystone M. Co., $1	Payable Feb. 10
Meadow Valley M. Co., $1 50	Payable March 18
North Star G. M. Co., $3	Payable Feb. 10
Raymond & Ely, $5	Payable March 8

—*Advertised in this journal.

San Francisco Metal Market.

Corrected weekly by Hooker & Co., 117 and 119 Cal. street.]

PRICES FOR INVOICES

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

THURSDAY, March 28, 1872

IRON.—			
Scotch and English Pig Iron, ₱ ton	$55 00	@	60 00
White Pig, ₱ ton	$5 00	@	— —
Refined Bar, had assortment, ₱ lb	— 05	@	— 05½
Refined Bar, good assortment, ₱ lb	— 05½	@	— 06
Boiler, No. 1 to 4	— 06	@	— —
Plate, No. 5 to 9	— 07½	@	— 08
Sheet, No. 10 to 13	— 05½	@	— —
Sheet, No. 14 to 20	— 06	@	— —
Sheet, No. 24 to 27	— 06	@	— —
Horse Shoes	7 50		
Nail Rod	10		
Norway Iron	8		
Rolled Iron	5		
Other Irons for Blacksmiths, Miners, etc.	5	@	6
COPPER.—			
Sheathing, ₱ lb	— 24	@	— 28
Sheathing, Yellow	— 24	@	— 26
Sheathing, Old Yellow	— 11	@	— 11½
Composition Nails	— 24		—
Composition Bolts	— 24		—
TIN PLATES.—			
Plates, Charcoal, IX ₱ box	12 00		— —
Plates, I C Charcoal	10 00		10 50
Roofing Plates	10 00		— —
Banca Tin, Slabs, ₱ lb	— —		— 45
STEEL.—English Cast, ₱ lb	— 16		— 17
Drill	16		17
Flat Bar	17		20
Plough Pointe	3 75		
Russia (for mould hoarde)	12½		
QUICKSILVER.—₱ lb	— —		— 85
LEAD.—Pig, ₱ lb	— 05½		— 06½
Sheet	— 08		— 8½
Pipe	— 9		— 10
Bar	— 08		— 09
ZINC.—Sheets, ₱ lb	— 10		— 10½
BORAX.—Refined	— 25		— 30
Borax, crude	— 5		— —

Leather Market Report.

[Corrected weekly by Dolliver & Bro., No. 109 Post st.]

SAN FRANCISCO, Thursday, March 28, 1872.

SOLE LEATHER.—The demand is still equal to the supply, and price still continue firm.

City Tanned Leather, ₱ lb	26@29
Santa Cruz Leather, ₱ lb	26@29
Country Leather, ₱ lb	25@29

French skins are firmer with an advance in some grades. Heavy California skins are firm, with an upward tendency.

Jodot, 8 Kil., per doz	$90 00@
Jodot, 11 to 19 Kil., per doz	76 00@ 90 00
Jodot, second choice, 11 to 15 Kil. ₱ doz	60 00@ 76 00
Lemoine, 16 to 19 Kil., ₱ doz	85 00@
Levin, 12 and 13 Kil., per doz	68 00@ 70 00
Cornellian, 16 Kil., per doz	70 00@
Cornellian, 12 to 14 Kil., per doz	60 00@ 68 00
Ogeran Calf, ₱ doz	54 00@
Simon, 18 Kil., ₱ doz	65 00@
Simon, 20 Kil., ₱ doz	68 00
Simon, 24 Kil., ₱ doz	72 00
Robert Calf, 7 and 8 Kil	35 00@ 40 00
French Kips, ₱ lb	1 00@ 1 30
California Kip, ₱ doz	65 00 to 80 00
French Sheep, all colors, ₱ doz	15 00
Eastern Calf for Backs, ₱ lb	1 15@ 1 25
Sheep Roans for Topping, all colors, ₱ doz	8 00@ 13 00
Sheep Roans for Linings, ₱ doz	5 00@ 10 50
California Basset Sheep Linings	1 75@ 5 50
Best Jodot Calf Boot Legs, ₱ pair	5 25
Good French Calf Boot Legs, ₱ pair	4 50@ 5 00
French Calf Boot Legs, ₱ pair	4 00
Harness Leather, ₱ lb	30@ 37½
Fair Bridle Leather, ₱ doz	48 00@ 72 00
Skirting Leather, ₱ lb	34@ 37½
Welt Leather, ₱ doz	30 00@ 50 00
Buff Leather, ₱ foot	18@ 21
Wax Side Leather, ₱ foot	18@ 29

A DEEP SHAFT. — The Yellow Jacket shaft on the Comstock ledge is down to the level of the Sutro Tunnel and is being sunk deeper. The whole depth is, according to the Virginia *Enterprise*, 1898 feet, no water being found in the bottom. This is the deepest shaft on the Continent.

THE SUNFLOWER AND NITROGEN.—No plant absorbs nitrogen so rapidly as the sunflower, as ravenous as the stomach of an ostrich. A pigeon was buried between the roots of a sunflower, after some weeks not a vestige of the bird was found—the plant had devoured and digested even the feathers.

The Eureka Consolidated Mine.

The Eureka Consolidated, of Eureka District, is perhaps to-day one of the most valuable mining properties in the United States, if not iu the world. Certain are we that there is nothing in Nevada to compare with it. Late developments establish the continuity of the ore, almost beyond a doubt, for a distance of 1,000 feet; the entire length of the claim. The ore channel, which has been penetrated to a depth of 215 feet from the surface, ranges from 10 to 70 feet in width. Taking the average of the ledge, 15 square feet will yield a ton of ore. Estimating the body of ore already developed to be only 40 feet wide, 215 feet deep, and 1,000 long, and we have 300,666 tons, which, at $90 per ton, present average assays, would return the enormous sum of $27,599,940. But to he entirely safe let us reduce hoth the amount and value of the ore just one-half. This would give 153,333 tons, at $45 per ton, the gross yield of which would be $6,899,-985. That this is far below the actual value of the ore now in sight no one who has lately inspected the mine will for a moment deny. Competent judges, in fact, estimate the present availahle resources of the mine at not less than twenty millions of dollars! This, remember, is only the ore above the 215-foot level. Below that point the supply gives promise of increasing rather than diminishing. At the greatest depth yet attained the ore channel is still widening and also largely appreciating in value, as has heen demonstrated hy a great numher of assays since the late nnprecedented devolopment. The truth is, there is simply a world of ore in sight. It is gratifying to record these facts, hecause they place Enreka in the foremost rank of mining districts on the Pacific coast, there being any number of mines in the immediate vicinity of Ruby Hill, which furnish assurance of producing untold millions.

Some important improvements are to he immediately inaugnrated by the compauy, reference to which may not he out of place here. First a narrow-gange railroad is to he built from the mine to the Reduction Works at a cost of $35,000. The survey has already heen made. Two sets of steam hoisting works are to be placed on the mine, and two additional furnaces, capahle of reducing 50 tons each per day, are also to be erected. These latter improvements will involve an expenditure of abont $30,000, making an aggregate outlay of $65,000 for contemplated improvements. When the seven furnaces are once in full blast they will smelt ahout 300 tons of ore per day.—*Eureka Sentinel.*

California Wines in Europe.

Julius Dressel of the Rhine Farm, Sonoma County, writes I. N. Hoag, Secretary of the Vine Growers' and Wine and Brandy Manufacturers' Association, under date of March 5th, as follows:

Last fall I sent a box with samples of Mission and foreign wines, out of the vineyards of J. Gundlach and my own, to a brother on the Rhine. He convoked two meetings to test our California wines—the one at Geisenheim, on the foot of the famous Johannisherg, the other at Weisbaden—hoth largely attended hy men with the most cultivated wine tastes and tongues and of the highest standing as wine judges. They treated the matter deliberately, compared each sample with counter samples of their own, drafted protocols, and put down the opinion of the meeting about every single nnmber. Here is what my brother writes me as the sense of these meetiugs:

"Your Reisling of 1866 takes the first rank (there was a bravo for it). The bouquet is unexceptionahle; hesides there are strength and richness in it. Next comes Traminer of the same year, which is beautifully ripe and very fit for use. The Gutedel of 1867 (golden Chasselas) resembles most our Rhenish qualities; and the Kleinherger is agreeable light and smooth. Of the Mission of 1865, '67 '68 and '70, the 1870 pleased best. These wines of the Mission grapo are pure of taste, ripe and unctous; therefore, with their sweetness and high percentage of genuine alcohol, they may prove splendid cut-wines for onr poor sour growths of the last three crops. A lively interest was shown for the red Mission of 1869. They found it full, strong, of a marked Burgundy flavor, and approaching the taste of tho celehrated Asmannshausen.

They thought a snperior Port could be made out of it, as its bouquet surpassed the Portuguese.

The champagne of the Bueua Vista Vinicultural Society was also duly appreciated, it sparkled first rate, was not too dry, hitting the right degree of sweetness. Generally there prevailed ouly one voice among the judges, that thesewines far surpassed all expectations; and I remarked considerable progress since I tasted them on previous occasions. On an average, the taste is pure, agreeable; and they could compete with our Rhine wines of distinguished years, up to the middle qualities. They also show a very appropriate cellar treatment. All honor to your California wines.

As my brother is a recognized authority, having heen selected official judge of the wine departments of the World's Exhibition at London and Paris, and as he took only the most competent jurors, who were in earnest about the truth, I think their verdict on California wines might prove of interest.

Oriental Fan Palm.

We here present our readers a truthful illustration of one of that great family of plants known to botanists as Palmaceæ. All the plants of this order are native of tropical or semi-tropical countries, but there are varieties that will flourish and become objects of great beauty even in California where care is bestowed upon their propagation. In their native clime, they are considered among the most

ORIENTAL FAN PALM.

valuable of all the tree plants given by a kind providence to man, as affording food and raiment and numerous objects of economical importance. Wine, oil, wax, flour, sugar and salt, says Humboldt, are the produce of this family of plants; to which Von Martius adds, thread, utensils, weapons, food and habitations.

The date tree is usually classed among the palms, and the palmetto is a dwarfed variety. They grow readily from seeds. There are two varieties known as Fau Palm and the Nekau Fan Palm, that are beautifully ornamental, the seeds of which, with those of the Areca Sapida, (N. Z.) palm, and the Cordyline Indivisa, of the palm species, can be had at the seed store of E. E. Moore of this city, to whom we are under obligations for the use of the illustration here given.

Tannin in Wine.—The use of tannin from grape seed for clearing wines, notwithstanding many adverse opinions, seems to be on the increase in Europe, and *Le Sud-Est* gives reports of comparative tests which are in favor of its use. The tannin is obtained by digesting 12 loth (about ¾ lb.) of ponnded grape seed with about 1.2 lbs alcohol in a closed vessel. The mass is stirred frequently during 15 days, filtered, and the residne again treated with alcohol. One pound is sufficient for 500 gallons of wine.

Marsh lands suitable for cranberry culture, near Berlin, Wis., have advanced in value from $1 or less, to $100 per acre.

The Mining Trustees' Act.

We give helow a copy of the Mining Trustees' Act as it was finally passed by the Senate and signed hy the Governor. Under the provisions of the Act it will he seen that a majority of the stockholders may call a meeting at which two-thirds of the stock must be present, when by vote of a majority of stock, new trustees may he elected:

An Act supplemental to an Act entitled "An Act Concerning Corporations," passed April 22, 1850. The People of the State of California, represented in Senate and Assembly, do enact as follows:

Section 1. On petition of the majority of the shareholders of any corporation formed for the purpose of mining to the County Judge of the county where said corporation has its principal place of business, verified hy the signers, to the effect that they are severally the holders on the hooks of the company of the numher of shares set opposite their signatures to the foregoing petition, the County Judge shall issue his notice to the shareholders of said company that a meeting of the shareholders will be held, stating the time, not less than five nor more than ten days after the first puhlication of such notice, and the place of meeting within said county and the object to be to take into consideration the removal of officers of said company, which notice, signed hy the said County Judge, shall he puhlished daily in one or more daily newspapers published in said county for at least five days before the time for the meeting.

Sec. 2. At the time and place appointed by said notice, those claiming to he shareholders, who shall assemhle, shall proceed to organize by the appointment of a Chairman and Secretary, and thereupon those claiming to he shareholders shall present proof thereof, and only those showing a right to vote shall take part in the further proceedings. If it appears that at the time appointed, or within one honr thereafter; shareholders of less than one-half the shares are present, no further proceedings shall he had, but the meeting shall he *ipso facto* dissolved; provided, however, that by a vote of the holders of two-thirds of the capital stock of the corporations aforesaid, the Board of Trustees may be required to furnish to the meeting a written detailed statement and account of the affairs, business and property of the corporation; but if the holders of more than two-thirds of the shares are present, they shall proceed to vote, the Secretary calling the roll, and the members voting yes or no, as the case may he. The Secretary shall enter the same upon his list, and when he has added up the list and stated the result, he shall sign the same, and hand it to the Chairman, who shall also sign the same and declare the result.

Sec. 3. If the result of the vote is that the holders of a majority of all the shares of the company are in favor of the removal of one or more of the officers of the company, the meeting shall then proceed to ballot for officers to supply the vacancies thus created. Tellers shall he appointed hy the Chairman, who shall collect the ballots and deliver them to the Secretary, who shall connt the same in open session; and, having stated the result of the count in writing, shall sign the same and hand it to the Chairman, who shall announce the result to the meeting.

Sec. 4. A report of the proceedings of the meeting shall be made in writing, signed hy the Chairman and Secretary, and verified by them, and delivered to the County Judge; who shall thereupon issue to each person chosen a certificate and order of his election; and shall also issue an order requiring that all books, papers and all property and effects he immediately delivered to the officers elect; and the petitions and report, indorsed with the date and fact of the issuance of such certificate, shall he delivered to the County Clerk, to be hy him filed in his office; and thereafter the persons thus elected officers shall he the duly elected officers, and hold office until the next regular annual meeting, unless removed under the provisions thereof.

Sec. 5. For all services in these proceedings the County Clerk shall receive $10 on the issuance of the notice, and $10 on the issuance of the certificates.

Sec. 6. All Acts or parts of Acts conflicting with this Act are herehy repealed.

Sec. 7. This Act shall take effect immediatoly.

Wool Report for 1871.

We have received from Miller & Co., of San Francisco, their annual Wool Report for the last year, and as it contains many points of interest we extract therefrom. They give as the total receipts of wool at San Francisco from all sources domestic and foreign as follows:

Summary of Receipts.

Spring clip	lbs.	12,649,600
Fall clip		9,234,000
Pulled Wool		90,125
From Humboldt, Oregon, Washington Territory, and Britiah Columbia		1,187,160
From Sandwich Ialands and Australia		1,016,463
From Mexico		1,090
Receipts from all sources	lbs.	24,178,438
Add stock on hand Jan. 1st, 1871, in store, and amount held for scouring and shipped		592,470
Total	lbs.	24,770,908

Shipments.

By Railroad to Eastern markets....grosa	lbs.	20,598,694	
By Steamers via Panama	do.	2,736,707	
By Sailing vessels via Cape Horn	do.	401,659	
To Oregon	do.	103,000	
To Woolen Mills in the interior	do.	188,134	
	do.	24,028,194	

On Hand and Retained for Local Mills.

Wool on hand Feb. 29th	lbs.	21,000	
Stock City Woolen Mills 1871		2,703,000	
	do.		2,724,000
Total	do.		26,752,194

State Production.

Spring Clip received	lbs.	12,649,600
do. retained by Marysville W. M.		138,300
do. do. Merced Falls		48,000
do. do. Los Gatos Man'g Co.		11,532
do. do. Stockton Woolen Mill (estimated)		120,000
do. retained by San Jose W. Mill		None.
do. forwarded East from the interior (nett)		421,755
Fall Clip received		9,146,700
do. retained by Marysville W. M.		124,700
do. do. Merced Falls		110,000
do. do. Stockton Woolen Mill (estimated)		90,000
do. do. San Jose W. M.		None.
do. do. Los Gatos Man'g Co.		None.
do. forwarded East from the interior (nett)		436,541
[Note.—The Sacramento Woolen Mills idle during the year]. Total Fleece	lbs.	23,286,128
Pulled Wool received	lbs.	90,125
do. manufactured in San Francisco		900,000
		990,125
Total product of California for 1871	lbs.	24,276,253
do. do. 1870		19,460,565
Increase	lbs.	4,815,688

Several extensive gravel mining claims at French Corral have heen consolidated, and the owners are about to run a tunnel from the South Yuba river, so as to drain the French Corral mines. The tunnel will he ahout 2,500 feet long and will he through very hard rock.

Trade.—Some idea of the rapidity with which our China and Japan trade is growing may be gathered from the fact that last year 17,700,000 pounds of tea were received in this city, and this year 15,000,000 pounds.

Our total production of copper, in 1871, amonnted to 27,000,000 pounds. The surplus at the beginning of the year was 10,700,000 pounds and at its close 5,700,000 pounds. The consumption is thus shown to be increasing faster than the production.

Good Health.

Brandy as a Medicine.

Brandy kills thousands every year who were healthy before they began the use of it: then it seems fair to infer that it will kill the sick more speedily.

Dr. Lees says that he was living near Buckingham Palace, in London, where Prince Albert was taken sick. His case was doing well for a few days, when they began the use of brandy to strengthen him, to enable him to recover more rapidly: the more he was stimulated, the worse he grew until he died. It is true that they thought it was the best thing for him, but their thinking so did not make it so.

Some years ago when it was the custom to attempt curing *delirium tremens* by giving brandy, one out of every four died at Edinburg Hospital. Since then, the professor of the medical department has treated 300 cases of *delirium tremens* without alcohol, without losing a single patient.

Professor Gardener, of the Glasgow University, gave a hundred men thirty ounces of alcohol: seventeen out of the hundred died. Another hundred were allowed only three ounces, and eleven died out of the hundred. Of 209 cases of young persons, who were not allowed either wine or whisky, not one died.

In a teetotal hospital in Leeds, of 300 patients who took not a drop, all recovered. Let facts decide.—*Hall's Journal of Health.*

When do Men Die?—Medical experience proves that in chronic diseases the greater number of deaths occur just before dawn. This is eminently true of brain disease, and of those related cases where death results from an exhaustion of the vital power through overwork, excessive excitement or nervous prostration. It is at the hour of five o'clock in the morning that the life force is at its lowest ebb, and succumbs most readily to the assault of epilepsy, or paralysis, or of the fatal lethargy that comes in those vividly beautiful picture-dreams, of which medical science has as yet found no name, and of which it has taken no sufficient cognizance. Nine-tenths of those who die in this way expire in their sleep. Men who do brain work, and who are on the shady side of forty, should be on their guard against this insidious enemy. They should beware of five o'clock A. M., for it is a perilous hour. Do you find yourself unable to sleep when you retire for the night, exhausted with your day's work? Do you, in vain, turn from one side to the other? Does your brain persist with working when you would fain have it rest? Do old saws and scraps of rhyme repeat themselves in your memory with wearisome iteration, defying your utmost efforts to silence them? Then, I say to you, beware! You will be sure to sleep at last. It is only a question of time, for, soon or late, nature will assert her rights.—*Ex.*

High Heeled Shoes.—The *Examiner* of this city, recently denounced in very proper terms the prevailing fashion of high-heeled shoes, by which our young girls are weakening their ankles and spoiling the shape of their legs. It says:

Every day in the streets of San Francisco, or any other city, we suppose, can be seen human beings of all ages limping along in painful grotesqueness, instead of treading the earth as if they possessed the divine right to trample dirt under foot. It is with little expectation of influencing any man or woman to abandon high-heeled boots and shoes—for we know the obstinacy of both sexes in all matters pertaining to fashion—that we continue our remarks. But no man of observation or sensibility can notice without pain the young of either sex passing him on the street, every hour in the day that he may chance to be abroad, with the distortion of the ankle—the constant projection ont of the proper line of the lower limbs, without feeling a pang of regret that so much of future misery is being needlessly, through the demands of a senseless fashion, entailed upon our race.

Throat and Lung Diseases.—Most of the throat and lung diseases, which indirectly lead to consumption, are occasioned by sheer carelessness. A delicate woman often sits for two or three hours in a crowded theater or church, breathing an atmosphere tainted by the exhalations from the lungs of hundreds of other people, her system is exhausted, her skin is excited by unwonted action, and when she leaves the building and goes out into the cold air her blood is suddenly driven to the interior of the body, and then ensues a more or less permanent congestion or inflammation of some of the internal organs—usually the air tubes in or leading to the lungs. This process being repeated many times, a chronic bronchitis is finally established in persons otherwise healthy, and life is ever after rendered miserable by this periodical overheating and sudden chilling of the body, even if the more dangerous malady, consumption, does not interfere, and put the abused body into the grave.

Useful Remedy.—On good authority it is promulgated abroad that two drops of turpentine oil in a little milk is a complete antidote to phosphorous poison. Children not unfrequently bite off the charged end of phosphoric matches and swallow them. It is stated that a girl was recently saved in England by this newly discovered remedy, who had actually eight match ends in her stomach.

Critical Periods of Human Life.

From the age of forty to that of sixty a man who properly regulates himself may be considered in the prime of life. His matured strength of constitution renders him almost impervious to the attacks of disease, and all the functions are in the highest order. Having gone a year or two past sixty, however, he arrives at a critical period of existence; the river of death flows before him, and he remains at a stand-still. But athwart this river is a viaduct called "The Turn of Life," which if crossed in safety lends to the valley "Old Age," round which the river winds, and then flows beyond without a boat or causway to effect its passage. The bridge is, however, constructed of fragile materials, and it depends upon how it is trodden whether it bend or break. Gout, apoplexy, and other bad characters, are also in the vicinity to waylay the traveler and thrust him from the pass; but let him gird up his loins, provide himself with perfect composure. To quote a metaphor, the "turn of life" has a turn either into a prolonged walk, or into the grave. The system and power having reached their utmost expansion, now begin either to close, like flowers at sunset, or break down at once. One injudicious stimulant, a single fatal excitement, may force it beyond its strength; whilst a careful supply of props, and the withdrawal of all that tends to force a plant, will sustain it in beauty and vigor until night has nearly set in.

A Remedy for Baldness.—The bald may now take courage and smile at the frequent summer fly. It is no new lotion that is to bring back the hairs of their youth and innocence, but a system of planting hairs in the smooth skin of the head, exactly as cabbages are set out in the garden. A discoverer, whose name cannot be long concealed from a grateful world, has invented a plan of replanting the hair where it is lost. As plants grow so does the hair. It is rooted and thrives like a vegetable. The operation of restoring hair is very simple: put healthy hairs into the eyes of needles and draw the needles through the upper skin, the epidermis; being drawn through, the hairs are left in the skin, as a thread may be left in any material by a stitcher. The roots, which have been extracted with their bulbs complete, are brought under the epidermis. The surface so operated on is protected at first by a linen band, but the hairs soon take root, grow, and flourish. It is not stated whether having the skin punctured in this way is disagreeable, and how often it is fatal. If it is a success, the plan has many advantages; one can have any color of hair he may elect, and he can plant a variety of colors, and thus make his appearance striking and beautiful.—*Hartford Courant.*

A Good Remedy for a Cough.—Take a handful of hops, put it in to three pints of hot water; let it boil one-half hour, or until the strength is out. Then strain, and add one and one-half cups of best kind of molasses, and one cup of white sugar. Then boil down slowly in a bright dish, or enamelled kettle, to about one quart. Then bottle up, and it is ready for use. Drink a little when you cough.

Suitable Dresses.

As for dresses suitable to certain persons, I need say but little. There are many books on the etiquette of dress, showing what is proper to be worn in the morning and in the evening and at noonday. A few very simple rules will suffice here. Those who are very stout should wear nothing but black; those who are very thin should put a little padding in their gowns; and neither should be in the least *decollettee*. Perpendicular stripes in dresses give hight, and increase fullness, and are therefore particularly suited to very slight, small people, and particularly unfited for stout figures. To fair persons, blue is becoming—but not every blue. Dark blue, or two brilliant a blue, is extremely unbecoming to that kind of complexion, and makes the skin yellow and the hair sandy. It is the old, pale, dull blue that really makes sand gold. Pink, especially the old-fashioned yellow pink, is, when not two brilliant, becoming to to all complexions except that which goes with red hair. Light green may be safely worn by the very dark, the very rosy, and by the very pale when the skin is extremely clear; but to ordinary English faces it is a trying color, though there are people who look well in nothing else. Green, mixed properly with pale blue, is very becoming indeed. Gray is the most becoming for old and young—I mean the soft silver gray which is formed by equal parts of black and white, with no touch of mauve in it. It admits of any color in trimming, and throws up the bloom of the skin. Rose-color, for some people, is pretty, and not unbecoming. White, so disastrous to rooms, is generally becoming in dress—only very coarse complexions are spoilt by it. Short women should never wear double skirts or tunics—they decrease the hight so much; unless, indeed, the tunic is very short and the skirt very long. So also do large, sprawling patterns used for trimmings. Let these be left to women tall enough to carry them off. Neither let a very little woman wear her hair half down her back; let her lift it clean up as high as possible.—*St. Paul's Magazine.*

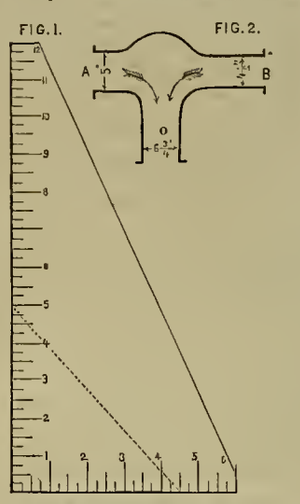
M. K. Young, of Grant Co., Wis., has come to the conclusion that mules make the best farm teams, after having tried light and heavy horses.

Useful Information.

The Proportion of Pipes.

We subjoin a sketch of a handy little contrivance, designed by Mr. George Cockburn, pattern-maker, Glasgow, for ascertaining the diameter of a pipe, etc., having a sectional area equal to that of two other pipes, or *vice versa*. The instrument consists simply of a piece of wood on cardboard shaped like a set square, as shown in the accompanying diagram of the same form drawn on paper; and divided out along the two edges which are at right angles to each other, the divisions being taken to represent inches, feet, or yards, etc., according to the kind of work for which the instrument is used. When employed for determining the equivalent diameter of pipes or bars, inch subdivisions will generally be found most convenient.

The mode of using the instrument will be readily understood from an example. Suppose for instance that two pipes, A and B (Fig. 2) respectively 5 in. and 4¼ in. in diameter, deliver into a third pipe, D, and it be required to find the proper diameter for the latter pipe. Then from 5 on the scale of one of the divided edges to 4¼ on the other draw a line, as shown dotted in Fig. 1, and the length of this line measured with the same scale as that to which the edges are divided will be the diameter of pipe required, in this case 6¾ in. On the other hand, if a pipe, D, 6¾ in. in diameter, be delivered into a pipe, A, 5 in. in diameter, and it was required to know what other size of pipe, B, could also be supplied, all that would be necessary would be to take the division



point 5 on one edge as a center and with 6¾ in. as a radius, describe an arc cutting the other divided edge. The point at which the latter edge was cut by this arc would show the diameter of the pipe required.

Besides being useful for determining the diameters of pipes or circles of equivalent areas, the instrument is also available for determining the sides of equivalent squares, while by a little contrivance it can be made available for determining the diameter (or length on the side if square) of a pipe or bar having a sectional area equal to the aggregate sectional areas of any number of other pipes or bars of which the diameters (or lengths on side if square) are known. To use it for this purpose it is only necessary, first, to determine by its aid the diameter of pipe or bar equivalent to any two of the whole number, and next to ascertain the equivalent of the diameter thus ascertained, and that of a third pipe or bar, and so on. The arrangement of the instrument is, of course, founded on the fact that the areas of squares and circles increase as the squares of their sides and diameters respectively, and that the square of the hypotheuuse of a right-angled triangle is equal to the sum of the squares of its two sides.

Mattress Making.—Whether they are filled with hair, or flocks, or straw, the process is similar. They are made in a frame the sides of which are bored with a ¼ in. bit about every 3 in.; same with the posts, so that they may be altered to make any sized mattress. If the mattress is for a wood bedstead, a square block is put in each corner of the frame, and the straw is rammed hard to it, so that the corners may be square, and fit the bedpost. For iron bedsteads, no corner blocks are used. A material called "farfar" is generally used for the upper and under sides, and for a better mattress brown holland. For the edges, bed ticking cut across the piece, and about 6 in. wide, will do. The tufting down is generally done by girls, on a table with laths for the top, so that the mattress needle, which is about 10 in. long, may be passed through.

India Rubber Carriages.—A company is putting up a large factory in Fairfield, Ct., and will shortly engage in the building of carriages made entirely of India rubber, except in axles and tires. A decided superiority is claimed for the material over wood.

The manufacture of rails in this country has just doubled in the last six years.

Light in Darkness.

The Paris *Figaro* gives the following method of obtaining light instantly, without the use of matches and without the danger of setting things on fire: "Take an oblong vial of the whitest and clearest glass, put in a piece of phosphorous about the size of a pea, upon which pour some olive oil, heated to the boiling point, filling the vial about one-third full, and then seal the vial hermetically. To use it, remove the cork, and allow the air to enter the vial, and then recork it. The whole empty space in the bottle will then become luminous, and the light obtained will be equal to that of a lamp. As soon as the light grows weak its power can be increased by opening the vial and allowing a fresh supply of air to enter. In winter it is sometimes necessary to heat the vial between the hands to increase the fluidity of the oil. Thus preparing the vial may be used for six months. The contrivance is now used by the watchmen of Paris in all magazines where explosive or inflammable materials are stored."

The Steam Sand Jet has been applied to new and important uses in Philadelphia, namely, wood engraving, the decoration of marble and the cleaning of brass castings. To engrave upon wood with the sand blast, it is necessary to photograph the object to be reproduced upon the prepared surface of the block, and this being exposed to the blast with certain precautions, is engraved in a few minutes. It is stated that specimen engravings are soon to be published, which will afford the public an opportunity of comparing the work done by the sand-jet with hand work. If the claims of those interested in the process are well founded, the introduction of the new system will greatly reduce the cost of wood engraving.

Purifying Water.—It is claimed that metallic iron affords the readiest and simplest means of disinfecting water, and of keeping it fresh. The water of the Thames, taken to the sea in iron tanks, soon becomes perfectly sweet, and remains so during a long voyage. A small piece of iron or a few nails in the water in which cut-flowers are put will keep the water sweet. The experiment has been tried of putting some iron-fillings in a vessel with a very small quantity of water and then placing a leech therein. After six months had passed, the water was found quite fresh, and the leech alive and healthy.

Mechanical Hints.

To Restore Furniture that has been marred or scratched:—Purchase one pound of beeswax, and scrape it into shavings in a pan; add half a gallon spirits turpentine, and one pint linseed oil. Let it remain twelve hours, then stir it well with a stick, into a liquid; while stirring, add one quarter pound shellac varnish and one ounce alkanet root. Put this mixture into a gallon jar, and stand it before the fire, or in oven, for a week, (to keep it just warm), shake it up three or four times a day. Then strain it through a half sieve into half and quarter pint bottles, corked and sealed with pretty label in front. Pour about a teaspoonful on a wad of baize, go lightly over the face and other parts of mahogany furniture, then apply a similar wad, dry briskly, and in three minutes it will produce a dark brilliant polish unequaled. This receipt is of great value.

Another Preparation may be made as follows:—Make a mixture of three parts linseed oil and one part spirits of turpentine. It not only covers the disfigured surface, but restores wood to its original color, and leaves a luster upon the surface. Put on with a woolen cloth, and when dry, rub with woolen.

Tempering Spiral Springs.—Take oil and put it into anything you have of the size for dipping your job in, two inches deep, add water with about one ounce of common washing soda to the pint, about two inches deep. Have a tube to heat your springs in, or a better way, make the tube red hot and insert the springs, and when hot toss them into the prepared bath. Take carefully out and put into a tin. Cover with oil, and put over the fire until it boils and catches fire. It will first burn blue. Keep it there a few moments until it boils clear and bright; then slack down by plunging it into oil altogether. You will find them the right temper for springs for any purpose.

Watch Cleaning.—A correspondent says:—"To clean a watch, even if it be of the lowest grade, the barrel or mainspring box should always be taken apart, the arbor and spring taken out and cleaned, fresh oil being applied before the cover is replaced. That there is nothing better than naphtha for cleaning purposes, is the opinion of most watchmakers. If the watch has a fusee, that also should undergo the same treatment as the mainspring box. The pivots also form an important part of the mechanism of a watch; and, to be examined as they always should be, necessitates the act of taking the watch apart. Such attention, no honest practitioners will overlook."

In the fourteenth century the average yield of wheat in Great Britain was only ten bushels per acre. Now lands in our older States have been reduced to about the same average, but the average of Great Britain now is about three times that amount.

Scientific Press.

W. B. EWER.....SENIOR EDITOR.

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A. T. DEWEY, W. B. EWER, GEO. H. STRONG, JNO. L. BOONE.

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San Francisco:

Saturday Morning, Mar. 30, 1872.

Gold and Legal Tender Rates.

SAN FRANCISCO, Wednesday, March 27, 1872.—Legal Tenders buying, 91¾; selling, 91¾. Gold in New York to-day, 110¼.

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MINING SUMMARY.—Reports from Mines in various States, Counties and Districts; Stock Reports, Markets, Etc., 196-7.

CHASING A METEOR.—During the passage of a meteor in Mexico lately, the observations were taken at different places and the progress noted by means of the telegraph, from one point to another. The *American Journal of Science* for March contains the reports of its appearance and time in traveling between different places. Forty-five minutes elapsed from the moment the meteor was observed at Mexico, till the moment it made itself visible at Vera Cruz, 320 Kilometres distant. Truly, electricity can be made subservient to many uses, but this is the first time we ever beard of it "heading off" a meteor, like a runaway casbier.

COAST REVIEW.—We have received a number of the *Coast Review*, a monthly journal heretofore devoted to insurance interests alone, but which has added a mining department. Among the articles is one headed "Our Mining Prospects," credited to the *Bulletin* of the 12th inst., which was taken by that paper from the SCIENTIFIC PRESS of the 9th, without the usual courtesy of saying where it came from. The *Review* has a large field and we wish it success.

MINING ENTERPRISE.—J. T. McClean Esq., has purchased a gravel claim in Table Mountain for $2,000. The *Democrat* says he has let a contract to get in water enough for working it by hydraulic power, which will cost $12,000.

RECEIVED from L. M. McKenny, Sacramento City Directory, and Gazetteer Directory of Central Pacific Railroad for 1872.

ON FILE.—"Notes of Travel in Nevada Co.," L. P. Mc.; Communication from "Exile."

The Mining Incorporation Law.

We give in another column the full text of the new mining incorporation bill as signed by the Governor. It has already become practically inaugurated by the stockholders of the Savage Mining Co., who held a meeting last Saturday, ousted the Trustees, and elected a new Board. Moreover there are a number of changes contemplated in which the same action will be taken. Still, where the Trustees control one-third of the stock no such thing can take place, and if they do not, they will resign rather than undergo the unpleasant notoriety of being ejected. There is no doubt but the law will enforce and create more respect for the wishes of the majority than has hitherto been shown by Trustees, since they now have the power to insist on desired measures under penalty of removal. The law will undoubtedly reform some of the old abuses which stockholders were subjected and afford additional safeguards to persons interested in incorporated mining companies. The loose management which has been experienced by many companies can now be remedied, for under the old system Trustees were elected for one year, competent or not, honest or unreliable, whereas now, if the stockholders are dissatisfied they can remove them and substitute new ones till they get a Board that does suit.

The ring system, which has done so much to discourage legitimate mining enterprise has received a check by the passage of this bill, for other parties have some voice in the way matters are managed as well as the Trustees, by having the power to remove them when any symptoms of artifice become apparent. Those who are really honest and reliable men and who manage their business properly, in the interest of the parties they represent, will be sure to meet with proper appreciation, while objectionable men will seldom hold the position of trustee more than once. Incorporated companies, with Boards of Trusteos, are necessities which cannot be done away with, for mining of all kinds requires capital which can be procured in no better way, than by consolidation of means; still stock operations should be conducted with honesty and fair dealing so that the unsophisticated speculator with small means should have some other chance than that of losing his money. Information concerning developments, or strikes in mining ground is as much the property of one stockholder as another, still we continually see examples where such information is withheld until the trustees, who are supposed to protect the interest of the company, have been able to buy stock at low prices, and then sell out, when the strike became known, at a large advance. This, oftentimes, with the company's money.

The operation of this law will do much to uphold and assist the most prosperous and best paying business on the Pacific Coast, that of mining, for parties who have heretofore looked upon it as a very dangerous speculation, will now enter the field with more confidence, being assured there are legal rights to stockholders which trustees are bound to respect. Stock speculations, of course always will exist, and fraudulent transactions will occurr, so it is very little use to talk about them, but parties who go into mining companies for the purpose of legitimately working a mine, and who expect their profit in the form of dividends, rather than fluctuations of stock, are afforded more protection than ever before in former years.

RESPONSIBILITY OF STOCKHOLDERS.—The committee on corporations, in the Senate have reported favorably on the bill to regulate the responsibility of stockholders.

Mechanical Genius.

A London critic of high literary attainment, speake of Joaquin Miller as the "uneducated poet," declaring that the "poet was born in him, irreepective of the advantages of education to bring it out."

The same might be said of the mechanical genius of thousands of the boys of our land, including the "hoodlum" element. Much of true mechanical genius now lies dormant and may ever remain so, for the want of some system of encouragement, education or training, some little help to its development.

The State of Massachusetts ever awake to the importance of the education of her sons, is moving in the right direction, by instituting as a branch of her educational system, schools in which the poorer classes may be taught the rudiments of mechanical trades, with the view of drawing out anything like a latent genius, that may be slumbering in minds that but for help thus afforded, might be lost to themselves and to mankind.

Mechanical genius and invention is making rapid develpoment in California as shown by the records of our own company's patent agency, and yet our Legislature at the instance of the people, could do nothing better for the educational interests of our State, than lend every encouragement within the scope of their authority, towards the fostering of a mechanical branch of our educational system.

Steam Plows vs. Horse Plows.

The Vienna *Ldw. Ztg.* containe an official report of some experiments with steam cultivation made in 1870 to 1871, in Altenburg, on lands belonging to the Grand Duke Albrecht of Austria. A field was eelected and divided into sections of from 6 to 30 acres in each manner as to make the comparative trials as fair as possible. Some of these sections were plowed with the aid of horses in the common manner, while on others steam plows were used. The land was plowed at the end of June, 1870, and then left untouched until the spring of 1871, when it was planted with beets. The following is the yield per acre of the sections plowed.

With Horse Plows	10 to 12 inches deep	.....	12,683.5 lbs.
With Steam Plows	12	"	.....17,796.4 "
With Steam Plows	17	"	.....22,353.5 "
With Steam Cultivators	10 to 12	"	.....15,400.5 "

Showing an increased yield in favor of steam cultivation of 40, 76 and 24 per cent. respectively.

"The experimental sections were chosen adjoining one another in such a way that difference in the soil could have had no great influence on the increased yield, but only the more perfect work obtained by steam cultivation."

California Butter Going to the East.

On the Saturday evening freight train of the Central Pacific Railroad there went forward a cargo of California butter—and invoice of 20,000 pounds—forwarded by Wooster & Shattuck, and consigned to John S. Martin & Co., and T. S. Doremus and Co., New York—to go through in sixteen days. This lot of butter is intended to show our Eastern friends that we have articles to export of which California has heretofore been a great importer, and the shippers have taken pains in putting up this lot of butter in a manner to do justice to the Point Reyes dairies. A small lot of butter—over 600 pounds—not at all to compare with this in quantity, was shipped a year ago, and then attracted a good deal of attention, winning favorable and lengthy notice from the New York *Tribune*. Our early spring enables our dairymen to enter the market a month earlier than can be possible for the dairymen in the colder climates on the other side of the mountains, and as our grasses at all times give the butter a better flavor than any Eastern article, it is expected that this shipment will result in a demand for more, or at least will check consignments to this side, now somewhat too numerous. Messrs. Wooster & Shattuck deserve credit for making this venture, and for the pains taken to increase the reputation of California as a producing State, able to compete with other localities in articles with which it was intended to overrun this market when the railroad was completed.—*Alta.*

Coal Ashes.

A subscriber asks if coal ashes are of any value as a manure for grass lands, or field crops.

Coal ashes contain no potash, and as this salt is what gives to wood ashes the principal value it has as a manure or fertilizing agent, it is not worth the cost to apply coal ashes to land. The only exception may be, when applied to stiff clays, its mechanical effect is then to loosen the soil, but other than this, adds nothing to its fertility. Wood ashes leached or unleached is a valuable fertilizer applied to any soil or crop, except where the alkali of potash is already abundant in the soil.

New Publications.

We have received from Bancroft & Co., Market street, "A Treatise on Punctuation," by John Wilson, designed for letter writers, authors, printers, correctors of the press, and for the use of schools. It contains an appendix embracing rules on the use of capitals, a list of abreviations, hints on the preparation of copy and proof-reading, etc., The work has been in use in a number of leading institutions of learning for some years, and is of value to all who desire a clear understanding of the subject of which it treats.

"Æsthetics, or the Science of Beauty," by John Bascom, from same publishers, contains 16 lectures which the author says were written with a desire to supply the want of an exclusive and compact treatise on the principles of taste. It is designed to aid the ordinary student of the beauties of the external and ideal world, and to give him a proper appreciation of the beauties of Nature and art.

"A Compendious Dictionary of the Greek Language," by Alpheus Crosby, is intended to supply what was believed to be a desideratum in the list of Greek text-books, viz., a grammar which should be portable and simple enough to put into the hands of the beginner, and which should yet be sufficiently scientific and complete to accompany him through his whole course.

"The Teacher's Guide," companion to Bartholomew's Drawing Book, No. 1, from same publishers, is intended for teachers and scholars using Bartholomew's drawing books (which we have also received.)

Hanna's Complete Ready Reckoner, Log Table and Form Book," from A. Roman & Co., No. 11 Montgomery street, contains a complete set of tables for the measurement of all kinds of timber, lumber, etc., in all kinds of ways, to which is added a table of wages, rent, board, or other expenses for any amount per day for any given number of days, interest tables, business forms, etc.

Oregon Looming Up.

No longer that out of the way place on the face of the globe, Oregon, from the indomitable energy of her people and the grand system of railroads now being inangurated and rapidly pushed from point to point in her wide domain, is, as a State, assuming an importance that cannot but attract the attention if not the envy of some of her older sister States. Her cities and towns have awakened to renewed life and activity, her population is rapidly increasing, and other evidences of a progressive and prosperous future, from this day onward are apparent on every hand.

A similar spirit of enterprise with like results, seems also to have seized upon the people of Washington Territory, where new and vast improvements are already in progress, that will have no relapse till a developed country and a mighty people be found where, and of which, but a few years since we knew but little more of, than as the great North West.

The Thresher's Guide and Farmer's Friend.

The above is the title of a work by D. W. Hollihan, soon to be issued from the press of Dewey & Co. It is probably the finest work of the kind ever printed, and will contain full and complete directions for the management of field threshing machines; the setting up of the same in the field, the care of every part of the apparatus; how to prevent accidents and delays, by pointing out the causes of the same; the application of horse and steam powers, and their management with full instructions for keeping all parts of a complete threshing establishment in perfect order, and at the least possible cost of time, labor and money. It will be a work so complete that every farmer who owns or employs a threshing machine, will find the purchase of a book a good investment.

SEVERE EARTHQUAKE.—Quite a severe earthquake was experienced about half-past two o'clock on Tuesday morning, which, in some portions of the State was prolonged to a most unusual length of time. Its effects were also felt over a much larger area of territory than is usually the case with earthquake shocks in this State. The movement was felt in a north and south direction fully 500 miles, and something over 150 east and west. Had the violence of the shock been proportioned to its prolongation, the results would doubtless have been quite serious; as it was, we hear of no material damage, beyond the slight cracking of a few walls, etc.

Mining Accidents.

Frank Trevilyan was hnrt by a rock falling on him in tbe Idaho mine, Grass Valley, on tbe 14th inst.

G. W. Stover, says Jacksonville *Ledger*, was caved on and seriously injnred, in his tunnel near Volcano last week.

A miner named Pollock, working in the Overman mine, lately had a narrow escape from death. Ho was working in the bottom of the shaft when the cage came down npon him hrnising him hadly and hreaking soveral bones. He is expected to recover.

T. A. Haskell, engineer at the Pappoose mill, Lower Gold Hill, was seriously injured about the bead and eyes hy a somewhat peculiar accident, the result of the explosion of one of the amalgamating pans. According to the *News* the mill had been shut down for a few days, during which time gas was generated from the chemicals at tbe hotoom of the pan, beneath the pulp, and when the mill started up, and the mullers hegan to revolve the gas burst through the pulp, taking fire as it did so.

Ben Hollander was caved upon and had his leg hroken in Harmard, Camphell & Co's. claims, at Rattlesnake, Placer Co., on the 21st inst.

Clark Hughes was killed hy the promature explosion of a blast in a mine near Virginia City, M. T., two weeks since.

Wm. Brand was severely injured on the 16th inst. by falling with a car over the dump of the Star of Nevada tunnel, according to the Reese River *Reveille*.

A man named Snllivan was caved upon in a claim at French Gulch, M. T., a short time since, hnt escaped with a few hrnises.

Martin Beckman was killed by a cave in the Oro claim, Forest Hill, on the 25th inst.

A miner named Alexander McElrath, while at work putting in timhers in tbe South Amador mine, Sutter Creek, on tbe 25th inst., was killed by a timber swinging around and crushing his head.

Edward Talhot, working in the Belcher mine, rceeived severe injuries on tbe 25th inst. from a stone falling on his head.

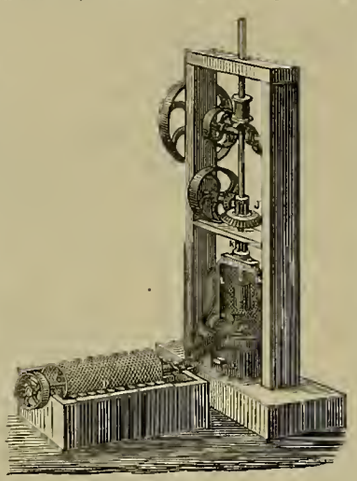
INVENTOR OF THE PNEUMATIC DESPATCH. It would appear that the inventor of the Pneumatic Despatch System was Dr. A. M. Schmitt (now alive) of Mayence, who is said to have been led to tbe idea by the "bean hlower" so familiar to all schoolboys. He first snbstituted messages, written on paper and rolled into balls, for beans. He then substituted long iron tubes for the ehort tin or glass tuhes, and used strong bellowe to blow tbe messages througb the tuhe. An apparatus of tbis kind for besieged plaees, for eending messages to troops making a sally, was used by him in 1832. His next idea was to use two bellowe, one for forcing air into, and one for sucking air out of, the tube; hut for these he soon substituted air pumps. And he finally euggested the nse of two tubes, as is essentially the system now employed. The professor's ideas were never carried out to any extent by those to wbom he propounded them, and the syetem was negleeted for years until otbers took it up. But to Prof. Schmitt the honor of priority seems due, and the people of Mayence have proposed presenting him witb some token of their respect for his inventive genius.

TIMBER LAND.—A Justice of the Peace, named Leavesly, has heen arrested in Gilroy by the United Statee Secret Police, on a charge of unlawfully cutting timber on Governmennt land. He is charged with going outside his own claim and cutting 500 trees valued at $1 each. As this is the first case of the kiud here, great interest is felt in the resnlt as it will affect a large number of persons.

An Improved Quartz Mill.

The accompanying illnstration represents an improved qnartz mill of peculiar constrnction which is intended to obviate some of tho difficultios met with in the ordinary stamp hattery, and to effect a reduction in original cost and practical working. It consists in the use of two or moro circular mortars having inclined floors, and provided with scrapers which revolve in a horizontal plane about the stamps, so as to carry tho rock to the center and honeath the stamps. From these mortars the pulverized rock passes out throngh coarse circular screens to a cylindrical screen which revolves on a horizontal axis. The finer part of the pulp thon passes through into hoppers honeath, and from these it is carried to the amalgamators, whilo the coarser particles which will not pass through the screon, will he disehargod at the end into a hopper, from which they are conveyed to still a third mortar where it is so pulverized as to pass through the snrrounding fine screen.

The pulley, cams, tappets and camshaft, are arranged as in an ordinary battery, and although only one is shown in the cut, it is ohvious that any number



STILES' QUARTZ MILL.

can he used. The mortar is made with an inclined bottom and the die, *F*, ie placed in an opening in the center. Whenever it is necessary to remove tbe die, it can be done hy inserting a wedge in tbe opening ehown at *G*. A pulley ie geared to the cam-sbaft, and by means of a belt drives tbe gear, *I*. Thie gear in turn moves the gear, *J*, which is secured to the the sleeve, *K*, so that it turns freely ahout the stem. Bent arms, *L*, are eecured to the sleeve, *K*, and carry at their lower ende the scrapers, *M*, *M*, which serve to move tho contents of tbe mortar toward the center so as to carry it all under the stamp. When eufficiently pulverized tbe pulp passes through a coarse circnlar screen whicb eurrounds tbe mortar, and from this it slides down into the epout and is discharged into the horizontal cylindrical screen, *P*, whichie revolved partly under water, so that the particles will be carried through the screen during its revolutiou and fall into the boppers arranged helow.

A sort of hrush or scraper is set so as to bear against one side of the screen and remove any particles of sand or other matter that may chance to become wedged in tbe meshee of the screen, and tend to ehoke it so as to prevent tbe passage of the pulp. From tbese boppers tbe finely gronnd pulp is carried tbrough small tubes or pipes, which conneet with the bottom of tbe hoppers into a trough below, and from tbis it is conveyed directly into vats or otber receptacles where amalgamation is accomplished. The coarser particles, not being ahle to pass through the revolving screens above mentioned, are carried out tbrough the end of tbe screen, and fall into anotber hopper from which they are carried hy small tnbes, as before described, to a third battery, where they are further redneed hefore heing sent to the amalgamating vats.

By the nso of tho cirenlar screen a much larger discharge surface is ohtained while the die is only an inch or so helow the discharge. The revolving arms, hy which the rock is swept to the center and immediately nnder the stamp, are convenient and usefnl, while the necessary machinery to work them is simple and light. A correspondent of the *Bulletin* who has seen one at work says that actual experiment reveals a crushing capacity of 440 pounds of rock in 45 minutes, or ono ton in ahout fonr hours, instead of twelve, as hy the old way. Tbe invention was patonted tbrough the SCIENTIFIC PRESS Agency, hy William C. Stiles, of Nevada City, Cal.

DIED.—At San Antonio, Monterey County, March 5th, Thomas Rowlandson, C. E., F. G. S.

The snhject of the ahove brief announcement was well known to many in tbis city and State as a man of no ordinary scientific attainments. His name has often appeared in the columns of tbe SCIENTIFIC PRESS, and other papers of this city, as a writer upon scientific, commercial and indnstrial matters. As an agricultural writer, npon certain special snhjects, he had few eqnals in this, or any country, as is fnlly testified by nnmerous prize essays which he wrote in England (his native land) before coming to this conntry.

Mr. Rowlandson was at one time a prominent esndidate for an important professorship in tbe University of Edinburg, and wonld undoubtedly have been elected on his scientific merits, against all competitors, hsd not Prince Albert signified his personal preference for an intimate friend who was also a candidate. Tbe royal wish was of course granted. Had it been otherwise, Mr. Rowlandson would undoubtedly have been spared the misfortune of an unsuccessful adventure to California, and a deatb among comparative strangers, and in a strange lsnd.

Mining Companies Reports.

THE HALE & NORCROSS mine prodnced last year 48,571 tons of ore. The amount redneed was 49,625 tons averaging $17.40 per ton, yielding altogether $862,701. It cost to work this ore $539,905, or about $10.88 per ton. The Hale & Norcross used to be one of our prominent mines and has turned out during the last seven years $7,206,540 in bullion. The mill-men lately have made more out of it than the shareholders.

THE JACKSON MINING CO. held their annual meeting on the 25th inst., and elected as trustees, J. D. Fry, A. K. P. Harmon, A. E. Head, R. Sherwood and C. L. Willer. The receipts amounted to $42,347, of which $18,808 were from bullion, $20,391 from assessment and $3,148 from other sources. The disbursements amounted to $50,150, of which $24,356 was for labor. The expenditnres exceeded the income by $7,803.

WOODWARD'S GARDENS.—The late fine weather has added largely to the number of pleasure and health seekers at Woodward's Gardens. The latest attraction to this popular place of resort is several live alligators—two of which weigh 1,200 and 1,000 pounds respectively. One of these huge reptiles died on Friday of last week; but the other is still disporting himself in a huge tank, as such an amphibious mouster should.

RAMIE CLEANING MACHINERY. — Mr. T. H. Murphy, of New Orleans, La., claims to have invented machinery that can be worked in the field to clean, the fiber like dressed flax, from one to fifteen acres per day, only requiring from two to five men, with suitable horse or steam power.

A PAYING MINE.—The shipments of bullion from the Raymond & Ely mine from March 1st to 28th, amounted to $10,700 per day.

AT the recent Wine Growers' Convention in Sacramento, it is said by competent judges, that the most delicate wine offered for examination, was made at Coloma, El Dorado county.

Accumulation of Tailings.

In "Mines, Mills and Furnaces," the Mining Commissioner's last report in the chapter on Deep Placer Mining in California, by W. A Skidmore, some interesting facts are given, concerning the "Accumulation of Tailings," as follows:

"As an example of the extent of their accumulation, we will take Bear River. This stream has been filled to a depth of nearly 80 feet in the center, and its former hanks so far covered that tall pine trees, formerly far above the stream, have been gradnally engulfed season after season, until now only the top hranches appear above the current. It is helieved that these tailings contain enough gold and quicksilver to pay a handsome profit for their removal if any outlet could be found.

Mr. Uren, of Dutch Flat, a civil engineer and surveyor, has made a reconnaissance of the country hetween Bear Rivor and the North Fork of the American River, and states that a tunnel could he run through the divide hetween these streams which would not exceed in length one and a half miles. As the American River runs throngh a gorge several hundred feet lower than Bear River, this tunnel would empty Bear River and its trihutaries and open millions of cubic yards of hydraulic ground now without outlet, which otherwise can never yield up its wealtb. The quantity of tailings in Bear River and its confluent gulches alono, above the mouth of the supposed tunnel, estimating, on an average width of 300 feet, a depth of 75 feet, and a length of ten miles, would be 44,000,000 cubic yards. We know that in early times a large proportion of tbe gold and quicksilver was lost; perhaps 20 per cent. would be too low an estimate of such losses. Of late years the proportion of gold and quicksilver carried off in the tailings has been smaller; the amount conld he approximated by carefnl calculations of the results of the cleaning np of tbe last system of undercurrents and tail sluices of tbe claims emptying into tbis river, and by some experiments at favorable points.

Let us snppose, bowever, tbat the general average of the tailings will reach 2½ cents per cubic yard, we have an aggregate of $1,100,000, to save wbich we mnst construct a tunnel of say 8,000 feet, lay it in flume, and place it in condition for running off tbe tailings. With the present facilities for running tnnnels, by means of compressed air, diamond drills, and giant powder, we should not estimat the expense per lineal foot at over $10 or $12—tbe rock being an easily worked slate—wbich would give an aggregate of $100,000. Allow $50,000 for putting in flume and incidental expenses, and we have a total cost of $150,000. Now, if 50 per cent. of the grose amount estimated to be in the river can be saved, we bave a result of $550,000, less tbe expense of cleaning up and original cost of tunnel. Tbe contents of these tailings bave been estimated hy Mr. Uren and others at much higber figures than above. After the tailings were run off, tbe tunnel would be valuable property as a tail-sluice outlet for many square miles of bydraulic ground. We have made tbe calculation out of cnriosity, but think this is one of the profitable mining enterprises of the future.

Another illustration of the extent of these accumulations is afforded at tbe crossing of Sbady Creek, near Cherokee, between the Middle and South Yubas. At this point tbere formerly stood a sawmill on tbe banks of tbe Creek; the hoilers of tbis mill were supplied by a watertank which stood bigher up on the bank of the stream. The tailings from above so encroached on the mill that it was rendered useless and taken down; the tank, however, remained, and the timhers of wbich it was composed are now seen cropping up ahove the tailings a distance of several inches. Another "rnn" will completely ohliterate all traces of this landmark of early times. The depth of tailings here cannot be less than 70 feet.

SALES.—Tbe Eureka *Sentinel*, says tbat the Tip Top mine has been sold to the Richmond Co. for $70,000 cash.

The Zapata mine at San Rafel, Lower Californiа, has been sold to San José Capitalists for $20,000. It is the intention of tho purehasers to erect a mill.

PLACER DIGGINGS have been struck on the road leading to Big Valley, Shasta Co., where dirt prospects 20 cents to the pan, of coarse gold.

Domestic Economy.

Food, and How to Use It.

Good cooking requires not only a certain amount of chemical knowledge, but also a considerable acquaintance with the chemistry of the stomach. The following article from "Good Words," is evidently the production of an expert, and will, no doubt, be appreciated by all intelligent readers:—"Potatoes, which are a dearer food than meat for the supply of flesh are far cheaper as a source of heat to the body, so with this view we associate them in our meals. Cheese gives us cheap flesh but dear fuel, so we take it with bread, which supplys the latter economically. Potatoes lay on flesh at an extravagant rate, so with potatoe soup we mix peas, which add to its nutritive value and to their economy. The making of palatable mixtures of various kinds of food forms the art of cookery. It is a maxim as old as Hippocrates, that "whatever pleases the palate nourishes," and it is only when taste becomes depraved by indulgence that the pleasure of eating becomes contemptible.

The Value of Lumps in Soup.

Many dishes of the cook are full of scientific significance. As an illustration let us ask, why are small square pieces of bread fried in lard, sent up with vegetable soup? Because starch requires to be mixed with saliva before it is converted into sugar in the act of digestion, and as the soup would pass to the stomach without mastication fried, or hard bread protected from the water by fat, so as to prevent its softening, is taken along with the soup, and compels mastication and a flow of saliva. But if cooks exhibit important scientific applications, they often err from ignorance of science.

Cooking Meats.

All the tasting ingredients of flesh reside in its juices and not in the solid substance. If the flesh of a deer, an ox, a pig, a cat, or a fox be well squeezed, so as to express their juices, what remains has the same vapid taste for all of them. For this reason roasted or stewed meat is generally better flavored than boiled, and the cook protect the juices by pouring melted fat over the joint during its roasting. In boiling meat for soup, cold water should be used at first, so as to extract as much of the nutritive juices as possible, and the heat be raised gradually. But if the meat be wanted in a boiled state for itself and not for its soup, then it should be plunged at once into boiling water, and kept boiling for a few minutes, so that all the outer albumen may be coagulated, in order to imprison the sapid and nutritive juices; then cold water should be added till the temperature is reduced to 160 degrees, at which it should be kept till the cooking is completed, because that heat is necessary for the coagulation of the coloring matter of the blood. In all cases, no more heat than is sufficient should be employed in cooking. Thus, in making soup, all the fire in the world will not make the water hotter than its boiling temperature, at which point it can be retained by a very moderate expenditure of fuel. Violent ebullition, such as we cooks often practice, while it does no good, does much harm, not only by wasting fuel, but also by carrying off in the steam much of the aromatic and volatile ingredients of the food.

Hard and Soft Water.

The effects of hard and soft water in cooking vegetables vary materially. Peas and beans cooked in hard water, containing lime or gypsum, will not boil tender, because these substances harden vegetable casein. In soft water they boil tender and lose a certain rank, raw taste which they retain in hard water. Many vegetables (as onions) boil nearly tasteless in soft water because all the flavor is dissolved out. The addition of salt often checks this (as in the case of onions) causing the vegetables to retain the peculiar flavoring principles, besides much nutritious matter which might be lost in soft water. Thus it appears that salt hardens the water to a degree. For extracting the juices of meat to make a broth or soup, soft water, unsalted and cold at first, is best, for it much more readily penetrates the tissues; but for boiling meat where the juices should be retained, hard water or soft water salt d is preferable, and the meat should be put in while it is boiling so as to seal up the pores at once.

Tea and Tea Mixes.

In choosing teas the first precept to be borne in mind is to suit the taste of customers. Different portions of the country prefer different varieties of tea, and even is this the case in different localities of the same section of country, according as the preponderance of the population is native or foreign born. Next to knowing exactly what is wanted is to discern the differences between the qualities of the samples. A good quality of tea will always feel to the touch firm, hard, crisp and weighty. Inferior qualities of tea are soft, spongy and bulky for their weight. A fine description of tea shows evidence of careful preparation. It is nicely rolled, delicately dried and when infused unrolls itself with freedom. New teas should show fresh and green from infusion. Old teas present a dark brown hue when infused, and the infusion a deep reddish color. The infusion should also be devoid of scum, which is evidence of an admixture of foreign substances. Evenness in size of leaf and absence of stalk is desirable for sake of style.

In mixing teas it is a well-known fact a change of character is effected as certain as is produced by chemical agencies by one body being brought into contact with another. Herein lies the success of the mixes. The following proportions constitute a good combination of teas to represent two varieties:

Oolong	5 lbs.	Oolong	5 lbs.
Japan	1½ lbs.	Japan	1 lb.
Young Hyson	1½ lbs.	English Breakfast	½ lb.
English Breakfast	1 lb.	Orange Peko	½ lb.

Of course it is not to be understood that the above proportions are never to be varied These are only given as an outline on which to base the judgment of the readers of this article. The same class of teas may not always be obtainable, yet it is still possible to keep up the standard of the mix the year round—a stock sample being always kept on hand to test by. Always remember the foundation. If the mix is too pungent, modify it by lessening those qualities which produce such a result, and *vice versa*. After being mixed, the product should be allowed to stand some days before being offered for sale. In bulk they improve, especially if kept warm and dry. After mixing, store in canisters as tight as are obtainable. Do not mix on a damp or rainy day. Keep the mix as far as possible from fruits, spices and coffees. A cargo of tea imported into London was once destroyed by a few boxes of oranges being stored in the hold. It had entirely lost its own flavor, so that when infused it merely showed color, while the infusion was flavored, as with orange peel.—*Am. Grocer.*

Food Values.

Dr. James C. Jackson, Principal of the "Home on the Hillside," at Danville, N. Y., publishes this:

With us, as a people, bread and meat constitute the staff of our life, being eminently the staples of our food. Of the grain used, wheat ranks all the other grains in quantity used, as it does all of them in natural fitness. According to Liebig, Bousingault, and other chemists, 107 parts of wheat are equal to 111 parts of rye, 117 of oats, 130 of barley, 138 of Indian corn, 177 of rice, 898 of potatoes, and 1,335 of turnips. In making bread out of wheat after the form or manner which with us is almost universal, certainly quite common, we greatly deteriorate it, insomuch as to make it less nutritious than it might be; but not only so, we make it noxious, thus disturbing those who eat in many instances, by causing severe irritation of their gastric nerves. In preparing wheat for cooking, the uniform practice is to separate the bran from the flour. When this is done, an analysis of these will show the barm of holting. The principal solid constituents of the human body are fat, bone and muscle. I offer the following condensation of facts taken from a statement of a scientific gentleman, correspondent of one of the ablest and oldest papers in the State of New York.

1. *The Fat.*—Of this ingredient, 1 000 lbs. of whole grain contributed 38 lbs.; fine flour, 20 lbs.; bran, 60 lbs.

So that the bran is much richer in furnishing the materials of fat than the interior portion of the grain, and the whole grain ground together is richer than the finer part of the flour, in proportion to nearly one-half.

2. *The Muscular Matter.* — One thousand pounds of whole grain, and of the fine flour, contain of muscular matter respectively—whole grain, 156 lbs.; fine flour, 130 lbs.

So that the material out of which the animal muscle is to be formed, the whole meal of wheat contains one-fifth more than the finest flour. For maintaining muscular strength, therefore, it must be more valuable in an equal proportion.

3. *Bone Material and Saline Matter.*—One thousand pounds of bran, whole-meal, and fine flour, contain respectively—bran, 700 lbs.; whole meal 170 lbs.; fine flour, 69 lbs.

So that in regard to that important part of our food necessary to all living animals, but especially to the young during their growth, the whole meal is three times more nourishing than the fine flour.

Taking the three essential elements of a nutritive food thus existing in wheat, and comparing their respective amounts in the whole-meal and in fine flour, we find that, on the whole, the former is one-half more valuable for fulfilling all the purposes of nutrition than the fine flour. "It will not be denied," says Professor Johnson, "that it is for a wise purpose that the Deity has so immediately associated in the grain the several substances which are necessary for the complete nutrition as animal bodies. The above considerations show how unwise we are in attempting to undo this natural collection of materials. To please the eye and the palate, to sift out a less generally nutritive food; and to make up for what we have recourse to animal food of various descriptions. It is interesting to remark, even in apparently small things, how all nature is full of compensating processes."

For a Meat Pie.—Cut up some pieces of good, tender raw beef or mutton, season with pepper, salt, and, if liked, one finely minced onion; boil a half dozen good-sized mealy potatoes, mash smooth and wet with milk enough to form a dough to make the crust; salt to please the taste, roll out full half an inch thick, and line a buttered dish large enough to hold the meat, lay in the meat, add a teacup of water, or less, if the pie is to be for a small family, then roll out a thick crust of the potato, covering the top of the pie at least an inch thick, and bake about an hour an a half.

Effect of a Continued Bread Diet.—According to late experiments of Mayer, neither man nor dogs can be fed economically upon bread alone, an immense quantity of this substance being required to prevent the body from undergoing waste. By the addition of a small percentage of flesh, a much less amount of total weight of food will answer the desired object. A persistence in the bread diet causes the tissues of the body to become more watery, and the entire organization is less capable of resisting injurious influences. In experimenting upon different kinds of bread, Mayer found that white bread was taken up in the greatest amount during its passage through the alimentary canal; next to this, leavened rye bread; then the rye prepared by the Horsferd process, and finally the North German black bread. With all these differences, however, the first kind is said to be less satisfying to the feeling of hunger than the other three, and to be more expensive in every point of view. Mayer does not admit that bran has the nutritious value claimed for it by many persons, since the nitrogeneous compounds it contains are mingled with much non-assimilable matter.

Etiquette at Table.—Table etiquette should be founded in common sense, though it is not always so. Certain articles of food cannot be thoroughly enjoyed if eaten with the use of a knife, fork or spoon. Hence good usage has sanctioned the use of fingers in certain cases. While our ideas of propriety would be shocked at seeing one take the bone of a beefsteak or mutton-chop in his fingers, we are not at all horrified when the little bones of a bird are treated in that way, since the meat can only be obtained easily and enjoyed thoroughly by picking them. It is much the same with green corn. Though gnawing the corn from the cob is not an elegant operation for an outside spectator to witness, it is very satisfactory to the individual most interested. Indeed, so generally is it conceded that corn may be eaten from the cob, that silversmiths now make silver handles which are to be thrust into the large end of the cob and allow it to be held without soiling the fingers.

Preserving the Flavor of Butter.—The German *Agriculturist* says that a great portion of the fine flavor of fresh butter is destroyed by the usual mode of washing, and he recommends a thorough kneading for the removal of the buttermilk, and a subsequent pressing in a linen cloth. Butter thus prepared, is pre-eminent for its sweetness of taste and flavor, qualities which are retained a long time. To improve manufactured butter, we are advised by the same authority to work it thoroughly with fresh cold milk, and then to wash it in clear water; and it is said that even old and rancid butter may be rendered palatable by washing it in water to which a few drops of a solution of chloride of lime have been added.

Destroying Mold in Cellars.—According to Dr. Weidehold, fungus growths in cellars may be combated either by burning sulphur or by pouring two parts of concentrated sulphuric acid over one part of common salt. In the first instance, sulphurous acid gas is produced; and in the second hydrochloric acid, by means of which the fungi are destroyed. It is sufficiently evident, however, that during this process all openings must be closed, so as to prevent any escape of the gas, and the greatest care exercised not to enter the cellar after the operation until it has been thoroughly ventilated.

To Keep Flies from Butter.—The Meridian *Gazette* is responsible for the following: "An experienced housekeeper tells a cotemporary that flies may be kept out of the butter plate on the table, by the simple and novel expedient of planting in it a thin slice of bread, cut column-wise and inserted in a perpendicular position. Whether the bread scares the flies off or not the lady cannot say, but she declares it certainly keeps them away."

Shaving Soap.—Take 4½ pounds white bar soap, one quart rain water, one gill beef's gall, and one gill spirits turpentine. Cut the soap thin and boil five minutes. Stir while boiling, and color with half ounce vermillion; scent with oil of rose or almond. Fifty cents worth of materials will make $6 worth of soap.

Keeping Sausage Meat.—Cook fresh sausage as for the table without flouring it; then put it in thin layers in a sweet earthen or stone pot with gravy from running hot lard over each layer. It will be as good as when first made.

To Remove Tan, Freckles, Pimples, Etc. To two gallons strong soap suds add one pint pure alcohol, and four ounces rosemary; mix them well together. Apply with a linen rag twice a day, until the object is effected.

Old Ships.—There is a ship now sailing from Holland, built in 1598, when the Prince of Orange was fighting Philip II., of Spain, then at the zenith of his power. A few weeks since, in the Boston *Daily Advertiser*, there was a notice that the whale-ship Ronssean (one of Stephen Girard's ships, built at Philadelphia in 1801) was then undergoing repairs at New Bedford. Her planking is being removed, the first time for seventy years. The live oak timbers underneath are reported to be as sound as they were the day they were first put together.

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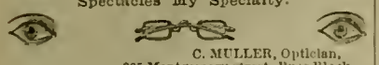
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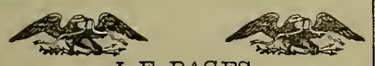
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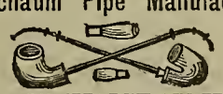
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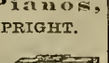
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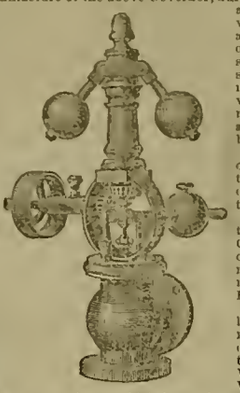

The Gardner Governor is so well known that we think it unnecessary to enter into a detailed explanation of the principles involved, or details in its construction, merely giving the leading objects realized by this important invention. The Governor combines with the greatest simplicity of construction, accurate regulation of speed, POSITIVE INSURANCE AGAINST ALL ACCIDENTS LIABLE TO OCCUR FROM SLIPPING OR PARTING THE GOVERNOR OR DRIVING BELTS, and a convenient arrangement for ADJUSTING THE SPEED OF THE ENGINE WHILE IN MOTION, without change of pullies.

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☞WE WARRANT these Governors to give perfect regulation of speed under all circumstances; and if there is one within one thousand miles of San Francisco, that is not giving perfect satisfaction, it may be returned to us at our expense, and we will exchange it for any other Governor in the country, or refund its price.

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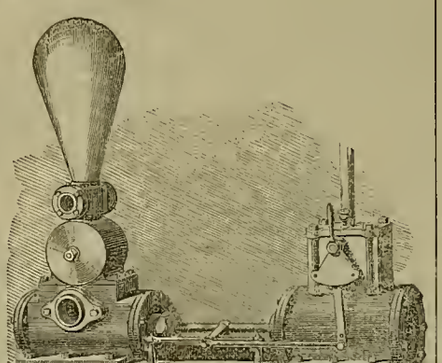

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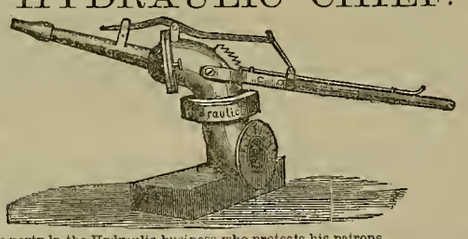

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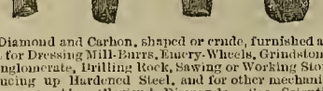
DICKINSON'S
Patent Shaped Diamond Carbon-Points.
Fig. 1. Fig. 2. Fig. 3. Fig. 4.



Diamond and Carbon, shaped or crude, furnished and set for Dressing Mill-Burrs, Emery-Wheels, Grindstones, Conglomerate, Drilling Rock, Sawing or Working Stone, Tracing up Hardened Steel, and for other mechanical purposes. Also Glaziers' Diamonds. See Scientific American, July 24th, Nov. 20th and 27th, 1869; Engineering and Mining Journal, Jan. 17th, 1871; Journal of the Franklin Institute, Philadelphia, June, 1870. For Circulars descriptive, and Prices, send stamp to
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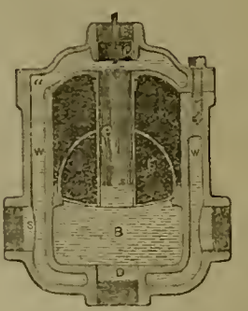
CRAIG & BREVOORT'S
Patent Condenser for Steam
PUMPS, &c.



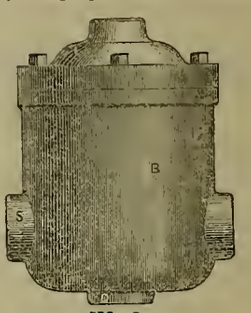
NO. 1.

The annexed engravings represent a Condenser intended to be attached to the ordinary steam pump, thereby bringing it within the class of low pressure, or more properly speaking, of condensing engines; the steam, when it has done its work in the cylinder, instead of being exhausted into the atmosphere, is conducted to the condenser, on its entry into which, it meets the water drawn by the pump, and is immediately condensed.

The Cut No. 1 represents a vertical section of the Condenser, and No. 2 an elevation.

The flange D is bolted to the suction orifice of the pump, and the flange S to the pipe leading to the well, or whatever source of supply the pump may have; W is a water jacket surrounding the main chamber of the condenser, B, and with which the suction pipe, S, communicates, permitting a free circulation of water within the jacket and into the hollow cover or top through the series of openings, one of which is shown at A, and from thence into the body of Condenser, B, through pipe P, carried by float F; the pipe P also acts automatically as a valve to enlarge or contract the space through which the water enters it, by which means the possibility of the condenser being at any time flooded is avoided. The pipe P, it will be observed, also acts as guide to float F.

The valve, C, (shown in Cut No. 1), which is raised or lowered by means of screwed stem—shown coming through elbow in Cut No. 2—is for the purpose of increasing or decreasing the flow of water according to the capacity of the pump to which it is attached.



NO. 2.

The exhaust pipe from steam cylinder is screwed into cover at E; the exhaust steam is thus thrown directly into contact with the water entering the condenser on its way to water cylinder of pump through D. A vacuum being of course immediately formed, acts on the exhaust side of the steam piston, aiding it in its work. If at any time it is desirable to run the pump without the condenser, it is only necessary to turn the three-way cock, which is placed in the exhaust pipe, into such a position as to cause the steam cylinder to exhaust into the atmosphere; when this is done the pump is perfectly free from the condenser, and acts as if it were not attached. This condenser is specially useful for pumps running in mines, or any other position where trouble is experienced in getting rid of the exhaust steam. Address H. L. BREVOORT,
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Alkali Soils.

Many of our mountain readers will be interested in the following discussion which recently took place at the Sacramento Farmers' Club, on the reclamation and value of alkali soil:

J. R. Johnson said—I think it evident that drainage alone cannot always be made effectual in the reclamation of alkali soile; at least other expedients may be resorted to in connection with drainage with good results. Stable manure, well mixed with the soil, and turning the soil up with the plow and allowing it to remain loose, expoeed to the action of the sun and atmosphere will help much. Alkali soils generally are very rich with the elements of production, but these elements are so mixed with other ingredients that plants cannot separate and use them. Anything that will neutralize or counteract these vicious ingredients will reclaim the soil and render it valuable. Manures of various kinds are found to do this, particularly coarse manures, as straw. The great difficulty with alkali soils is that they pack too close together, so as to exclude the air and heat. Mixing with coarse manures opens the pores, so to speak, and enables the soil to breathe, and thus change its nature.

Hoyt—I think the base of alkali soils is salt; and anything that will extract the salt will reclaim the land and make it productive. I agree with Johnson, that the alkali soils have a superabundance of elements of production, but not in proper proportion; restore the proportion and these lands are very valuable. Indeed, much of our alkali soil would make good manaure for a large portion of the light eoils of the Atlantic States.

Aiken—I repeat, the great and effective agent at our command at the least expense for the reclamation of alkali soils ié drainage. Carry off the surplue water, and with it you will carry off the surplus alkali and render the soil porous and lively and productive.

New Incorporations.

Alps Water Co.—March 21. Location: Alameda Co. Capital stock, $60,000, in 600 shares. Trustees—W. V. Thompson, Edward J. Pringle and T. A. Mudge.

Star Consolidated M. Co.—March 21. Location: Eureka District, Lander Co., Nev. Capital stock, $5,000,000, in 50,000 shares. Trustees—G. T. Lanton, O. F. Giffin, J. H. H. Williams, L. A. Adams and Robert Sherwood.

Lady Emma M. Co.—March 21. Location: Agra District, El Dorado Co. Capital stock, $1,200,000, in 24,000 shares. Trustees—J. S. Jameson, A. D. Carpenter and W. B. Terwilliger.

Pennsylvania M. and M. Co.—March 25: Location: Schell Creek Mining District, White Pine county, Nev. Capital stock, $1,000,000, in 10,000 shares. Trustees—James M. Livingston, Joseph Woodworth and Thomas J. Patten.

Salt Lake M. Co.—March 26. Location: Utah Territory. Capital stock, $3,000,000, in 30,000 shares. Trustees—M. D. Townsend, W. J. Jones, R. S. Eells, T. P. Kimball and James A. Allen.

Silver Peak M. Co., amended certificate. March 27. Location: Ely District. Capital stock, $3,000,000, in 30,000 shares. Trustees—J. D. Fry, John M. Martin, Wm. Cline, Wm. H. Sears and Ira G. Hoitt.

Belmont M. Co.—March 27. Location: Philadelphia M. District, Nye county, Nevada. Capital stock, $5,000,000, in 50,000 shares. Trustees—Marion J. McDonald, F. F. Coffin, Victor Fornbach, Frank Swift and Mark L. McDonald.

New York Con. S. M. Co.—March 27: Location: Gold Hill M. District, Story county, Nev. Capital stock, $3,600,000, in 36,000 shares. Trustees—J. D. Fry, L. L. Robiuson, F. R. A. Pioche, Robert Sherwood and A. K. P. Harmon.

Coffee Growing in California.—A correspondent who has had experience in the cultivation of coffee in Java, at an elevation of 4,000 feet above the sea, where the banana would not bear fruit, and the sugar cane would not grow, and where the climate is colder than on our southern coast, writes to us that he is confident a coffee plantation of 300 acres, well managed, would pay well in California. He would send to the mountains of Java for the plants, at a cost of $2,000, set out 4,200 on an acre, in timber land, so that the trees would shade the young plauts, cultivate them three years at an expense of $35,000, and in the third year harvest a full crop of 5,000 pounds per acre, worth for the entire plantation, $300,000 or $400,000. He says that in Java, where the Government, which owns most of the coffee plantations, has allowed private individuals to go into the business, they have made extraordinary profits. The subject deserves attention, though our correspondent may be too sanguine. The prudent course would be to cultivate a few plants, and find out how they prosper. We believe there are some in the State now.—*Alta.*

The foothills of the Sierras in Placer, El Dorado, and Amador counties, are green with thousands of acres of the best looking wheat in the State, whilst a great deal in the lower valleys is too rank for the season and will require to be pastured or mown off.

Smelting in Pittsburgh.

Among the industrial enterprises of Pittshurgh, the smelting of silver ores promieee to be an important occupation. A furnace has already been erected and is now running successfully, and in all probability it will serve as the nucleus of one or more extensive smelting works, where ores of the precious metals may be cheaply reduced. Large quantities of ores from Utah and other weetern Territories are forwarded in sacks by the Union Pacific railroad and ite connections to New York, whence it is shipped to Swansea, in Wales, passing directly through Pittsburgh on its way. The expeuses of transportatiou over this long route are very heavy, while the cost of smelting in Utah, owing to various causes, is muoh greater than it would be in a city so favorably situated as Pittsburgh, where fuel of the best quality exists in abundance. The experiments hitherto made prove that the silver ores from the Flagstaff, Crœsus, and other characteietic minee may be smelted at a cost not exceeding five dollars per ton, while the transportation charges are much less than would he the expense of smelting at the mines. As these experimente are heing conducted by experienced persons, and have already progressed favorahly, they may lead to the establishment of permanent works, and tend to keep the profits of emelting ores at home, instead of sending them to foreign metallurgists.—*Am. Engineer and Review.*

Co-operative Housekeeping. — Self-made men revert with pardonable pride to the difficulties which they overcome in early years. One supported his mother and sisters aud self, and paid the expenses of a college education, by hard manual labor. Another made his original mark in some New England district school, living frugally and studying hard. In fact, the devices resorted to a few years ago, by poor but ambitious young meu, who poseesed plnck and independence, are a legion in number. No one feele disposed to dispute these facts, but when it is hinted that the material for self-made men is exhausted, and that the boye of to-day never feel the Promethean fire burning in their bosoms, then it becomes necessary to advance some argument to the contrary. There are ten young men from Healdeburg attending the State University. Some of theee etudents could not afford to go through the College course, if they had to board at a hotel or in a private family. In view of this circumstance, the ten young men have formed a club and board themselves, having a Chinese cook. The expense ie thus reduced to fifteen dollare per month, and this includee board and washing. Thue, the tuition being free, the stndents can beoome thoroughly educated at a trifling cost, and it is evident that the young Californians appreciate this fact, and are determined to enjoy the generosity of this State.

Col. Black's Portrait, as recently published in the Press is alluded to by the *New North West*, of Deer Creek, M. T., as follows: Now we are not acquainted with Col. Black—have never seen him, to our knowledge—but the illustration (although, of course, not a fine steel engraving), is certainly well executed, and up to the average of common wood engraving; and as for looks, if the Colonel is any better looking than that, he must without a doubt be the handsomest man in the Territory. The picture is decidedly *good looking* (as any one can see by examining it), even as it now is, and it is very likely it falls short of the original in fine personal appearance; but we have not seen a handsomer face (amoug men) in Montana than this same picture indicates. The editor of the *Gazette* must be a little jealous; certainly nothing else could ever induce him to attempt the demolition of so fine a likeness.

The discovery of glass making was effected by seeing the sand vitrified upon which a fire had been kindled. Blancourt says that the making of plate glass was suggested by the fact of a workman happening to break a crueihle filled with melted glass. Theﬂ uid ran under one of the large flag-stones with which the floor was paved. On raising the stone to recover the glase, it was found in the form of a plate, snch as could not be produced by the ordinary process of blowiug.

The drainage of wet lands adds to their value by making them produce more and better crops, by producing them earlier, thus giving more time to mature.

Miners, mechanics, write for your paper.

Summary of Meteorological Observations in Montana.

Made at Deer Lodge City, M. T., by Grauville Stuart, during seven months of the year 1871. Latitude, 46° 26′; Longitude, 112° 40′; Altitude, 4,768 feet.

Observations.	June.	July	Aug.	Sept	Oct.	Nov.	Dec.
Barometer.							
Monthly Mean..	25.485	25.448	25.459	25.438	25.512	25.375	25.366
Highest for m'th	27th. 25.816	2d. 25.754	18th. 25.752	9th 25.800	1st. 25.858	20th. 25.834	9th. 25.831
Lowest.....	2d 25.200	27th. 25.228	9th 25.384	27th. 25.173	27th. 25.250	24th. 24.718	29th. 24.859
Thermometer.							
Monthly Mean..	63.8°	66.0°	62.6°	56.2°	41.0°	26.1°	16.0°
Highest for m'th	12th. 96.0°	15th. 97.0°	17th. 102.0°	6 & 26 87.0°	3d. 78.0°	1st. 63.0°	5 & 7 49.0°
Lowest.....	3d 36.0°	9th. 43.0°	2d. 41.0°	24th. 35.0°	13th. 9.0°	26th. -25.0°	26th. -34.0°
Wind.							
Prev'ling direc'n.	W.	N.W.	N.W.	N.W.	N.W.	N. E.	N. E.
Rainfall & melt'd snow dur. m'th in inches....	1.07	1.20	0.55	0.77	0.73	3.60	1.51
Snowfall during m'th in inches.					4.92	35.25	16.75

Barometer reduced to 32° Fah. Average for seven months..... 25.435
Mean annual temperature at Deer Lodge for five years 42°.5
Mean annual temperature of principal valleys of Montana..... 48°

Following is the amount of snowfall in Deer Lodge:

20.25 inches in 1867-8.	Greatest depth at any time..	2½ in.	
16.75 "	1868-9.	"	" 2 "
29.35 "	1869-70.	"	" 4 "
45.73 "	1870-71.	"	" 3 "
70.42 "	1871-72. (To Feb. 22).....		12 "

Average amount of rain and melted snow in Montana, for four years..... 12 "

Greater portion of Deer Lodge Valley bare of snow at date (Feb. 22d). Stock doing well; but few head have died as yet, and spring seeme at hand. This has been a severe winter in Montana. Considerable loss in Texas cattlo in some localities, as they were driven in late in the fall and were thin in fleah. They could not stand the enow and unusual cold, coming as they did from a warm climate. Native cattle generally have done well. We are sure of an abundance of water this year, and the oonsequent yield of our placer mines will be very great. The mining season is expected to open ahont the 1st of April.

Granville Stuart.

Deer Lodge City, M. T., Feb. 22, 1872.

Meteorological Report, San Francisco,

For week ending March 27th, 1872.

Date.	*H. B.*	*Th.*	*R. H.*	*D. W.*	*V. W.*	*F. W.*	*S. W.*
Mar. 21..30.22	50	93	Calm				Clear
Mar. 22..30.00	49	93	Calm				Cloudy
Mar. 23..30.07	50	93	Calm				Clear
Mar. 24..30.04	50	86	Calm				Cloudy
Mar. 25..30.00	51	86	W.			Light	Cloudy
Mar. 26..30.06	49	85	Calm				Hazy
Mar. 27..29.94	52	100					Threat

Explanations.—H. B., hight of barometer; Th., thermometer; R. H., relative humidity; D. W., direction wind; V. W., velocity of wind; F. W., force of wind; S. W., etate of weather.

Our Agents.

Our Friends can do mucb in aid of our paper and tbe canse of practical knowledge and science, by assisting Agents in tbeir labors of canvassing, by lending their influence and encouraging favors. We intend to send none but worthy men.

Wm. F. Spencer—California.
W. H. Murray—General Traveling Agent.
C. H. Dwinelle—Special Corresponding Agent.
I. N. Hoag—Sacramento, General Agent.
F. M. Shaw—San Diego.
L. P. McCarty—California.
A. O. Knox, City Soliciting and Collecting Agent.

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The Mechanics' Institute is open to all, and the Trustees will be pleased to bave visitors and others inspect the Rooms.

Entrance Fee, $1.00. Quarterly Dues (in advance) $1.50. Life Membership, $50.

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10v24-13t

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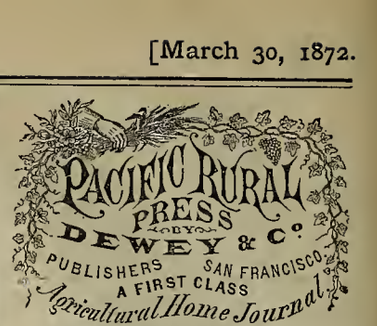
San Francisco Office, 331 Montgomery street (Stevenson's Building), Room 32, Third floor.

J. BERTON, President.

E. P. Rutchins, Secretary.

N. B.—Application for Registry, or Examination and Report on Mining Property, may be made to the Secretary, San Francisco office.



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Combines endless instruction with amusement. bp

Miners Using Powder

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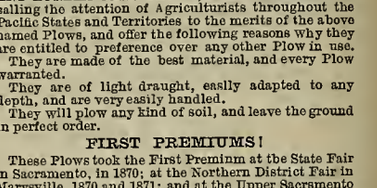

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They are made of the best material, and every Plow warranted.

They are of light draught, easily adapted to any depth, and are very easily handled.

They will plow any kind of soil, and leave the ground in perfect order.

FIRST PREMIUMS!

These Plows took the First Premium at the State Fair in Sacramento, in 1870; at the Northern District Fair in Marysville, 1870 and 1871; and at the Upper Sacramento Valley Fair, Chico, 1870 and 1871. At the Mechanics' Fair, held in San Francisco in 1871, a Silver Medal was awarded these Plows; and the State Agricultural Society, at the last Fair, offered a premium of $40 for the best Gang Plow. The committee was composed of practical farmers from the agricultural counties, who, after a fair test and thorough competition with the leading plowe of the State, awarded the premium to the Eureka Gang Plow. From this it will be seen that these celebrated plows still maintain their reputation over all competitors. Patented Sept. 7, 1869.

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which took the First Premium over all competitors at the State Fair, 1871. It turns a furrow 14 inches deep and 24 inches wide.

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And also by most leading Agricultural Dealers in the State. All others are invited to apply at once for Circulars, prices, etc, 16v23-tf

Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the Scientific Press we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

Marcelina Silver Mining Company.—Location of Works: Eureka District, Lander County, Nevada.

Notice is hereby given that at a meeting of the Board of Trustees of said company held on the eighth day of March, 1872, an assessment of ten cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company, Room 21, Hayward's Building, 419 California street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the fifteenth day of April, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the seventh day of May, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

CHAS. E. ELLIOTT, Secretary.

Office, Room 21, Hayward's Building, 419 California street, San Francisco, California. mar19-3w

Nuestra Senora de Guadelupe Silver Mining Company.—Location of Works: Tayoltita, San Dimas District, Durango, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twelfth day of May, 1869, an assessment of two dollars per share was levied upon the assessable capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, E. J. Pfeiffer, No. 210 Post street, or to the Treasurer, A. Himmelmann, No. 637 Washington street, San Francisco, to settle the indebtedness of the said Company.

And whereas there has been an error in the course of proceedings for the collection of said Assessment, by reason of which, as provided by law, all previous proceedings, except the levying of the Assessment, are void, and publication required to be begun anew. NOW, therefore, by order of the Board of Trustees of said Company, at a meeting of said Trustees, held on the eighth day of March, 1872, said Assessment is hereby re-published, and notice thereof given as follows, to wit;

Nuestra Senora de Guadelupe Silver Mining Company.—Location of Works: Tayoltita, San Dimas District, Durango, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twelfth day of May, 1868, an assessment of two dollars per share was levied upon the assessable capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, E. J. Pfeiffer, No. 210 Post street, or to the Treasurer, A. Himmelmann, No. 637 Washington street, San Francisco, to settle the indebtedness of the said Company.

Any stock upon which said assessment shall remain unpaid on the fifteenth day of April, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the eighth day of May, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

E. J. PFEIFFER, Secretary.

Office, No. 210 Post street, San Francisco, California.

Ophir Copper, Silver and Gold M. Company—Location of Works, Ophir, Placer County, Cal.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 18th day of March, 1872, an assessment of twenty (20) cents per share was levied upon the capital stock of said Company, payable imuediately, in United States gold and silver coin, to the Secretary, N. E Cor. Sansome and Halleck Sts., entrance on Halleck, street, San Francisco. Any stock upon which said assessment shall remain unpaid on the 20th day of April, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 17th day of May, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. R. G. BRUSH, Secretary.

Office, N. E. Corner Sansome and Halleck Streets, S. F.

Pocahontas Gold Mining Company—Location of works, Mud Springs, El Dorado County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 26th day of February, 1872, an assessment of Five Dollars per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, Room No. 26, Hayward's Building, No. 419 California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on Saturday, the 6th day of April, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before will be sold on Monday, the 6th day of May, 1872, to pay the delinquent assessment thereon, together with costs of advertising and expenses of the sale.

D. A. JENNINGS, Secretary.

Office, Room No. 26, Hayward's Building, 419 California street, San Francisco, Cal.

February 26, 1872. mar2-5w

Quail Hill Mining and Water Company—Location of works: Calaveras County, California.

NOTICE.—There are delinquent upon the following described stock, on amount of assessment levied on the 15th day of February, 1872, the several amounts set opposite the names of the respective shareholder as follows.

Names.	No. Certificate.	No. Shares.	Am't.
F. S. Spring, Trustee	44	120	600
E. F. Dennison	42	1	5
A. E. Hill, Trustee	40	7	35
A. E. Hill, Trustee	39	1 0	600
A. E. Hill, Trustee	37	119	595
A. E. Richardson, Trustee	36	60	300
A. E. Hill, Trustee	31	50	250

And in accordance with law, and an order of the Board of Trustees, made on the 15th day of February, 1872, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Company, No. 409 California street, San Francisco, California, on the 16th day of April, 1872, at the hour of 12 o'clock m., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale. T. F. CRONISE, Secretary.

Office, 409 California street, San Francisco, Cal. mar30-3t

South Gulch Gravel Mining Company—Location of works: Brushville Mining District, Calaveras County, California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the seventh day of February, 1872, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Geo. F. Sharp	1	200	$300
W. H. N. Cronise	2	200	300
G. B. Merrill	3	60	90
J. W. Griswold	4	50	75
J. W. Griswold, Jr.	5	100	150
E. J. Griswold	6	50	75
Geo. W. Merritt	7	50	75
A. C. Wallop	8	50	75
T. F. Cronise	10	140	210
Mrs. S. L. Griswold	11	50	75
B. M. Griswold	12	50	75
Geo. W. Gilmore	13	50	75
H. E. Watson	14	50	75
Walter Roby	15	50	75
J. H. Brown	9	50	75

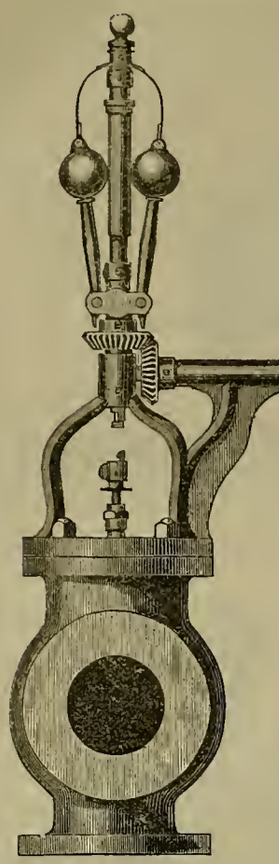
And in accordance with law, and an order of the Board of Trustees, made on the 7th day of February, 1872, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Company, 409 California street, San Francisco, Cal., on the 3d day of April, 1872, at the hour of 12 o'clock m., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale. T. F. CRONISE, Secretary.

Office—409 California street, San Francisco, Cal. mar16-3t

HENDY'S

Improved Lamont Steam Engine Regulator,

WITH STOP VALVE ATTACHED.



PERFECTLY RELIABLE.

Rapidly Superceding all other

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Wherever introduced.

We Invite the Attention of those

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STEAM ENGINES,

TO OUR

IMPROVED REGULATOR AND CUT-OFF,

FOR EITHER

Stationary or Portable

ENGINES.

An Examination Will

BE SUFFICIENT TO SATISFY THE

MOST SKEPTICAL

OF ITS UTILITY AND

SIMPLICITY,

And the many References in Our Possession

FROM ENGINEERS WHO ARE

Using them, attest their

PRACTICAL SUPERIORITY

Over all others.

We refer to Union Iron Works; Pacific Irou Works; Fultou Irou Works; M. Taylor, Grass Valley; Phœnix Quicksilver Mining Co., Napa Co.; Samuel McCurdy, Nevada Co., and others.

JOSHUA HENDY,

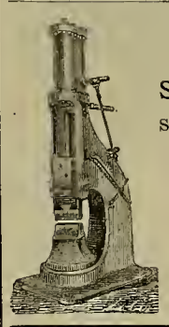
Office and Works, 32 Fremont Street, San Francisco.

Hendy's Ore Concentrators and Circular Saw Mills. 4v24-1am-tf

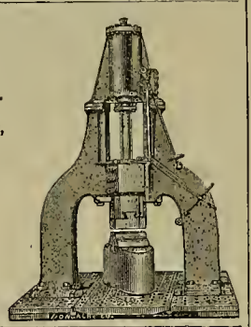
FERRIS & MILES,

PATENT IMPROVED

STEAM HAMMERS.



Steel Working Hammers, Forge Hammers, Shingling Hammers, Fast Running Hammers, Slow Running Hammers, Tilting Hammers. Single or Double Frames. Diagonal or Parallel Ram.



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PHILADELPHIA.

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For Steam Pipes & Boilers **Hair Felting**

SAVES 25 PER CENT. OF FUEL—An item worth looking after. Also, Steam Governors, Tube Scrapers, Steam Pumps, Self-Oilers, Cylinder Cups, Belting, Lacing, Hose, Fuse, Packing, etc., including all kinds Miners', Engineers' and Millmen's Supplies, at the Machinery and Supply Depot of TREADWELL & CO.; old stand, Market street, head of Front, San Francisco. 13v24eow

W. H. GORRILL, Pres't. C. H. GORRILL, Sec'y.

Pacific Bridge Company

Are prepared to build Wooden and Iron Bridges on SMITH'S PATENT TRUSS PLAN.

Plans and specifications furnished to counties or persons desiring to build. Lithographs and prices sent on application.

Smith's Cast Iron Pier, durable as stone, and adapted to resist rapid currents, put in at low rates.

Address PACIFIC BRIDGE CO.,
3v2-3m-eow Oakland Cal.

FERRACUTE MACHINE WORKS,

Bridgeton, N. J.

PRESSES, DIES and all FRUIT CANNERS TOOLS a specialty.

Improved 3-lb. Can Press for $65; Rotary Solder Cutter, $15, etc. 13v24-13t

The Hesse Grinder and Amalgamator.

BEST IN USE!

Especially well adapted for the Reduction of Sulphuret Ores.

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304 Battery street, San Francisco, Cal.

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THE TANITE COMPANY,

STROUDSBURG, PA.,

Sole Manufacturers of

THE TANITE EMERY WHEEL,

And builders of Emery Grinders, Saw Gummers, Etc., Etc.

Emery Grinding Machines,

At $15, $25, $35, $40, $55 and $100. DIAMOND TURNING TOOLS, $15 each.

SOLID EMERY WHEELS,

From 40 cents to $113 each.

Every IRON FOUNDER can save money by using these Wheels to grind the sprues and gates off of castings. Every MACHINIST can save money, files, and labor, by using them to shape his lathe tools, to grind off chilled edges, to finish nuts, etc., etc. Every BRASS WORKER can use them on Brass. Every WOOD WORKER can use them to gum his saws, to sharpen his planer knives, to make his moulding cutters. For illustrated circulars address THE TANITE Co., Stroudsburg, Monroe county, Pa. 13v24-tf

$1,000 REWARD! For any case of Blind, Bleeding, Itching, or Ulcerated Piles that De Bing's Pile Remedy fails to cure. It is prepared expressly to cure the Piles and nothing else, and has cured cases of over 20 years standing. Sold by all Druggists. Price $1.00.

C. F. RICHARDS & Co., Agents, corner Clay and Sansome treets, San Francisco, Cal. 8v24-1y

Nevada Land and Mining Company—Location; Sperm Mountain, Antelope and Clifton Mining Districts, Elko County, State of Nevada

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 28th day of March, 1872, an assessment of four cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the Co.'s office, room 3, No. 302 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Tuesday the 2d day of May, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Friday the 24th day of May, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.

Office—Room 5, No. 302 Montgomery st., San Francisco, California. mar30-td

Spring Mountain Tunnel Company, Ely Mining District, Pioche, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 12th day of March, 1872, an assessment of fifteen cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, Room 37, Merchants' Exchange, California street, city and county of San Francisco, California. Any stock upon which said assessment shall remain unpaid on the 22d day of April, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 13th day of May, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. M. BUFFINGTON, Secretary.

Office, Room 37, New Merchant's Exchange, California street, San Francisco, California. mar16-td

San Francisco, March 16, 1872.

Tecumseh Gold, Silver and Copper Mining Company.—Location of works, Gopher District, Calaveras County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 20th day of March, 1872, an assessment of Three ($3.00) dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, F. J Horrmann, at the office of the company, No. 634 Washington street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 23d day of April, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 14th day of May, 1872, to pay the delinquent assessment, together with costs of advertising and exposes of sale. By order of the Board of Trustees.

F. J. HERRMANN, Secretary.

Office 634 Washington street, Room No. 2, up stairs, San Francisco, Cal. Office hours from 11 A.M. to 2 P.M. m23-4t

Designing and Engraving

By the Best of Artists, At this Office.

Important to Miners.

FREY'S IMPROVEMENT ON

Evans' Under Current and Sluices,

For Saving Fine Gold and Floating Quicksilver.

For particulars address

WATERS & CO., Assayers, Agents,

NO. 54 J STREET, SACRAMENTO.

3v24-3m

Varney's Patent Amalgamator.

These Machines Stand Unrivaled.

For rapidity pulverizing and amalgamating ores, they have no equal. No effort has been, or will be spared, to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Opsratss as Follows:

The pan heing filled, the motion of the muller forces the pulp to the center, where it is drawn down through the apperture and between the grinding surfaces.—Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly pasaing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Setlers made on the same principle excel all others They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill-men are invited to examine these pans and setlers for themselves, at the office, 229 Fremont Street, San Francisco.

First Premiums awarded by American Institute, N. Y,

MICROSCOPES.

Illustrated Price List sent free.

Magic Lanterns and Stereopticons.

Catalogue, priced and illustrated, sent free. McALLISTER, Optician, 49 Nassau street, New York. 3v23-1y

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IS THE LEADING COMMERCIAL SCHOOL OF THE Pacific. It educates thoroughly for business. Its course of instruction is valuable to persons of both sexes and of any age. Academic Department for those not prepared for business course. Open day and evening throughout the year. Students can commence at any time. Full particulars may be had at the College Office, 24 Post street, or by sending for HEALD'S COLLEGE JOURNAL.

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Machinists and Foundries.

ESTABLISHED 1851.

PACIFIC IRON WORKS,

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Steam Engines and Boilers,

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS

Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

☞ Particular attention paid to Jobbing Work and Repairs.

N. B.—Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR.

18v20-3m GODDARD & CO.

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Foundry and Iron Works.

HINCKLEY & CO.,
MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

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MACHINE WORKS,

109 and 111 Mission Street,

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These Works have lately been increased, by additional Tools, and we are now able to turn out any kind of work, equal to and cheaper than any establishment in the State; that is to say:—

STEAM ENGINES,
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QUARTZ MACHINERY
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AND MACHINERY MADE OF EVERY DESCRIPTION.

Improved Safety Store Hoists,

Fitted with Cutting's Patent Cams, unequaled for safety, convenience and cheapness. This Hoist can be built for about half the price of any other in use. To be seen at HAWLEY & CO.'S.

ALSO, MANUFACTURER AND SOLE AGENT FOR

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TURNING LATHES, Etc., constantly on hand.
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UNION IRON WORKS,
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CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR
WILCOX'S PATENT WATER LIFTERS,

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PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,
SACRAMENTO CITY

PACIFIC
Rolling Mill Company,

SAN FRANCISCO, CAL.

Established for the Manufacture of

RAILROAD AND OTHER IRON
—AND—
Every Variety of Shafting,

Embracing ALL SIZES f

Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames
—ALSO—
HAMMERED IRON

Of every description and size.

☞ Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention

☞ The highest price paid for Scrap Iron 9v143m

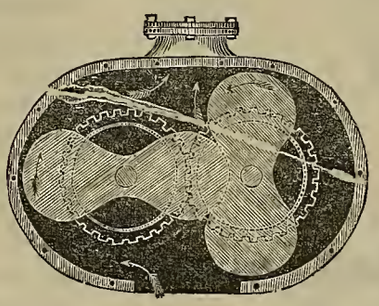
ROOT'S PATENT FORCE BLAST ROTARY BLOWER,

MANUFACTURED AT

The Globe Iron Works, Stockton, Cal.

AWARDED THE FIRST PREMIUM AT THE PARIS EXPOSITION—PATENTED NOV. 1, 1864; JULY 24, 1866; AND OCT. 9, 1866.

Adapted FOR Smelting, Foundry, Mining and Steamships.



Requires **50 Per Cent.** LESS POWER Than any Blower Now in Use.

One of these Blowers may be seen at W. T. Garratt & Co.'s Brass Foundry, San Francisco; Gould & Curry and Savage S. M. Co.'s, Nevada; and at C. P. R. R. Co.'s Works, Sacramento; and other places on this coast.

CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

QUARTZ, SAW AND GRIST MILL, IRON, STATIONARY AND STEAMBOAT ENGINES, HORSE-POWER AND PUMPS, OF ALL SIZES.

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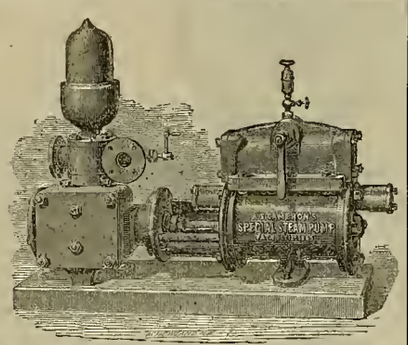
CAMERON'S
STEAM PUMPS.
PICKERING'S
Engine Regulators.
GIFFARD'S
INJECTORS.
BARTOL'S
STEAM TRAP.
Surface Condensers.
DAVID STODDART,
114 BEALE STREET, S. F.

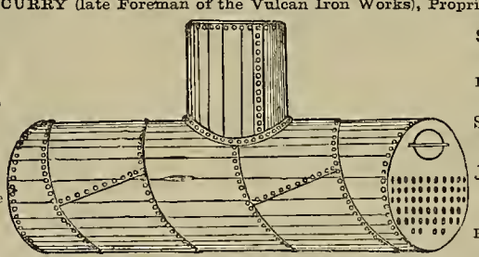


San Francisco Boiler Works, 123 and 125 Beale Street, San Francisco.

F. I. CURRY (late Foreman of the Vulcan Iron Works), Proprietor.

High and Low Pressure **BOILERS** of all descriptions.

SOLE Manufacturers of the CELEBRATED SPIRAL BOILER.



Sheet Iron Work of every DESCRIPTION done at the Shortest Notice.

All kinds of JOBBING and Repairing Promptly Attended to.

22v22-3m

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Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1868.
CAPITAL.....$1,000,000.

LOCATION OF WORKS:
Corner of Beale and Howard Streets,
SAN FRANCISCO.

Manufacturers of Steam Engines, Quartz and Flour Mill Machinery, Steam Boilers (Marine, Locomotive and Stationary), Marine Engines (High and Low Pressure). All kinds of light and heavy Castings at lowest prices. Cams and Tappets, with chilled faces, guaranteed 40 per cent. more durable than ordinary iron.

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WM. H. TAYLOR.....President.
O. E. McLANE.....Vice President.
JOSEPH MOORE.....Superintendent.
LEWIS R. MEAD.....Secretary.

24v17-qy

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137 and 139 First st., near the Gas Works, San Francisco.

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IRON FOUNDERS.

IRON CASTINGS of all descriptions at short notice.

NOTICE.—Particular attention paid to the making of Superior Shoes and Dies. 3v24-3m

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Miners' Foundry and Machine Works,

CO-OPERATIVE,

First Street, bet. Howard and Folsom, SAN FRANCISCO.

Machinery and Castings of all kinds.

COPARTNERSHIP NOTICE.

We have this day admitted Mr. William R. Eckart as a member of our firm, the business of which will be hereafter conducted under the firm name of Prescott, Scheidel & Co. PRESCOTT & SCHEIDEL.

Marysville, Jan. 8, 1872.

MARYSVILLE FOUNDRY.

Referring to the above, we respectfully solicit the patronage which has for the past twenty years been enjoyed by our predecessors, pledging our best attention to the wants of all who may so favor us.

Quartz and Amalgamating Machinery,
SAW AND GRIST MILLS,
STEAM ENGINES,
HYDRAULIC MACHINES,
HOUSE FRONTS, ETC.

Repairs upon all kinds of machinery promptly made and at moderate charges. Having unrivalled facilities, we are prepared to make to order, at short notice, everything required in our line.

Specimens of our work may be seen in all the mining regions on this coast.

5v24-3m PRESCOTT, SCHEIDEL & CO.

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,

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ALL KINDS of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves. Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch

☞ PRICES MODERATE. ☜

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H. J. BOOTH & CO.,
UNION IRON WORKS,

(The Oldest and most Extensive Foundry on the Pacific Coast).

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Marine, Locomotive and Stationary Engines, Quartz Crushing and Amalgamating Machines, Mill Irons and Brass and Iron Castings, of every description, made to order.

Steamboat Repairing, Boiler Making, Turning and Finishing,
EXECUTED WITH DISPATCH.

Beet Sugar Machinery complete in every part—made a specialty.

OIL MACHINERY.

A complete set of Machinery of our own design and patent for extracting oil from Castor Bean, dispensing with Hair Cloth. Also Machinery for Flax Seed Oil, Mustard Seed Oil, and Sun Flower Seed Oil.

MARBLE MACHINERY

For sawing Marble of any thickness or size.

Irrigating Pumps. Steam Pumps.

Plans, Estimates, and Advice promptly supplied.

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THOMPSON BROTHERS,
EUREKA FOUNDRY,

129 and 131 Beale street, between Mission and Howard, San Francisco.

LIGHT AND HEAVY CASTINGS,
of every description, manufactured 24v16qr

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SCREW BOLT WORKS,

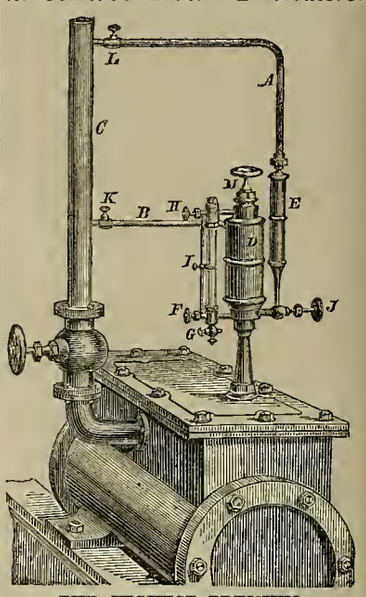
PHELPS BROTHERS, Proprietors,
MANUFACTURERS OF ALL KINDS OF

Machine Bolts, Bridge Bolts, and Ship or Band Bolts.

13 and 15 Drumm Street, San Francisco. 4v24ly

Machinery.

N. Seibert's Eureka Lubricators.



THE HIGHEST PREMIUM

Awarded by the Mechanics' Institute Fair, San Francisco, and State Fair, Sacramento, 1871.

These Lubricators are acknowledged by all engineers to be superior to any they have ever used; feed constantly by pressure of condensed water, supplied by pipe A, regulated under the oil by valve J, and forced out through check valve and pipe B into the steam pipe C; it then becomes greasy steam, passes to all the valves and cylinder at every stroke of the engine; glass tube I indicates amount used per hour. Packing on rods and stems lasts longer, and the rings on the piston will not corrode. One pint of oil will last from three to six days, according to speed and size of engine; L, sliding gauge; K, valve to shut off when engine stopps; H, F, valves to shut off in case of frost; steam does not enter the cup; it is always cool; warranted to give satisfaction. Patented February 14, 1871. Manufactured by California Brass Works, 125 First street, S. F. 24v23tf

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POWER, TAINTER & CO.,

MANUFACTURERS OF

WOOD-WORKING MACHINERY,

3003 Chestnut street (West end Chestnut street Bridge)
PHILADELPHIA.

☞ Woodworth Planers a Specialty. 2v23-1y

McAFEE, SPIERS & CO.,
BOILER MAKERS
AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco.

California File Manuf'g Co.

Potrero, Solano street, bet. Tennessee and Minnesota streets, SAN FRANCISCO.

Manufacturers of New Files.

Old Files re-cut and warranted equal to new.

REAPER AND MOWER SECTIONS, BARS AND KNIVES COMPLETE,

at a saving of 50 per cent. Orders from the country promptly attended to. 9v12-1y

Notice is hereby given, that the copartnership heretofore existing between A. J. Severance, Charles W. Randall and J. Gus. Burt, under the firm name of "Severance, Holt & Co.," is this day dissolved by mutual consent. A. J. Severance, having purchased all the interest of his late partners, will continue the business of manufacturing and selling Diamond Drills, as before, under the style of A. J. Severance & Co.

Dated San Francisco, Nov. 21, 1871.
Office, 315 California street. A. J. SEVERANCE,
CHAS. H. RANDALL.
22-v23-1f J. GUS. BURT.

THEODORE KALLENBERG,

MACHINIST,

and Maker of Models for Inventors. All kinds of Dies, Stamps and Punches made. Also, all kinds of Small Gears Cut.

Repairing done on very Reasonable Terms and in the best manner. No. 32 Fremont street, S. F. 19v23-3m

WM. M. BETTS & BROTHER,

CARRIAGE SPRING WORKS,

218 Fremont street, bet. Howard and Folsom, SAN FRANCISCO.

LOCOMOTIVE, CAR,

And all kinds of Carriage and Wagon Springs made to Order and Warranted.
3v24-3m

CALDWELL'S

Improved Stop Governor,

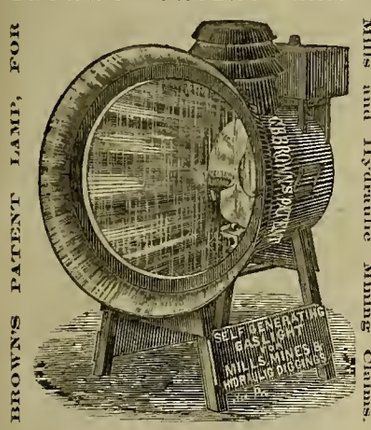
Manufactured at the CYCLOPS MACHINE WORKS, 113 and 115 Beale street, San Francisco.
3v24-3m WM. CALDWELL.

JOS. THORNHILL,

Bricklayer and Contractor.

Particular attention paid to all kinds of Fire Work, such as Boilers, Furnaces, Ovens, Grates, Ranges, etc. Orders left with C. W. WHITE, 47 Clay street, JOS. THORNHILL, 1612 Mason street, near Green, will be promptly attended to. 24v21-3m

BROWN'S PATENT LAMP.



One of these Lamps, when placed at a distance of 200 feet from the bank, will light up a bank surface 250 feet in length and 160 feet high, and to a much better advantage than any other light heretofore tried, and at an expense not to exceed five cents per hour. Lamps furnished at short notice.

For further particulars address

C. B. BROWN,
7v24-t Placerville, Cal.

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.

MANUFACTURERS OF

Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools.

13 and 15 Fremont street, near Market, San Francisco
10v14qr

SHEET IRON PIPE.

THE

Risdon Iron and Locomotive Works

Corner Howard and Beale Streets,

Are prepared to make SHEET IRON AND ASPHALTUM PIPE, of any size and for any pressure, and contract to lay the same where wanted, guaranteeing a perfect working pipe with the least amount of material.

All kinds of CAR WHEELS, AXLES and RAILROAD WORK made to order. Standard sizes of Wheels constantly on hand. Wheels bored and pressed on, Axles turned, etc., at Reasonable Rates.

☞ All kinds of Machinery made and repaired.

24v22-3m JOSEPH MOORE, Superintendent.

J. M. STOCKMAN,

Manufacturer of

PATTERNS AND MODELS,

(Over W. T. Garratt's Brass Foundry).

N. W. corner Natoma and Fremont streets, S. F. Entrance on Natoma street. 6v23-3m

BLAKE'S PATENT STEAM PUMP.

From the Report of the Committee on Steam Pumps, at the Seventh Industrial Exhibition of the Mechanics' Institute, San Francisco:

BLAKE'S STEAM PUMP.—This Pump yielded the best results as to the quantity of water discharged as compared with its measured capacity. The valves are of brass, and well arranged. The steam valves are well arranged for operating the pumps, either fast or slow.

We recommend that a Medal be awarded to it, as THE BEST STEAM PUMP. [Awarded a SILVER MEDAL, the first premium.] (Signed) JAS. SPIERS,
WM. H. BIRCH.

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[No other Steam Pump received other than a Diploma or honorable mention at the LAST Mechanics' Exhibition, *all other assertions to the contrary notwithstanding.* Hooker's Hand Pump was the *only* Pump, of any kind whatsoever, that received a MEDAL and FIRST PREMIUM (highest award to pumps) at the *last* Exhibition, for which we are also selling agents.—*See official Report of the above Committee.*]

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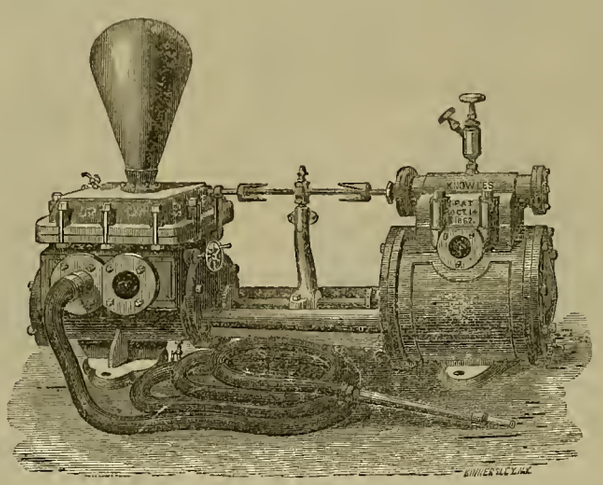

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*4.00 P M	7.00 A M	San Francisco	8.30 P M / *2.20 P M
4.35 P M	7.35 A M	Oakland	8.00 P M / 1.50 P M
4.10 P M	7.50 A M	San Jose	8.20 P M / 2.10 P M
5.35 P M	8.35 A M	Niles	7.05 P M / 12.45 P M
8.25 P M	11.28 A M	Lathrop	4.43 P M / 9.45 P M
8.48 P M	11.50 A M	Stockton	4.07 P M / 9.07 P M
10.45 P M	1.45 P M	Sacramento	2.20 P M / 7.15 A M
Arrive from West.			Leave going West.

San Francisco & San Jose.

Leave going South			Arrive from South
.....	3.00 P M	San Francisco	10.40 A M / .....
.....	4.40 P M	Niles	8.35 A M / .....
.....	5.30 P M	San Jose	7.40 A M / .....
Arrive from North.			Leave going North

Stockton, Lathrop & Merced.

Leave going South			Arrive from South
.....	7.35 P M	Stockton	10.20 A M / .....
*9.45 A M	8.25 P M	Lathrop	9.30 A M / *8.20 P M
11.35 A M	9.45 P M	Modesto	8.13 A M / 6.45 P M
2.40 P M	12.15 A M	Merced	5.45 A M / 3.30 P M
Arrive from North			Leave going North

Sacramento, Colfax, Reno & Ogden.

Leave going East.			Arrive from East.
	2.00 P M	Sacramento	2.00 P M
	5.40 P M	Colfax	10.20 A M
	1.00 A M	Reno	2.10 A M
	9.10 A M	Winnemucca	4.15 P M
	12.00 M	Battle Mountain	1.25 P M
	4.40 P M	Elko	8.45 A M
	6.20 A M	Ogden	5.20 P M
Arrive from West.			Leave going West.

Sacramento, Marysville & Red Bluff.

Leave going North			Arrive from North
*8.45 A M	2.35 P M	Sacramento	1.05 P M / *4.45 P M
10.25 A M	3.25 P M	Junction	12.15 P M / 3.25 P M
1.50 P M	5.15 P M	Marysville	10.20 A M / 12.00 M
8.00 P M	8.35 P M	Tehama	6.50 A M / 5.30 A M
.....	9.30 P M	Red Bluff	6.00 A M / .....
Arrive from South			Leave going South

San Francisco, Vallejo & Calistoga.

Leave going North			Arrive from North
*4.00 P M	7.30 A M	San Francisco	8.00 P M / *11.30 A M
6.30 P M	9.30 A M	Vallejo	6.05 P M / 9.30 A M
7.18 P M	10.40 P M	Napa	4.50 P M / 8.30 A M
8.50 P M	1.00 P M	Calistoga	3.00 P M / 7.00 A M
Arrive from South			Leave going South

San Francisco, Vallejo & Knight's Landing.

Leave going East.			Arrive from East.
7.30 A M	*4.00 P M	San Francisco	*11.30 A M / *5.00 P M
9.35 A M	6.35 P M	Vallejo	9.30 A M / 6.05 P M
12.05 P M	10.10 P M	Davis	6.40 A M / 3.30 P M
1.00 P M	11.45 P M	Knight's Land'g	5.00 A M / 2.30 P M
Arrive from West.			Leave going West.

San Francisco & Healdsburg.

Leave going North			Arrive from North.
.....	*2.00 P M	San Francisco.	*11.00 A M / .....
*7.10 A M	4.35 P M	Donahue	8.45 A M / *5.35 P M
8.20 A M	5.00 P M	Petaluma	8.22 A M / 5.00 P M
9.45 A M	6.00 P M	Santa Rosa	7.30 A M / 3.40 P M
10.20 A M	6.45 P M	Healdsburg	6.45 A M / 2.00 P M
Arrive from South			Leave going South

Stockton, Milton & Oak Dale.

Leave going South			Arrive from South
.....	*11.25 A M	Stockton	*4.25 P M / .....
.....	11.52 A M	C.P.R.R. Depot.	3.52 P M / .....
.....	12.42 P M	Peters	3.02 P M / .....
.....	1.32 P M	Milton	2.12 P M / .....
.....	1.44 P M	Oak Dale	2.00 P M / .....
Arrive from North			Leave going North

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6.00 P M	.....	Vallejo	..... / 6.00 P M
7.30 P M	6.00 A M	Benicia	7.00 P M / 5.00 A M
.....	2.00 A M	Stockton	2.00 P M / .....
2.00 A M	.....	Sacramento	..... / 12.00 M.
Arrive from West.			Leave going West.

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SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,

Mining, Mechanic Arts and Inventions.

BY DEWEY & CO., Patent Solicitors.

SAN FRANCISCO, SATURDAY, APRIL 6, 1872.

VOLUME XXIV. Number 14.

Important to Mine and Ditch Owners.

We took occasion a short time since to refer to Mr. Sargent's efforts in Congress in behalf of the mining interests of this Coast, in regard to the "Mineral Land Bill." Although not as successful as he expected, he has nevertheless secured an important concession, which will save the expense and trouble occasioned by the necessity of claimants of mining ground going to Sacramento with their witnesses to prove that it is such. Regulations are now in course of preparation, and will shortly be issued, permiting local officers—County Clerks—in respective localities near the mines in question, to take affidavits, to prove possession, expenditure, boundaries, etc., in making out applications for patents. This does away with expensive journeys to the land offices and makes the business much more simple and convenient.

Mr. Sargent has also succeeded in changing the phraseology of land patents, and, for the protection of ditch owners, a clause will hereafter be inserted in all such patents expressly reserving their rights to the undisturbed use of their property. The law which grants right of way to ditch companies recognizes the rights of the property holders but does not secure them patents for the meandering lines of land traversed, which on the other hand may be covered by patents obtainable by other persons, who have it in their power, thereby, to blackmail or embarrass ditch owners in many ways. It has not been fully decided yet whether the right of way granted by the Act of 1866 is a perpetual right, or merely a temporary one which the Government can revoke by subsequent patent to other parties. This is a very important measure for ditch owners and will be very gratifying to them. After the insertion of this clause in land patents reserving a certain portion which is to be vested in the ditch owners, their rights will be much better protected and their will be no chance for blackmailing operations.

The Secretary of the Interior recently made a decision of great importance to the mining interests of this Coast. It is to the effect that all adverse claims in mineral cases under the Act of July 26, 1866, must be filed within the 90 days' notice required by said Act to be given, and that parties have not the right to file adverse claims up to the date of the approval of the survey.

The Legislature has refused to pass the bill requesting Congress to change the laws requiring that only citizens of the United States can obtain patents and titles to mining lands, and to abolish or modify the clause requiring that $1,000 be expended before a patent can be issued.

Fire.—A disastrous fire occurred in Monitor, Alpine county, on the 31st ult., by which a whole block of buildings was consumed.

Brown's Patent Stop Valves.

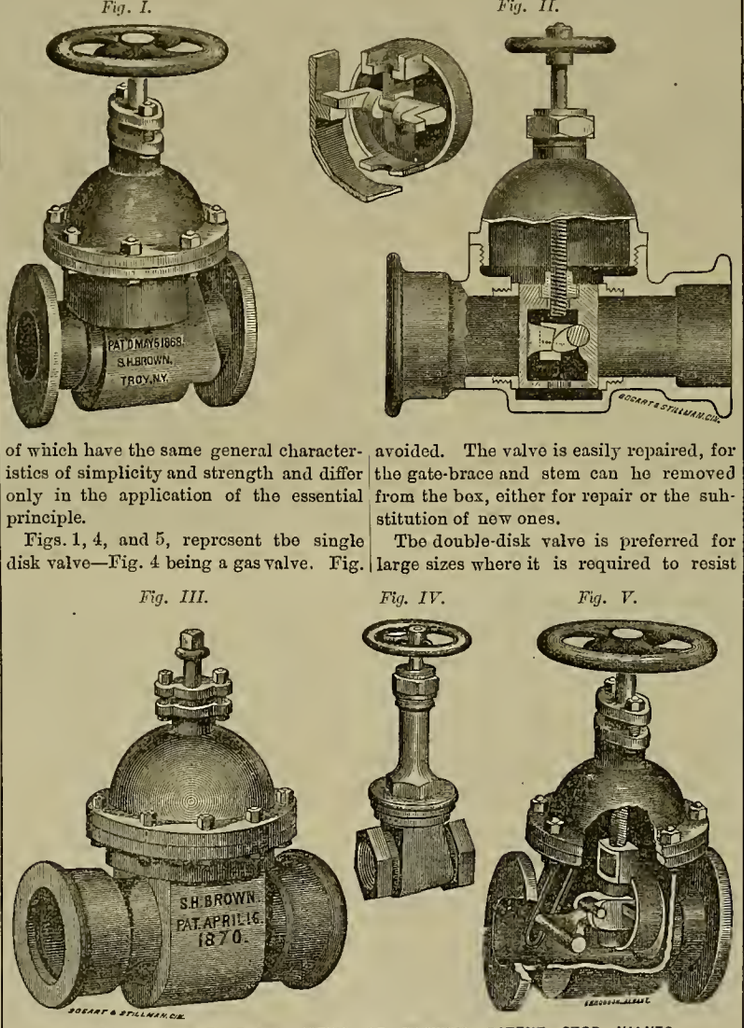
The Brown valve has become one of the standard valves in the Eastern States, but has only been lately introduced on this Coast. In view of its popularity there and its evident efficiency, we desire briefly to call attention to some of its distinctive features and advantages. The valve is made with single and double disks, both of which have the same general characteristics of simplicity and strength and differ only in the application of the essential principle.

Figs. 1, 4, and 5, represent the single disk valve—Fig. 4 being a gas valve. Fig. 5 is a sectional view, the working parts of which will explain themselves to any mechanic. The peculiarity of construction in these valves admits the flow direct and of the full size of the pipe. The gate is held gently to its seat, by ribs in the box so that as it moves it clears the seat of any foreign substances likely to hinder its action and cause leakage. The brace for tightening the gate moves freely with it until the gate is full closed, for its cross-piece slides on inclined ribs in the box. When the gate closes, the cross-piece reaches its rest, and the brace takes effect and presses the gate to its seat, very slight force effecting powerful pressure, the brace being nearly at right angles to the gate when at its rest. The pressure of the brace being at the centre of the gate, naturally presses every part firmly to its seat, and prevents unequal bearing and consequent leakage.

The brace, though pressing powerfully, is set free easily and instantly since it has a slight incline and a rolling motion at each end; all danger of sticking is thus avoided. The valve is easily repaired, for the gate-brace and stem can be removed from the box, either for repair or the substitution of new ones.

The double-disk valve is preferred for large sizes where it is required to resist great pressures upon either side. Fig. 3 represents the double disk valve, Fig. 2 a sectional view of it, and the small figure to the left shows the construction of the double cam and its manner of operation. The adjustment of the gates in the box is so accurate that while friction is avoided in raising and lowering them they are retained in their position without undue pressure upon the stem or other parts, and in the event of one disk becoming defective in any way, the other is held more firmly against its seat by the water between the disks. The gates are opened and closed by means of a cam, shaft and levers, combined in a single casting, whereby the construction is materially simplified. The cam having a center bearing is very powerful and its operation requires only a slight application of force; it also distributes the power uniformly in all directions while its prompt action precludes all possibility of sticking. The disks are closed tightly and held firmly in their seats by the action of the cam and the pressure is relieved instantly, all grinding of surfaces being avoided thereby. As the disks move freely in the box, the liability of becoming clogged or impeded in their action by the accumulation of sediment is avoided.

The valves are, by their peculiar construction, and freeness from liability of leakage, equally applicable for gas, steam or water, the double disk being preferred for large sizes where it is required to resist great pressures upon either side, but for all sizes under eight inches, there is very little difference in the action of the two valves. In their manufacture, materials of the first quality are employed, the composition for stems and mountings being of copper and tin, without zinc or spelter and exceedingly hard and strong. They are guaranteed by the makers to withstand any hydraulic pressure ever required of water gates under the Holly or any other pumping system. They have been adopted by numerous water works in different sections of the country, and the agents have a great number of certificates attesting to their general efficiency from prominent engineers throughout the Atlantic States. The valves are endorsed and approved by the leading engineers of this Coast also. The Mechanics' Institute awarded a diploma to the valve at the last exhibition as tending towards the solution of the question of tight valves which can be easily removed without liability of destruction of faces, and which have a clear open port for discharge. The valves can be seen at Brittain Holbrook & Co's. in this city, they being the agents for California.



INTERNAL AND EXTERNAL VIEWS OF BROWN'S PATENT STOP VALVES.

Discovery of Quicksilver.—A correspondent of the Napa *Reporter* writing from Yountville says that some rich quicksilver discoveries have been made a few miles from the Little Geysers. An offer of $10,000 cash has been made to the lucky owners, for a part interest, what part is not stated. Another company have offered $25,000 for the whole mine. Other discoveries have lately been made between the Knoxville and Phenix mine. These discoveries, with the Whitton, Steckter and Oakville mines would lead to the supposition of somewhat extensive deposits of ore around the head of Napa Valley.

Emma Mine.—Recent rich developments are reported in the famous Emma mine, Little Cottenwood, U. T. At a depth of 400 feet a body of ore has been struck running $1,900 per ton. English experts who have visited the mine are asserted to have placed its value at $20,000,000.

The Carihou mining interests, in British Columbia, are reported as flourishing.

CORRESPONDENCE.

Notes of Travel in Nevada County.

[By our Traveling Correspondent.]

Union Gravel Mine.

The above named mine is located at Relief Hill, 3 miles east of North Bloomfield, has 9 owners, one of whom, M. Arfman, is Superintendent. It was first located in 1856, and has heen successfully worked ever since. At present writing they are workiug 10 men drifting, aud washing with one of Fisher's "Hydraulic Chief" monitors; will add another monitor next month. This claim has averaged $1,200 per month, and last month $2,500 was cleaned up. This, together with 4 other claims at present working here, are bonded to an English Co. for $250,000; verily the English will soon own us, body and boots.

Nevada City,

The county seat of this county, is located about 40 miles east of Marysville, and 12 miles north of Colfax; it is situated at an elevation of 2,600 feet above the sea level, and contains ahout 5,000 inhahitants. There are two first-class hotels here, and several fine manufactories.

The rainfall at this place for the past 10 years is as follows: Winter of 1862 and spring of 1863, was 27.87 inches; '63 and '64, 17.28; '64 and '65, 54.49; '65 and '66, 59.26; '66 and '67, 81.56; '67 and '68, 115.26; '68 and '69, 56.69; '69 and '70, 53.15; '70 and '71, 45.35; '71 and '72, 70 inches had fallen up to March 7th, 1872.

Something for the Signal Service to work out is, why the great difference in rainfall hetween Nevada City, and Grass Valley, only 4 miles apart, and the difference in elevation but 100 feet, the former place being the highest; while the difference in rainfall each winter is from 6 to 15 inches more at Nevada City than at Grass Valley. Up to the present writing this winter, the latter named place has 10 inches less than the former.

The "Hydraulic Chief,"

Invented, and now being manufactured hy Frank H. Fisher, at this place, is one of the important inventions, now used for hydraulic mining. The "monitor" costs from $150, to $300, (accordiug to size,) and can be used under any pressure that a pipe can stand to convey water to it. Now being used under a pressure of 370 feet, 40 of them having been manufactured (and sold) by Mr. Fisher during the past year, and all I have had the pleasure to see in operation (some 6 or 8) gave perfect satisfaction. Mr. Fisher also manufactures all kinds of machinery common to a machine shop.

Thom & Allen, proprietors of the Nevada Iron and Brass Foundry—are the principal manufacturers at this place, of quartz and sawmill machinery. Their works are driven by an engine of 20 horse power, and 10 men are regularly employed. As fine castings are turned out here as any where in the State.

Hardware and Powder.

The priucipal hardware merchants of this place are Geo. E. Turner aud W. H. Crawford, the former is general agent in this section, of the Giant Powder Co., and the latter is the agent of Gun Cotton; from the looks of their stock on hand, I should say an immense amount of hardware and explosives were disposed of here annually.

Buckeye Quartz Mine.

This mine is located 2½ miles N. E. of Nevada City, in Willow valley. R. W. Tully, banker of Nevada, and Jas. Kitts are proprietors; the latter is superintendent. They have excellent hoisting works on the mine (put up in Oct. last) which are run by an engine of 16 horse-power, their principle shaft is down 210 fcet, at an angle of 45°; this ledge will average 4½ feet, and runs as high as 10 feet in width; now rnnning levels, aud employing regularly 9 men. When stoping, they can take out 20 tons of rock daily—which has averaged thus far $13.25 per ton, and now prospects better; milling the rock at the Oriental mill, 1 mile away.

Grass Valley,

Located 4 miles south of Nevada City, is the larger of the two places, and contains (ineluding its floating population) 8,000 souls. As regards the recent disturhances here, I am happy to state, that the hetter judgment of the more intelligent members of the Miners Union of Grass Valley, has prevailed, resistance to prevent such men as wished to use "Giant Powder" has been withdrawn, and peace and quiet now reign supreme. The Grass Valley *Union*, and *Republican*, have thoroughly ventilated the suhject, and left nothing more to he said.

The Defiance Quartz M. Co.,

Located on Oshorn Hill, 1½ miles southeast of Grass Valley is superintended by Con. Reilley. They give the following as their experience in the use of Giant No. 2 Powder *vs.* Black Powder. They are sinking a perpeudicular shaft, now down 112 feet; at that depth they took out 30 tons of rock, hy single hand drilling, aud No. 2 Giant Powder for hlasting at a cost of $20 per ton. The same number of tons taken out ahove that, with large drills and the use of black powder cost them $40 per ton. From 6 to 8 men are regularly employed, and three of whom I conversed with, acknowledged their willingness to work this powder, and stated they were in as good health as when they began the joh.

Carney & Goodspeed's

Cement mill and mine are located at Hunt's Hill, six miles East of Nevada City. They have an 8 stamp mill run hy water power, with a 24 foot hurdy-gurdy wheel on a cam-shaft, without other gearing. This mill has a capacity of and is now crushing 50 tons of cement every 20 hours, which averages $5 per ton. This company have a tunnel in 800 feet, at which point they are drifting in different directions, working regularly 28 men. The gravel or cement, is taken out of the tunnel hy car to the mill, which is located at the mouth of the tunnel. This tunnel is rather badly ventilated at present, for the reason that but 15 feet fall can be had for the water to run their air pipe with. Different arrangements will shortly be made for better veutilation. At present using black powder, but are ahout to experiment with giant for their cement blasting.

You Bet

Is a phrase much nsed hy Californians, as well as people in the East, but perhaps it will surprise some who read this letter to know that a town actually exists under this euphoneous and expressive title. One miner's explanation as to its precise locality was, "half way hetwcen Red Dog and Hardscrahble," but to more fully define its geographical position in our fair State it is *at present* located 9 miles northeast of Novada City, and contaius about 200 inhahitants. Owing to the rich gravel hed which underlies it, it hecomes necessary to move the town frequently, to get at the hidden treasures heneath. The town may therefore be said to possess one of the characteristics of a California prospector, that of heiug always on the move." Oliver Fox & Co. aro the merchants of the place and the hotel is well kept by Pete Drunzer.

Birdseye Creek G. M. Co., (Limited.)

The possessions of this company extend from ncar Hunt's Hill to the vicinity of Little York, and comprise all that portion of the deep channel "Blue Lead" at Red Dog, You Bet, and the vicinity beyond. The entire length of the company's claims is about four miles, all the hed rock of which will not probably be scen for the next huudred years. The company is an English one, having its principal office in London. It is managed by a Board of five trustees and is ahly superiuteuded hy J. A. Stone, Esq., of You Bet. At present they are working three sets of claims, viz.: the "Uncle Sam," of which Geo. H. Powers is foreman; "Brown's Hill," Frank Ennis, foreman; and the "Neece & West," J. R. Flagg, foreman. In the ahove named claims there are from 25 to 30 men regularly employed, running from five to six hydraulic monitors, carrying from 250 to 400 inches of water each. This company is at present engaged in running a bed-rock tunnel to the "Neece & West," that will, when completed, drain hoth that and the Brown's Hill claims. The dimeusions will be 1,100 feet long, 7 feet wide by 8 high, 260 feet of which is now completed; a hard slate formation exists as far as pierced. In addition this compauy own the "Independence" and "Bunker Hill" property, and extensive claims at Sweetland.

As to the amount of hullion taken out, but little is known to the outside world, hut when under their former ownerships, they did pay extensively, and as they never looked hetter than they do now the supposition is that our Euglish friends are reaping good pecuniary benefits from their enterprise.

Little York

Does not present a very pleasing appearance to the eye, hut is, nevertheless, one of the liveliest mining camps of its size that is situated on the deep channel. Its location is ahout 2½ miles west of Dutch Flat, and the same distance east from You Bet. It contains about 300 inhabitants, and in addition to its miniug characteristics, has produced some of the finest fruit in the country. The miners, in addion to their labors of extracting the precious metals from the ground, have also taken some trouble to heautify their homes with small gardens, in which effort they have been unusually successful.

Last fall they held a fair at Little York for the benefit of the school fund, and the exhihition would have done credit to an agricultural commuuity. There were exhihited, 18 or 20 varieties of grapes, 43 varieties of apples, 30 of pears, 16 of peaches, besides plums, almonds, apricots, nectarines, and other different vegetahles. It was said hy visitors who visited the State Fair as well as the ono held here, that it eclipsed the former in perfectiou and size of fruit, and equalled it in variety. There were peaches shown there that weighed from 16 to 24 ounces each, and pears from 23 to 28 ounces. This manner of comhining agricultural and mining pursuits, is somewhat unusual, and what is more unusual, is, that they seem to have heen successful in both.

Little York Water & Mining Co.

The principal works and office of this company aro located here (Little York). Its owners are R. F. Knox of San Francisco, Martin Hoyt, of Virginia, Nev., W. W. Cozzens and G. H. Atkins of Little York. Mr. Cozzens is manager, and Mr. Atkins general Superiutendent. The possessions of the company comprise, Little York, Christmas Hill and Liberty Hill—ahout 600 acres of mining ground covered by United States Patent—extending from Little York to Liherty Hill, a distauce of 4 miles, but not connected all the way by pay gravel, a high mountain causing a hreak in the channel. The channel proper is not over 300 feet wide at this point (Little York), but a deposit of hlue gravel exists—nearly a mile in width—which, at points, is several hundred feet deep and extending high up on to the rim rock. At present, working 4 sets of Hoskin's "Little Giant" monitors, one in each claim, one of which is used under a pressure of 340 feet, employing a 4-inch nozzle through which 650 inches of water is forced. Thoy are employing regularly about 50 men and using the most improved machinery aud hlasting agents, such as monitors, under-currents, giant powder, etc. They also use an improved coupling hand (illustrated in the SCIENTIFIO PRESS, Sept., 1870) not original here, but a patented invention considered indispensable for coupling pipe, and certainly the chaapest and most convenient affair for the purpose that I have evor seen.

Just below Little York in one of tho abovo mentioned claims is a very peculiar land slide or land glacier. A large piece of ground some 40 acres in extent, against the faco of which they are piping, is moving slowly down the hill, taking with it houses, flumes, trees and everything in its way. The pipes have not beeu moved for nearly a month, the hill meeting them in a conveuient manner. The miuers have some of them heen compelled to move their cahins to some more steady locality.

Ditches and Mills.

This company also own 1,900 acres of fine timber land with a first-class sawmill run hy water-power, which has a capacity of making 15,000 feet of lumher per day (of 10 hours). They have one of the finest water privileges in the State, consisting of three ditches which have a comhined length of 43 miles, with three reservoirs. These ditches have a capacity of furnishing 3,000 inches of water day and night. From the receipts for water sold and bullion taken out, this property combined is satisfying its owners, and has caused general admiration in the way it is managed.

Aplin's claim, adjoining the above on the west, is quite an extensive gravel deposit and at present writing is paying well; working 8 men night and day aud using one of Hoskin's monitors.

I find a great deal of complaint among the miuers along the gravel range of which I have spoken, on the subject of gum boots. They say that they are unable to procure any that will last for more than 6 weeks and will not turn water more than half that time. Either a spurious brand of the kind they have been accustomed to buy has found its way there or they don't make them as well as they used to. The store keepers say they can procure no hetter, hut some enterprising firm that do manufacture a superior article would find ready sales for their wares in the localities mentioned.

L. P. MC.

Mining in Inyo County.

ED. PRESS:—Since my last, several items of interest and benefit to this county have occurred; and judging from paragraphs in different journals in the surrounding country, this county is attracting more and more attention every day.

Lida Valley is situated ahout 100 miles northeast of this place, and is at present creating qnite a stir. Messrs. Hiskey & Walker of the Deep Springs Mill, have made three very successful runs upon ore from that district, and intend to remove their mill immediately to those mines. The ore yields from $800 to $900 per ton. The bullion is worth something over $1 per oz.

Eclipse.

The mill and furnace of this company are in constant operation, hut with what succes I am unahle to learn. Mr. Morris of your city, and formerly the assayer and amalgamator of the above company, is now engaged in opening a mine for a San Francisco Co. in Mazurka Cañon, Russ district, (directly east of this town) called the Blue Bell. He has extracted several tons of ore, and shipped it to San Francisco for reduction.

Improvement in Working Ores.

The proprietors of Cerro Gordo, and the Owens Lake Silver-Lead Companies have heen experimenting upon their respective ores, and find that they can reduce them from the raw state, *i. e.*, without running them into slags or matt., which will greatly reduce the cost of working, and give an impetus to

Mining in Cerro Gordo,

Where all the ores are ohtained that is reduced by the above companies. The Belmont, Wittekind, San Lucas, Omega, Santa, Maria, and uumerous other mines are taking out, and find ready sale for all their ore. The furnaces are in constant operation and are at prcseut the main-stay of the whole country. A steamhoat for Owens Lake, is now in course of construction hy parties connected with the O. L. S. L. Co., for the transportation of wood, coal, ores, and other freight, which will increase the facilities of that company at least 5 per cent.

Agriculture.

Owing to the copious falls of snow during this winter ou the Sierra Nevada's skirting this valley, farmers are preparing to put in large crops of the different cereals, as well as root crops. The farming land in this valley is fast being settled upon, wherever water can he had naturally for irrigation. But there still remains many hundreds of acres of good land unoccupied that can easily he irrigated hy

Artesian Wells.

There is uo hetter show in the State to make money by parties understandiug that business, with necessary tools, and capital to carry it on, than in Owen's Valley. That there is a running stream of water underlying this valley from the mountains, is demonstrated by the fact, that, large running springs break forth in the centre of the valley, from one end to the other, and two especially (Fish Springs, and Black Rock Spring) form streams that irrigate one-tenth of the present occupied farm lands of the county.

EXILE.

Independence, March 15th, 1872.

GROWTH OF SAN FRANCISOO.—The total number of huildings now in course of orcction or which have been just finished is 105. They comprise 3 churches, 1 gas works, 1 hall, 1 addition to a factory, the new City Hall, the new City and County Hospital, 29 private residences, 34 dwelling houses, 10 tenement houses and 24 stores. The amount expended on them since the heginning of 1871 is $2,698,012.

Adding to these the buildings *finished* hefore the end of 1871, we fiud that from the 1st of January, 1871, to March 28, 1872, there have heen erected and are now in course of erection 416 buildings. These comprise 4 churches, 3 puhlic buildings, 1 gas works, 54 stores, 3 halls, 3 factories, aud 348 private residences, dwelling houses and tenements. The total cost has been $4,316,712.—*Bulletin.*

SOUTHERN INDIANA is fiuding itself rich in black coal, a very valuable variety for treating iron ore, and also plenty of iron ore itself in happy proximity. Couscquently, there is a great increase of the irou-making busiuess in that section.

SOUTHERN NEVADA AND ARIZONA EXPLORATION.—Lieut. Wheeler's party, which was in the field from May to December last, is now engaged in preparing an official report at Washington.

Mechanical Progress.

Light vs. Heavy Shafting.—The *Scientific American* gives a very instructive article on Light vs. Heavy shafting, the summing up of which is as follows:—To sustain great pressure requires great strength, and increased strength of a given material having a specified form implies increased weight. Increased weight implies increased friction. It is, therefore, a theoretical fact proved in practice that the heavier a line of shafting is, the greater will be the loss in friction during the transmission of power through it. It is also a fact that light shafting running at high speed will perform work that would break heavier shafting running at lower speed.

We have here a plain argument in favor of light shafting. In the applications of these principles, however, we often see errors committed which tend to render some people skeptical as to their truth.

One of these errors is that light shafting is often not properly supported. The lighter the shafting, the more apt it is to spring by its own weight, the weight of pulleys and gears, and the tension of belts. Light shafting will require, therefore, more frequent support from hangers than heavy shafting. Besides, with high velocities, there is more fiddle-string vibration, aided by centrifugal force, which consumes more or less power, generally more than is suspected. The obviation of this calls for frequent supports along the lines of shafting, with accurate fitting of couplings, journals and boxes, and as perfect alignment of the shafting as possible.

To keep everything in perfect order will also require constant watchfulness. Slight settling of buildings, springing of floors, from the placing of new and heavy machinery or other cause, alterations which cannot be prevented, will often throw a shaft out of line, no matter how perfectly it may have been hung.

A cognate subject to the above is the size of pulley, which the editor promises to consider in a future article.

Boiler Explosions.—Prof. R. H. Thurston has published in pamphlet form a report of the trials made last fall at Sandy Hook. He draws the following conclusions: 1. Low water, although undoubtedly one cause, is not the only cause of violent explosions, as is so commonly supposed, but a most violent explosion may occur with the boiler well supplied with water. 2. What is generally considered a moderate steam pressure may produce a very violent explosion of a weak boiler, containing a large body of water, and having its flues well covered. 3. A steam boiler may explode under steam at a pressure less than that which it has successfully withstood at the hydrostatic test. In a subsequent letter to the *Eng. and Min. Journal*, which demurred to the first part of conclusion I, the Professor explains that he referred to a very prevalent belief among those managing steam boilers that an explosion may always be attributed to low water and that the invariable effect of over pressure is simply to rupture the weakest spot, allowing steam and water to blow out until the pressure is taken off. The consequent feeling of safety among engine-drivers and firemen, having charge of boilers rendered unsafe by other causes, has been, probably, the cause of many explosions and loss of life. The removal of this false impression will assist greatly in making the real causes of the majority of explosions—corrosion and carlessness or ignorance in management—better recognized.

New Process of Obtaining Iron and Steel. Some of the European scientific journals speak favorably of a new invention, said to have been recently perfected, for producing iron and steel. The heat is mainly derived from combustion of carburetted air, while uncombined oxygen and nitrous oxide gas are evolved from nitrite of soda and quicklime, and chlorine and carbonic oxide from a compound of chloride of lime mixed with pulverized charcoal.

The air charged with the vapor of petroleum oil, besides acting as a gaseous fuel, also acts powerfully as a reducing agent, and rapidly effects the reduction of the iron from the ore.

The air charged with chlorine and carbonic oxide, removes wholly or mainly all sulphur or phosphorous with which the ore or reduced iron may be contaminated; and the air charged with oxygen, nitrogen, nitrous acid and nitrous oxide, promotes combustion, and rapidly raises the materials to the temperature required.

The Road Steamer seems to be making practical progress in Great Britain. One of these machines recently made the run from Ipswich to Edinburgh by road, a distance of 450 miles, in seventy-seven hours' traveling time. The engine is one of four now being built for the Indian Government, under Thomson's patent, with india rubber tires, and is of 14 nominal horse-power, but which has been worked up to 80 indicated horse-power. Her weight is about 13½ tons; length, 15 feet; breadth, 8 feet 8 inches; height to top of chimney, 15 feet. The omnibus weighs about 3½ tons and seats 21 passengers inside and 14 outside.

Rubber Carriages.—A factory is being erected at Fairfield, Conn., in which carriages are to be built consisting entirely of India rubber, with the exception of the axles and tires—this material being claimed to possess decided superiority over wood.

Compensating Compass.—According to London *Engineering*, M. Arson, of Paris, has invented a compensating apparatus of much merit, for correcting the deviation of the compass on board ships. He compensates the deviation due to the permanent magnetism by fixed magnets, and those caused by induced magnetism in all positions of the ship and in all latitudes by bundles of soft iron wire placed according to certain laws given by calculations. The apparatus contains, besides the ordinary card, a second card serving as an indicator. When it is wished to follow a certain route, this latter card is traced by means of a wheel until it indicates the desired angle. By this movement the packets of soft iron are placed in the position required to compensate for the deviation corresponding to the position of the ship. It is then sufficient to adjust the compass needle to the same angle which has been given in order to follow the route indicated. Conversely, to find at any moment the route being followed, the wheel before mentioned is moved until the repeating circle indicates the same angle as the compass. By this movement the compensating parts will have been placed in the position which corresponds to the compensation in the azimuth where the vessel is; the angle observed will be the true angle of the route.

A New Fire-Proof Composition.—An important trial of fire-proof composition was made at Washington the other day, under the direction of the Secretaries of the Treasury and Navy. An iron chest, sixteen inches in diameter, with a lining of six inches of the composition, also containing a wooden box four inches diameter, in which were deposited papers, money and matches, was placed in the blast furnace of the navy yard, and different metals placed all round it. After being subjected to an almost continuous blast of three hours, and after all the metals were melted, the chest was left in the furnace until the next afternoon, when under the directions of the representatives of the Government, the three chests were opened, and the contents were found to be in exactly the same condition as when they were put in, and the matches were used to light cigars with. The fire-proof composition is the discovery of two gentlemen of Detroit, one of whom was present at the trial.

Wooden Nails.—The editor of *The Hub*, the carriage makers' journal, thinks the idea of using wooden nails a good one, for in his opinion the day will come before many years when wood will become so valuable that it will not pay to use the material of old packing boxes for fuel as is now done, and then the objection to the use of iron nails will be seen in a practical light. If boxes were put together with nails of wood the injury to tools in making them serve for other purposes would be materially lessened, and a great saving of valuable lumber be made. It is not to be supposed that wooden pegs or pins can be made to supplant iron nails and screws altogether, yet the lavish use of nails may be checked perhaps with advantage to our industries. The object is worthy of our consideration.

Weight of Rails.—Mr. L. Nickerson, in the *Railway Register*, questions the soundness of the general opinion that great weight in a rail is necessary to economical wear. When a body, as a bar of iron resting on an anvil, is struck with a hammer, the effect on it is the greater the more unyielding the substance on which the body rests. Now increasing the body of the rail is the same as giving a more unyielding support to its crown, and thus increasing the effect of the hammering action of the wheels of cars and engines.

Lubrication of Steam Engines.—M. Thoma tried a mixture of graphite (prepared by decantation) and hog's lard for lubricating steam engines with good results, the only care requisite being to keep up the quantity of graphite in the mixture, as otherwise it becomes too fluid. He next tried a paste of graphite and water with equally good results, the slight escape of steam into the stuffing-box being sufficient to keep the graphite moist.—*Railway Times.*

Sponge Paper, a late French invention, is made by adding finely divided sponge to ordinary paper pulp. The paper is said to have all the peculiarities of sponge, absorbing moisture readily, and retaining it for a long time. It has been used to advantage for dressing wounds, and is capable of several important technical applications.

Wire Tramway.—Mr. T. Bush, an Hungarian Engineer, has made some improvements on the Hodson system of wire tramways, by employing two parallel cables instead of one. The modified system is said to possess great advantages over the original one, especially with regard to the carrying of heavy loads and the greater security of the ropes.

The University of Pennsylvania is now in possession of the largest electric machine in the world—a Holy pattern, with a 36-inch revolving plate. The machine will evolve an 18-inch spark, which will pierce glass to the depth of 8 inches.

Uniformity in Car Building—A plan to make all railroad cars throughout Germany of one pattern, so that repairs may be facilitated and prices equalized, has been proposed by a scientific association of railroads in that country.

Scientific Progress.

Variation of Color in Birds with the Locality.

The subject of variation of color in birds, as expressing specific distinctions, has for a long time occupied the attention of ornithologists; and while with some the slightest difference in shade was sufficient to establish a separate species, a wide variation was allowed by others without effecting the idea of specific indentity. We are gradually, however, coming to appreciate the influence which external conditions, such as light or shade, moisture or dryness, varying temperature, latitude, etc., produce upon color; and so long as the general pattern remains the same, we can allow a great variation in tint, and even in size, since, as is well known, this depends largely upon latitude or altitude of birth-place and residence. As a general rule, it may be said as we go southward from a north temperate latitude, with the increasing temperature and brighter sky the colors are deeper and the size less; and, on the other hand, in proceeding northward and into more clouded atmospheres, the dimensions become greater, with a decrease in general brilliancy. In sandy or barren regions the accompanying birds become of a grayish tint, while in red soils a reddish shade will be appreciable.

Again, in certain regions the birds exhibit a tendency to melanism, or a blackening, this being noticeable in Florida, and more especially in the West India Islands, as compared with the United States. An instance of this is seen in the common red-winged blackbird, the female of which, as found in the United States, is variegated with brown, yellowish, and grayish streaks, the male alone being a glossy black, with red shoulders. A blackbird is found in Cuba, however, the male of which is undistinguishable from our bird, excepting in the smaller size, while the female is of a uniform lustrous black, differing only from the male in the absence of red upon the shoulders. Similar comparative peculiarities are presented in quite a number of West Indian birds.—*Harper's Sci.*

Faye's View of the Physical Condition of the Sun.—The *Mechanic's Magazine* gives a summary of an interesting paper by Mr. Faye, upon the physical condition of the sun, deduced from the observation of the solar spots made by Carrington. This is expressed in the following propositions:

1. That Zöllner's theory, which views the sun as a solid body covered with a layer of incandescent liquid, is entirely improbable, and, indeed, impossible. 2. The speed of rotation of any point whatever, on the sun's surface is always expressed by one and the same formula. 3. There do not exist on the sun's surface any sensible currents which are at all analogous to the "trade-winds." 4. The absolute absence of currents is only explicable by the presence everywhere of ascending currents of great intensity, proceeding from the sun's center to its surface. 5. The existence of such currents is an imperative proof that the body of the sun must be in a gaseous state, and is an immense sphere of æriform matter of an enormous temperature, but which is continually cooling by the action of the ascending currents. 6. The sun is absolutely spherical.

New Reducing Agent.—If an aqueous solution of sulphurous acid be allowed to act upon fine zinc dust, the zinc is dissolved without the development of gas, the solution assuming for a time a decided yellow color. This liquid now possesses the peculiarity in a very high degree of rapidly decolorizing indigo, a fact well known to chemists. Schutzenberger, ascertained that this decolorizing of the indigo is by no means the result of oxidation, but, on the contrary, is a reduction; and this power of reduction in the liquid is so extraordinarily great that it will reduce, with heat, the salts of copper, silver, and mercury to their metals. The liquid is not related to hydrosulphuric acid, and is exceedingly unstable in its free condition; but if a concentrated solution of bisulphite of soda be allowed to act upon the zinc filings, we shall obtain a soda salt of the new acid which has as great an affinity for oxygen as the free acid, and can, therefore, be kept for any length of time if completely excluded from the air.

Hailstones of Salt and Iron Sulphide.—According to *Nature*, Prof. Kenngotb, of Zurich, Switzerland, during a hailstorm, lasting 5 minutes, on the 20th of last August, found stones, some weighing 12 grains, which consisted essentially of common salt, mainly in imperfect cubical crystals. He supposes that the salt had been taken up from the salt plains of Africa and brought over the Mediterranean. Hailstones containing each a small crystal of sulphide of iron, probably weathered out of rocks in the vicinity, fell recently at Kazan.

Crystallization.—Professor Chultze has recently exhibited, to the German Chemical Society, Berlin, beautifully formed crystals of sugar, borax, and other substances. He states that by the use of a gelatinizing substance as a solvent, the formation of perfect crystals is much promoted. Solutions of gelatine and kindred substances were the vehicles he employed.

Tungsten Colors.—Fine colors are prepared from tungsten, which, being permanent and little acted upon by heat, can be used to advantage on many occasions. Tungstate of baryta is a pure white; tungstate of nickel, clear green; tungstate of chromium, dark green; tungstate of cobalt, violet; tungstic acid, a beautiful clear yellow, passing into orange. Tungstate of soda is not employed in colors, but is recommended for rendering fabrics unflammable, for this purpose it is better to combine it with phosphate of soda. Metallic tungsten was at one time supposed to improve the hardness of steel, but we hear very little of its use for this purpose, and it seems more probable that the accidental admixture of manganese was the real indurating constituent. It is also claimed that tungsten largely increases the magnetic power of iron.

Spectrum of the Fire-Fly.—Prof. C. A. Young says this is "perfectly continuous, without trace of either bright or dark lines, and extends from a little above Fraunhofer's line C, in the scarlet, to about F in the blue, gradually fading out at the extremities. It is noticeable that precisely this portion of the spectrum is composed of rays, which, while they more powerfully than any other affect the organs of vision, produce hardly any thermal or actinic effect. In other words, very little of the energy expended in the flash of the fire-fly is wasted. It is quite different with our artificial methods of illumination. In the case of an ordinary gas-light, the best experiments show that not more than one or two per cent. of the radiant energy consists of *visible rays;* the rest is either invisible heat or actinism; that is to say, over ninety-eight per cent. of the gas is wasted in producing rays that do not help in making objects visible."

New Preservative Fluid.—The following are the ingredients of a liquid by means of which the organs of the body that have become absolutely offensive, from decay, may be treated so that they can be examined for marks of injury or signs of disease. The fluid consists of a mixture of iodine one drachm, methylated ether (of specific gravity ·720) ten fluid ounces, absolute alcohol one fluid ounce, and strong sulphuric acid four fluid drachms. The action of the solution seems to be that the iodine deodorizes, while the sulphuric acid engages the water and the alkaline products of decomposition and produces the necessary firmness of structure. The ether escapes, being simply the fluid dissolvent for the other agents.

Phosphorescence Produced by Frictional Electricity.—M. Alvergniat states that if a little bromide or chloride of silicum is introduced into a glass tube, and the tube is then exhausted and sealed, friction with a piece of silk, or even with the fingers, produces a beautiful phosphorescence, which is rose colored if the chloride is contained in the tube, and a yellowish green with the bromide. The induction spark produces no light within these tubes unless the vacuum is very perfect, but in that case the phosphorescence disappears.

Secchi on Solar Protuberances. — The Italian astronomer, Father Secchi, has published several papers on the above subject, in which the conclusions arrived at are summed up thus: 1. The southern hemisphere of the sun is at present richer in protuberances than the northern hemisphere. 2. In general terms, the protuberances are numerous in those regions where the facuæ are numerous. 3. The protuberances are highest in the regions where they are the most numerous.

Silica, Diamagnetic.—Prof. Dove has successfully suspended, between the poles of a powerful electro-maguet, sections cut from colorless rock-crystal, smoky quartz, agates composed of alternating layers, chalcedony, jasper, ametbyst, and other varieties of quartz. Their uniform behavior in the magnetic field shows that all the different kinds of native silica are diamagnetic.

Temperature of the Sun.—This varies according to the different calculations, from 10,000,000° to 1,461° C. Mr. Vicaire, in a note to the French Academy of Sciences, concludes that it does not exceed 3,000° C. (5,400° F.) He observes that the greatest heat of the oxyhydrogen blowpipe is 2,500° C. (4,500 F.), and the highest furnace heat not above 2,000° C. (3,600° F.)

A new method of preparing sulphuretted hydrogen has been proposed. By heating a mixture of equal parts of sulphur and paraffine in a flask to a temperature not much above the melting point of the sulphur, the gas is evolved with great steadiness. The production may be stopped or renewed at pleasure by simply withdrawing or applying the lamp.

New Fossil Mammal of Utah.—Dr. F. V. Hayden discovered two species of *Bathmodon* in the Tertiary bed (bourn eocence?) of the Wahsatch group, near Evanston, Utah. The characters of the molar teeth indicate that it belongs to a new family.—*Amer. Jour. of Science.*

The Cordoba Observatory.—The inauguration of this observatory, an event of great importance to astronomical science, took place on the 24th of October last in the presence of the dignitaries of the land. Prof. Gould delivered an excellent address.

MINING SUMMARY.

THE following is mostly condensed from journals published in the interior,in proximity to the mines mentioned.

California.

ALPINE COUNTY.

TARSHISH.—Monitor *Miner*, March 23: At 12 o'clock yesterday the mill started up.

THE finest body of ore opened in Alpine was struck in the Silver Glance this week. It is a continuation of the vein heing worked in the Monitor No. 3 and heing 300 ft. deepsr, shows that vein to hs not only continuous, hut richer as depth is reached.

WE anticipate a lively season. The Tarshish, M. & N. W., Leviathan and Globe, which have ore in sight; work from 25 to 75 men each. The Sovereign, Mountain, American, Morning Star, Winchester, Marion aud others are already talked of as sure to start up. We expect to see 500 men at work in this vicinity hefore Sept. next.

AMADOR COUNTY.

ONEIDA.—Jackson *Ledger*, March 23: The mill has stopped for waut of fuel, yet the hoisting works are operating and a large amount of rich rock lies in the mill ready for crushing. Supt. Morgan is engaged in erecting a building and hoisting works on the North shaft.

GOOD CLEAN UP.—The tuunel or hill claim of Señor Domingo Araus, at Jackson Gate, 3 miles north of town, after a run of 15 days, cleaned up a little over $1,000. This mine is worked by 3 men who draw out the dirt and pile it up until they accnmulate sufficient to make a 15-day's run, when they wash it by the hydraulic process.

PLYMOUTH.—Cor. same: The Phœnix is turning out good rock. The Co. expect to huild a 20-stamp mill near the mine soon, to be driven by water power. The Alpine is progressing downwards, and their mill is not running, but will prohably start up soon. The Condo is turning out rich rock. As soou as the road settles they will haul 150 tons to the mill. The Philadelphia is rnnning a low grade ore with a large amount in sight. The Arastra claim still runs, making small wages on $2 rock.

PINE GROVE.—Cor. Jackson *Dispatch*, March 30: In the Barlow quartz mine the shaft is about 240 ft. deep, from which 14 men are running 2 tunnels—each of which is abont 100 ft. long. There are 16 men ahove ground employed in connection with the steam hoisting works, chopping timher, etc. The owners design to sink the Barlow shaft 100 ft. deeper, drive the tunnels, thoroughly prospect both veins, and then determine on the propriety of building a mill.

CALAVERAS COUNTY.

MACHINERY.—Calaveras *Chronicle*, March 30. The props. of the Prussian Hill mine, have purchased the French mill, at Rich Gulch Flat, and will move it to their works as soon as the roads will permit. The machinery consists of a 13-stamp hattery and a 30-horse power engiue, in good condition.

RAILROAD.—Iu the Petticoat on reaching the depth of 350 ft. a level has been run ahout 200 feet on the lead, disclosing a wide vein of gold-hearing quartz.

Work is progressing favorably on the Wolverine, in Wet Gulch. The shaft has reached a depth of about 200 ft., and a level is being run from the bottom.

The Free and Easy has heen pnrchased hy Mr. Porteous, who is working it to good advautage.

Clark's mill, leased by Sanderson & Pickering, is crushing rock from the Good Hope at Mosquito Gulch. There are 100 tons altogether which will pay at least $25 per ton.

JENNY LIND.—Cor. same: The hydraulic claims on Whisky Hill are rushing things through. The Bunker Hill Co. have suspended operations for the present so as to re-lay their flume.

INYO COUNTY.

WHITTEKIND ORE.—Inyo *Independent*, March 22: The assay value of the first-class ore heing extracted from the Whittekind mine, Cerro Gordo, is 406½ ozs. per ton; the second class reaching 180 ozs. The ledge has just heen tapped in the new tunnel.

SHIPMENT.—Los Angeles *News*, March 20: 1,330 bars of Cerro Gordo bullion were shipped from here to S. F. by the steamer California.

LOS ANGELES, March 26—By telegraph. 570 bars, base bullion, were received from Cerro Gordo to-day.

NAPA COUNTY.

GEYSER QUICKSILVER MINES.—Calistoga *Tribune*, March 28: The Original Geyser Quicksilver Mine was located on the 13th of Nov. 1871. The mine is about 2 miles west of the Geyser Springs, near the Hog's Back ridge. The first rock taken out assayed 13⅓ per cent. Better rock has since heen struck, which, it is thought, will assay 25 or 30 per cent. A large quantity of good rock is in sight, and the Co. are about to commence tunneling. Locations have been made on the same ledge.

NEVADA COUNTY.

GOOD SHIPMENT.—Grass Valley *Union*, March 27: Findley & Co. yesterday shipped to S. F., $20,500, the product of a short run of the Idaho and several other mines.

THE SITUATION.—Idaho is paying regularly. There is no deterioration in the ore, and no falling off in the strength of the ledge. Many improvements are in progress at mine and mill. The new shaft is to he 6 hy 20 ft. in the clear, and will he arranged for convenient and economical working. North Star will startup to-morrow, and in a few days a full complement of hands will he employed in the mine. There is on the dnmp ahout 300 tons of good rock waiting for the mill.

EMPIRE mine is running full-handed. Great quantities of rock are being taken out—so fast that their 20-stamp mill has to run night and day for the 7 days in the week, to keep up with the mine.

EUREKA mine makes no particular improvement. The men in the cross-cut from the 5th level are doing well in very hard rock with giant powder.

HEUSTON Hill for the last 6 or 8 months has been worked by contractors, who for the first 4 or 5 months made about $10 per day to the man. This rock did not hold out and as a consequeuce the mine is ahout to he abandoned.

Shamrock is being worked again, and steam machinery for hoisting and pnmping has been placed on the mine.

Knight of Malta is getting up an engine for hoisting and pumping, and in a few days regnlar work will commence.

Independence Con. on French Ravine, is worked by a tunnel giving 150 ft. backs. The tnnnel is in 130 ft. and 420 ft. mors will cnt the first large ledge.

Constitution mine, adjoiming the above, will soon continne their tunnel.

Washington, a new location, west and adjoining the Independence Co. has taksn ont good quartz lately.

Perrin Mine is taking out rock and running drifts.

Gen. Grant Mine, south of the Psrrin, is taking ont fine looking rock, which is accnmulating on the dnmp.

Branch Mint Mine, on the ridge, betwesn Deer and Wolf creeks, has a long tunnel which drains the ledge to a great depth, giving about 200 ft. of backs.

WILLOW VALLEY.—The last crnshiug from the Lecompton ledge, paid $60 por ton, and some previous crushings have yielded as high as $120. The mine is now idle for want of capital to erect machinery.

THE ledge owned by Brown & Gagan, is ahout 1½ ft. thick, and is rich in sulphnr ets. This mine was opened this season, the first crnshing paying $18 per tou.

IN the Buchanan, the last lot of rock crushed at the Oriental mill yielded $40 per ton. Tho Co. have out a large quantity of rock, which shows free gold and is rich iu sulphurets.

HECKER & Co., have a splendid ledge, which is 1½ ft. thick. The crushings havo yielded as high as $25 per ton, and none less than $18.

BUCKEYE Co. has a splendid 3-ft. ledge, and aro pushing ahead with energy. They aro taking out large quantities of rock, paying them from $22 to $25 per ton.

MURCHIE & Co.'s ledge excels any in richness in this township. The ledge is large, and is paying ahout $60 per ton. They have hoisting works, and an 8-stamp mill which is operating day and night. Murchie & Co. have been engaged for a long time running a tunnel to work a gravel range which they own, and while doing so, ran against the hest quartz ledge ever discovered in that section of country. The ledge is over a ft. thick, and will pay not less than $80 per ton. They picked out of the gravel claim some of the quartz, which was crushed and paid over $200 per ton.

THERE are a large numher of Cos. eugaged in prospecting, and every few days new discoveries are heing made.

LOCATED. — Grass Valley *Republican*, March 28: A. J. Doolittle and W. H. Raymond have located a water privilege of 2,000 inches of the surplus waters of Bear river, taking it out at a point hetween the Little York and Gold Run ditches, to he used at Liberty Hill.

H. H. Armstrong and others have located 1,000 ft. on the Reese & Dupew ledge, at Randolph Flat, commencing at the north houndary of Reese & Dupew's claims and extending 1,000 ft. in a northerly direction.

Alexander Haven and others have located 1,000 ft. on a ledge on Haven's ranch, to he known as the Washington Lode, located in Grass Valley township.

G. H. G. Stackhouse and othsrs have located 600 ft. on the Reese & Dupew ledge, commencing at the southern houndary of the south extension.

PLACER COUNTY.

GREENE MINE.—Placer *Herald*, March 30: The Co. is sinking a fine shaft, which is to he sunk ahout 215 ft., hy men working on 8 hour shifts. The 20-inch lode is lookiug splendid and averages in gold $200 per ft.

PLUMAS COUNTY.

STRUCK DIGGINGS.—Plumas *National*, March 23: Some new surface diggings have heen discovered near the Indian Valley mine, near Greenville, which prospect well and will prohably prove extensive.

RICH YIELD.—Compton's mill is paying splendidly, and the ledge looking hetter than ever. On Saturday last, after a 2 day's run with 6 stamps, 52 ozs. was cleaned up from the apron and screens with fnlly as much more in the battery.

SAN DIEGO COUNTY.

SHIPPED.—San Diego *Union*, March 21: Bullion amounting to $2,280 was shipped to S. F. on the Orizaha yesterday.

ITEMS.—At Julian general activity prevails. All of the mills are running, and nearly every ledge is being worked, some quite extensively.

At Banner, Whitney & Co,s mill has temporarily stopped. Work will he commenced on a more extended scale in a short time.

The Stonewall are puehing work with vigor. Since water was struck in the shaft, the mill has been rnnning steadily night aud day. A recent clean up of float and other rock made a good showing.

The De Frees mill cleaned up 2 or 3 days since 48 tons of ore from the Mabel, which yielded $48 per ton.

The Reynolds mill has crushed 20 tous of ore from the Big Blue lead, which gave $53 per ton.

The prop. of the Owens lead are running a level at the depth of 200 ft. The ore in sight will go ahout $19 per ton. There is sufficient ore to keep a hundred stamps husy, if the mine is properly worked.

The Helvetia is being worked steadily at present. Its owners are taking cut a lot of ore which will ho crushed at the mill of De Frees & Co.

The Excelsior lead has a day and night force at work.

The Antelope mill is busy at work upou Madden rock, aud has several engagements to crush for other Companies.

Wilson & Co. are crushing Helvetia rock. The working of the new mill gives goueral satisfaction.

Work has been resumed on the Washington lead, which has recently heen leased.

SIERRA COUNTY.

Downieville Mt. *Messenger*, March 23: WORKING SULPHURETS.—The Indepcndence mine will erect works for the reduction of sulphurets this spring; also put in heavier machinery, and put their mine on a first class footing.

ALL OUT.—Manson has got the Highland & Masonic mine, at Alleghany, clear of water, and will push the work to hring to light the pay dirt.

DISCOVERIES.—A numher of discoveries of rich quartz have heen made in this vicinity during the past winter, the most important of which, perhaps, is the High Commission ledge on the south Fork. The owners have gone in about 100 ft. and have a ledge from 10 to 12 ft. wide, the rock throughout heing rich in free gold. The most important feature of this mine, is a helt of black sulphurets from 18 inches to 2 ft. wide, assaying from $5,000 to $6,000 per ton. Similar sulphurets have been discovered on the East Fork and in Jim Crow Cañon.

SOLANO COUNTY.

SHIPMENT.—Vallejo *Chronicle*, March 30: Eighteen flasks of quicksilver were brought in from the Vallejo mine to-day for shipment.

TRINITY COUNTY.

RED HILL.—Weavorville *Journal*, March 23: The miners of Red Hill and vicinity are working like hees, and will make a good season's run.

LEWISTON.—Olney Philips is working 8 or 10 men in his claim. Trask & Ross are helieved to have struck excellent pay.

GOOD DIGGINGS.—Ward's claim, on Oregon Gulch mountain, is the largest and perhaps the richest in Trinity Co. The face of the claim at present is 600 ft. in length and from 40 to 60 ft in depth. The gravel is intermixed with dscomposed quartz and volcanic ashes, which readily yield to the action of the water without using either pick or hydraulic.

Nevada.

EUREKA DISTRICT.

BULLION.—Eureka *Sentinel*, March 29: The Consolidatsd shipped 110 tons of hullion yesterday and day hefore. The Co. has produced so far in the present month, with hut 2 furnaces in operation, 290 tons.

PROGRESSING.—Work on the Richmond furnaces is progressing rapidly.

THE MINES.—We yesterday visited soveral very valuahle propsrties on Adams Hill. The first in order was the Newport, which hclongs to the Magnolia Co. Ths main shaft is down ahout 100 ft. disclosing a hody of ore 12 ft. in width. Three men are sinking preparatory to opening up levels. An extra force will he put on the Astor incline to-day where large quantities of high grade ores are visihle. There are ah out 150 tons of ore on the varions dumps. Passing on to the Meredith, on which a shaft is down 20 ft.; we saw a fair showing of ore at the hottom. Crossing over the ridge still further west hrought us to the Adams Hill property, which is heing vigorously worked. Three shifts of men are working night and day in the tunnel level. The most gratifying success attends all these various operatious, fine high grade ore being met with at all points.

SPRUCE MT.—The principal mines of the Ingot Co., are the Latham and the Fourth of July. The I. Co. ie erecting a large furnace, which will soon he ready for active operations. Thero are ahout 140 men in the Dist.

ELY DISTRICT.

BULLION.—Ely *Record*, March 21: W. F. & Co. has shipped since the 14th inst., hullion valued at $96,794.92.

KINGSTON.—The mine ie on Panaca Flat. It has a shaft 165 ft. deep, and is being worked vigorously, the ledge showing itself at the depth of 150 ft., and is looking fiuely.

PIOCHE (No. 9).—Tho shaft is in 460 ft. The first station is 75 ft. from the eurface. A drift has hcen run 170 ft. showing a fins hody of ore. At the second station is another drift of 300 ft. with an immenss hody of ore. At the fourth station 360 ft. from the surface, is a drift of 294 ft. The ore in this drift is completely covered with horn silver, and averages by assay $1,000 to the ton. At the bottom 460 ft. from ths surface, there is a drift or "cross cut" hsing run to tap the ledge. It is only in ahout 12 ft. as yet.

HUMBOLDT.

THE FRENCH CANAL.—Unionville *Silver State*, March 30: J. Ginacca has purchased a 10-stamp mill, all complete, which he intends putting up along side the old French Canal, at Winnemucca.

SEMINOLE TUNNELING Co.—The working force on the Scminole has heen increased. The ledge continues to improve as depth is attaiued. The ledge is 4 ft. wide and the ore is of excellent quality.

ECLIPSE.—The owners this week commenced stoping, and are now extracting rich ore in large quantities. The vein matter is from 5 to 6 ft. wide, one-half of which is miueral-bearing quartz.

REESE RIVER.

WHITLATCH UNION. — Reese River *Reveille*, March 27: This mine is in splendid condition. A large ledge of high grads ore is heing worked on steadily.

YANKEE BLADE.—The mines of this Dist. are yielding high grade ore, and preparations are heing made to work them mors extensively than heretofore. Mines long abandoned are heing reopened, the "Confidence" among others.

WASHOE.

ORE YIELD.—Virginia *Enterprise*, March 23: Last week the Crown Point yielded 2,95J tons of ore, the Savage 1,173 tons, the Chollar 758 tons, and the Hale & Norcross 760 tons.

PUMP IN OPERATION.—The Justis Co. have got their pump in operation and are fast lowering the water in the mine.

SUTRO TUNNEL.—Tho tunnel was yesterday in 2,800 ft.

ARIZONA AND UTAH—The Co. sitnated upon the same lead as the Globe Co., hslow Gold Hill, have cleaned out their old tunnel and retimhered it in good shape.

THE Hale and Norcross Co. are eteadily drifting south on their lower level.

BULLION.—We yesterday saw at the California Bank silver bricks to the value of $43,245.90, from the Crown Point and Belcher mines.

SAVAGE.—Night before last connection was made hetween the south drift, on the

1,400 ft. level of the Savage, and the winze going down from the 1,000-ft. level. This gives a fine circulation of air. The incline has been completed to the 1,500-ft. level, a station opened and drifting commenced.

GLOBE MINE.—A considerable number of workmen are taking out ore from the croppings, and in opening the old tunnels and inclines. Their lower tunnel, being cleaned out and retimbered, is from 1,300 to 1,400 ft. in length. They have cleaned out and substantially retimbered this tunnel 400 ft. and are pushing the work ahead. The tunnel taps the vein 700 ft. below the croppings. Above this tunnel is a second one about 400 ft. in length. This strikes the lead, and runs along it 200 ft.

YIELD.—Gold Hill *News*, March 27: The last weekly reports of 3 of our mines show the following results: Chollar-Potosi, 950 tons ore extracted, assaying $37.54 per ton, and $25,386 shipped; Crown Point, 2,858 tons of ore, sent to mills, estimated at $159,717; Savage, 1,660 tons ore extracted, averaging $27.20 per ton.

LEWISTON MINE.—The mine is 300 ft. west of the Buckeye, and is a recent discovery. The ledge averages about 7 ft. in width. A shaft has been sunk 20 ft., and the ore averages about $100 to the ton.

DANEY.—The main shaft is being sunk for the 600-ft. level, and is already 20 ft. below the 500-ft. level, with plenty of water to contend with, yet good progress is made. At the 500-ft. level a drift is being run north; following the ledge, with promising indications.

WHITE PINE.

BULLION.—White Pine *News*, W. F. & Co. shipped from this city, to-day, to London, for Eberhardt & Anrora M. Co. (limited), 4 bars, 286 lbs., valued at $5,339.23.

WILL START UP.—The furnace at Robinson Dist. will be running on base ore in a few days.

EBERHARDT & AURORA CO.'S MINES.—In company with Joseph Potts, the Assistant Supt., we examined this week the works of the Co., on Treasure Hill. The Earle mine was passed through to the Lady's chamber. As far as opened the Lady's chamber is 42 ft. wide, 100 in length, and 50 ft. high. On the south end there was a fault (or slip) that cut off the ore. A drift was started in a southeasterly course. After running 130 ft., a large body of ore was found in the south chamber, that as yet has no limit. The opening is 35 ft. high, 40 ft. wide, and 125 ft. long. In the bottom and sides of the opening, rich ore is in sight. In the bottom of the chamber the ore goes down below the level of the tunnel, of regular grade. The ore-body in the Risdale chamber is not as extensive as far as opened as in the south chamber; but is of a more regular grade, and mills from 100 to 220 per ton. Fifty tons of this class of ore is extracted daily.

Arizona.

YAVAPAI CO.—Prescott *Miner*, March 16: The Tiger is "panning out" plenty of ore, some 20 tons of which were shipped this week. The placer miners are taking out considerable gold. Vulture mill, at Wickenburg, is still running.

PIMA CO.—I. Q. Dickason brought some rich specimens of silver ore from a mine near Tucson.

MARICOPA CO.—Work is progressing on the Silver Queen and other lodes.

MOHAVE CO.—In Wallapai dist. An immensely large mine—supposed to be the one formerly worked by the Jesuits, has been discovered. Its location is not far from Mineral Park.

ITEMS.—The Tiger tunnel is in 216 ft. from the bottom of the deepest shaft, and a cut—to find ont the width of the vein—has been started.

MINERAL PARK.—Cor. Los Angeles *News* March 23: Great excitement is occasioned here by the reported discovery of the Montezuma mine in this neighborhood.

Twenty men are about leaving for the new placer diggings on the Colorado. From $10 to $15 is reported as the average pay per man per day. The locality is known as Black Canon, and is about 100 miles above Stone's ferry.

Mr. Elder, of Inyo county, is here and inquiring into the expediency of erecting smelting works in this vicinity.

ORES.—San Bernardino *Guardian*, March 26 Bruun & Roe received this week for shipment to San Francisco 47 sacks containing 3,700 pounds of silver ore from the claims of Capt. St. Dennis, Ivanpah, also 50 sacks of 4,495 pounds from Hite & Chatfield. The last lot forwarded to San Francisco sold for $1,362 per ton. This will undoubtedly go as high as $1,800.

CLARK DIST.—The crude bullion from the following mines sold in S. F. as follows per ton: Beatrice No. 2, $1,064; Beatrice No. 1, $433.09; Snow Storm, $529.04; Hurst & Co., $1,463.88; Lizzie Bullock, $1,362.04; Monitor $909; P No. 1, $675; P No 2, $430.

Colorado.

ITEMS.—Colorado *Miner*, March 21: The ore blockade is immense. Baily & Nott have shipped on account of owners, during the past 2 weeks, 30 tons of very rich smelting ore They have on hand, sacked and ready for shipment, 150 tons. There was crushed, sacked and sampled, at the mill of the Snowdrift S. M. and R. Co., during Feb. 76,929 pounds of high grade ore. There was crushed, sacked and sampled, at Hall's crushing works 182,000 pounds of ore. Burgharut and Wyth are working on a contract on the Eclipse tunnel, Grillith. The tunnel has been driven in about 500 ft. The Killwinning lode, Republican Mt., is yielding first class ore worth 1,315 ozs per ton. The second class worth 400 ozs. The Cliff mine is in a good body of fine ore and is improving as work progresses. An average of ore assayed yielded 903 ozs. per ton.

CLEAR CREEK Company will soon have smelting works.

POLLOCK DIST.—Cor. same: Kings lode is looking splendidly—Bemroso, if he can rent the Gould Hoyt mill, will run it next summer. The Pacific and Oro Fino lodes, on Ten Mile, have been sold and will be worked this season. Dowd, Breece and some Boston boys will construct a ditch from Snake river to New York and Soda Gulches at an early day. Fahey & Co., are constructing a ditch from the Ten Mile to Salt Lick Gulch. Greenleaf & Co. have been all winter getting out lumber for the Georgia Gulch flume.

MIDDLE BOULDER.—Central *Register*, March 20: The Caribou mill is in successful operation. About 18 tons of ore are worked daily, which yields from 100 to 200 ounces of silver to the ton.

Yesterday we visited the Belmont and Chomung lodes, and were surprised to see the activity in mining matters.

The first shaft we visited (No. 2 east on the Chemung) at 18 ft. has a crevice of very fine ore a foot in width, that is yielding 8 ounces per cord, under stamps. The mines are Ewers & Co.

On claim No 2 west, on the Chomung, Mr. Compton is taking out a very fair grade of ore. Adjoining this on the west, Leahy & Co. are working with profitable results.

East of Ewers & Co. about 606 ft. Flint & Co. are working, to considerable profit, the Belmont lode.

Idaho.

LOCAL RECORD.—Silver City *Avalanche*, March 23: The winze from the bottom of the 8th level of the Golden Chariot is yielding fine looking ore. Stoping is going on in the 4th level of the War Eagle, both north and south of the shaft. The vein is from 18 inches to 4 ft in width pay ore. The steam hoisting works formerly used at the Poorman were taken to the Minnesota this week and will probably be started up today. E. A. Thompson is working the Idlewild and taking ont ore, in much of which gold and silver are plainly visible. Sands & Co. are taking richer ore than ever from the Illinois Central. A fine body of pay ore has been struck in the north Oro Fino. The Empire is not being very extensively worked at present, although the ore continues rich. A permanent shaft will soon be commenced, with a view of putting hoisting works on the mine. Charley Peck is still driving his tunnel on the Belle Peck mine. He is in about 130 ft. The Mahogany fourth level continues yielding an abundance of splendid ore. The ledge continues looking well in the Ida Elmore winze north, and also in the 7th level drift of that mine.

SOUTH MT.—Cor. same: Mr. Brunzell intends to commence operations on the Scanda in a few days. Hastings & Co. have good indications in their tunnel: Cut 30 ft., tunnel 84 ft., width 7½ ft., hight 8 ft., depth from the surface 44 ft. and timbered the whole length. Work is going on in the Polar Star tunnel, with no indication of ore as yet. Length of cut 14 ft., tunnel 36 ft. and depth from surface, 20 ft.

Montana.

MILL RUNNING.—Deer Lodge *Independent*, March 23: The St. Louis mill at Phillipsburg was started up last week and is running successfully.

ROCKER.—The miners are busily engaged in preparing for spring work. The Rock Creek Ditch Co., intend to commence cleaning ont their ditch Monday next.

BLACKFOOT MINE.—Cor. same: There has been but little mining done during the past winter in Ophir gulch and bar.

The Illinois gulch is known to be rich and extensive. The different Co.'s have their work in a state of forwardness and their claims in perfect order.

On Carpenters' bar mining will be resumed about the 1st of May. But little preliminary work will be required, as the Cos. have their claims in working order.

NORTH PACIFIC LODE.—Helena *Gazette*, March 18: The prospects of finding a good vein are very fair.

RADERSBURG.—On Left-Hand lode, Clancey & Hull are opening their mine in a systematic manner. They have contracted for the removal of the Blue Cloud mill from this county, and its erection at a convenient point below Keatingville.

Mining on the Allen lode is steadily progressing, and all the things are in readiness to commence hoisting. The Allen mill, a 6-stamp, is crushing this ore very successfully. The Davis mill will also commence crushing on ore from this mine in a few days.

Several very promising mines of rich argentiferous galena, have been discovered in this dist. and will be developed during the coming season. Some discoveries of silver chloride have also been made which promise well.

Lower California.

ITEMS.—San Diego *Union*, March 21: The engine and boiler to be used by McKean to run the 10 stamp mill, arrived. Mr. McKean has several tons of rockready, and intends to commence crushing at it once. The Zapata mine will be worked extensively in a short time. Considerable prospecting is being done.

Utah.

OPHIR.—S. L. *Tribune*, March 26: The late shipment from the Pioneer mills to Walker Bros., was $5,870,11.

We were shown yesterday a valuable specimen of ore from the Silver Exchange mine weighing 90 lbs. A considerable amount of this ore has been worked, the first-class yielding $183 and the 2d $157 to the ton.

In Dry Cañon (correspondence) the miners are pushing their tunnels and shafts vigorously. Near the mouth of the cañon are the Rip Van Winkle, Nabob and several other mines on which much work has been done. The most promising mines on "Shoo Fly" hill are the Kearsage, Alabama, Post Boy, Noonday, etc. After leaving Shoo Fly Hill we passed down to the Mo-No, Converse, Utah Queen, Caddit, Miami, and thence to the Snow Storm Tunnel, which gives much promise but the development is yet limited. Below this tunnel the Lillie of the West shows rich ore. The first mines noticeable as you passs into East Cañon are in close proximity to the Brevoort Mill, Green Chloride Hill. Of these I visited the Red Jacket, Lexington, Green Chloride, Black Hawk, Irene, Malakoff and others, all of which show large bodies of ore and give great promise. On Silver Shield Hill on the edge of the cliff is the Oriental Tunnel and the Cliff Mine, from which they take exeellent ore from a good-sized ledge. Above this mine is the Champion, near which are the Miners' Delight, Silver Shield and Velocipede Nos. 1 and 2. Next we come to Ophir Hill, on which are the Burnett, Severe, Wild Delirium, Grant Tunnel, Chloride, Fair View, Bath, McCollum and Silvertail. The Fair View has a shaft of 100 ft. and the Silvertail is making a first-class exhibit of ore.

S. F. Stock Exchange Board.

SAN FRANCISCO, April 4, 1872.

The sales at the Board for the week ending Wednesday, the 27th ult., amounted to $4,-015,000, March receipts of the Meadow Valley mine were $150,000. Last week 1,985 tons of ore were taken from the Crown Point mine, valued at $124,981 and 956 tons from the Chollar-Potosi, assaying $36.48 per ton. The last bullion shipment for the latter was $17,652. The March receipts of the Raymond & Ely mine aggregated $319,953. Over 1,500 tons of ore were taken from the Savage last week assaying $34 per ton. The first shipment from the Raymond & Ely this month amounted to $31,100. On Friday mining stocks were in good demand in the Board; on Saturday only moderately active; Monday in good demand; Tuesday again strong; Wednesday active and in good demand, and to-day the markot is still excited and most kinds of stocks are tending upward.

Comparative Prices—Extremes, Advance and Decline.—S. F. Stock and Ex. Board.

	March 28.	*Highest.*	*Lowest.*	April 4.	*Adv.*	*Dec.*
Alpha	$43	52½	39½	52½	9½	—
American Flag	16	16¼	14½	15	—	1
Belcher	650	678	645	650	20	—
Buckeye	—	5	4½	5	—	—
Chollar-Potosi	69	81	65	81	12	—
Caledonia	18¾	27	18	—	—	—
Cons. Virginia	47	71	45	68½	21½	—
Crown Point	900	900	900	—	—	—
Daney	4	6	3½	4	—	—
Eureka Cons	27½	28½	26½	28	½	—
Eureka	—	18½	17	—	—	—
Excelsior	—	150	75	—	—	—
Gould & Curry	250	300	240	300	50	—
Golden Chariot	20½	21	19	—	—	—
Hale & Norcross	330	375	315	375	45	—
Imperial	167½	230	150	230	62½	—
Ida Elmore	13¾	13¾	13	—	—	—
Kentuck	280	305	257	275	20	—
Mammoth	76c	80c	55c	—	—	—
Meadow Valley	24	26	23	26	2	—
Mahogany	—	16	15½	—	—	—
Ophir	73¾	81	64	80	6½	—
Orig. Hid. Treas	14	14¾	12½	—	—	—
Overman	67	75	63½	75	8	—
Piocho	16	19¼	15¾	17	1	—
Raymond & Ely	131	135	124	132	1	—
Savage	235	355	230	355	120	—
Sierra Nevada	33	33	29	32½	—	½
Succor	—	5½	5	5½	—	—
Wash. & Creole	6¾	6¾	6	6½	—	¼
Yellow Jacket	84½	110	82	110	25½	—
St. Patrick	—	—	—	—	—	—
Seg. Belcher	74	150	73½	150	76	—

Latest Prices—Bid and Asked.

	BID.	ASKED.		BID.	ASKED.
Alpha Cons	50	51	Ida Elmore	—	—
Amador	280	300	Imperial	225	230
Belcher	660	670	Kentuck	285	290
Chollar-Potosi	78	80	Meadow Valley	23	25½
Crown Point	950	950	Ophir	78	80
Daney	3¾	4	Orig. Hid. Treas	12½	—
Eureka Cons	27½	27¾	Overman	74½	75
Eureka	18	—	Savage	346	350
Golden Chariot	—	20	Raymond & Ely	130½	131
Gould & Curry	295	300	Sierra Nevada	31½	32
Hale & Norcross	375	—	Yellow Jacket	106	106

RECEIVER.—The Constitution, By-laws, Regulations and list of premiums to be awarded at the 6th annual fair of the Nebraska State Board of Agriculture, to be held at Lincoln, Nebraska, Sept. 3, 4, 5 and 6th, 1872.

J. M. HUTCHINGS, whom the State will doubtless dispossess of his ten-year old home in the valley of the Yosemite, is lecturing to crowded houses in the Atlantic cities.

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

ASSESSMENTS.

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT	DAY DELINQUENT.	DAY OF SALE.
Alps S. M. Co. Nev., March 1, 75c	April 9	April 30
Bloomfield Gravel M.Co. Cal., Feb. 23, $3.	Mar. 27	Apr. 13
Buckeye M. Co., Nev., Mar. 23, $1.25	April 26	May 15
Cons. Virginia M. Co., Nev., Mar. 19, $3	Apr. 24	May 18
Gould & Curry, Nev., Jan. 30, $15	Mar. 4	April 26
Grand Duke M. Co., U. T., Mar. 5, 25c	April 15	May 15
Ida Elmore, Idaho, March 6, $3	April 11	May 10
Ingomar S. M. Co., Ely, April 2, 25c	May 8	May 31*
Hanh & Hunt S.M Co. Nev, Mar. 20, 25c	Apr. 29	May 27
Kincaid Flat M. Co., Cal., Feb. 14, $3	Mar. 18	April 8*
Knickerbocker, M. Co. Nev., Mar. 23, 50c	Apr. 27	May 17
Lemon M. and M. Co., Eureka, Apr 1, $1	May 7	Jun 12
Marcelina S. M. Co. Mar. 8, 10c	April 15	May 7*
Nevada L. & M. Co., Nev., March 28, 4c	May 2	May 24*
Nuestra Senora de Guadelupe, May 12, $2.	Ap 15	May 8*
Ophir S. & G. M. Co. Cal. Mar. 18, 20c	April 7	May 7
Overman S. M. Co, Gold Hill, Mar. 18, $4.	Apr. 13	May 13
Pacific Borax Co., Nev. Feb 23, 15c	March 28	April 16
Peter Walter M. Co. Placer Co. Mar. 11, $1.	Apr. 18	May 6
Phœnix S. M., Nev., Mar. 19, 75c	April 24	May 15
Pocahontas G. M. Co., Cal., Feb. 25, $5.	April 6	May 6*
Quail Hill M. & W. Co., Cal Feb. 16, $5.	Mar. 26	April 16*
San Buenaventura Co. Cal., Jan. 19, $1	Feb. 29	Mar. 29
Siempre Viva Co., Mex., Mar. 25, 30c	May 2	May 20*
South Eureka, Nev., Mar. 2, 15c	April 4	April 23
S. Gold Hill M. Co., Nev., Apr 1, $2.50	May 6	May 27
Spring Mt. Tunnel Co., March 12, 15c.	April 22	May 12*
Succor M. & M. Co., Nev., Mar. 20, $2.	April 23	May 15
Tecumseh G.S. & C.M.Co. Cal. Mar. 20 $3.	Apr. 23	May 14*
Washington & Creole M. Co. Feb. 16, 50c.	Mar. 15	Apr. 11

MEETINGS TO BE HELD.

Arizona & Utah M. Co	Annual Meeting April 8
Hale and Norcross	Special Meeting April 13
Knox G. & S. M. Co	Annual Meeting April 8
Murphy M. Co	Annual Meeting April 10
Nevada Land and M. Co	Special Meeting April 25
Redington Quicksilver M. Co.	Annual Meeting April 18

LATEST DIVIDENDS—(Within Three Months).

Belcher, $15	Payable March 9
Chollar Potosi, $1	Payable Feb. 10
Crown Point, $15	Payable March 15
Eastport, Coose Bay, Coal M. Co.	1 per ct. Payable Feb. 12
Eureka Gold M. Co., $1	Payable March 11
Keystone M. Co., $1	Payable Feb. 10
Meadow Valley M. Co., $1.50	Payable March 18
North Star G. M. Co., $3	Payable Feb. 10
Raymond & Ely, $5	Payable March 8
Yule Gravel M. Co., 50c	Payable April 2

—*Advertised in this journal.

San Francisco Metal Market.

Corrected weekly by Hooker & Co., 117 and 119 Cal. street.]

PRICES FOR INVOICES

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

THURSDAY, April 4, 1872

IRON.—			
Scotch and English Pig Iron, ₱ ton	$55 00	@	60 00
White Pig, ₱ ton	45 00	@	— —
Refined Bar, had assortment, ₱ lb	— 05	@	— 05½
Refined Bar, good assortment, ₱ lb	— 05½	@	— 06
Boiler, No. 1 to 4	— 05	@	— —
Plate, No. 5 to 9	— 07½	@	— 08
Sheet, No. 10 to 18	— 08½	@	— 09
Sheet, No. 14 to 20	— 06	@	— —
Sheet, No. 24 to 27	— 06	@	— —
Horse Shoes	7 50		
Nail Rod	10		
Norway Iron	8		
Rolled Iron	5		
Other Irons for Blacksmiths, Miners, etc.	5	@	6
COPPER.—			
Sheathing, ₱ lb	— 24	@	— 28
Sheathing, Yellow	— 24	@	— 26
Sheathing, Old Yellow	— 11	@	— 11½
Composition Nails	— 24		—
Composition Bolts	— 24		—
TIN PLATES.—			
Plates, Charcoal, IX ₱ box	12 00		— —
Plates, I C Charcoal	10 00		10 50
Roofing Plates	11 00		— —
Banca Tin, Slabs, ₱ lb	— —		— 45
STEEL.—English Cast, ₱ lb	— 16		— 17
Drill	16		17
Flat Bar	17		20
Plough Points	3 75		
Russia (for mould boards)	12½		
QUICKSILVER.—₱ lb	— —		— 85
LEAD.—Pig, ₱ lb	— 06		— 06½
Sheet	— 08		— 8½
Pipe	— 10	9	10
Bar	— 08		— 09
ZINC.—Sheets, ₱ lb	— 10		— 10½
SORAX.—Refined	— 25		— 30
Borax, crude	— 5		— —

Leather Market Report.

[Corrected weekly by Dolliver & Bro., No. 109 Post st.]

SAN FRANCISCO, Thursday, April 4, 1872.

SOLE LEATHER.—The demand is still equal to the supply, and prices still continue firm.

City Tanned Leather, ₱ lb	26@29
Santa Cruz Leather, ₱ lb	26@29
Country Leather, ₱ lb	25@28
Stockton Leather, ₱ lb	26@29

French skins are firmer with an advance in some grades. Heavy California skins are firm, with an upward tendency.

Jodot, 8 Kil., per doz	$60 00@ —
Jodot, 11 to 19 Kil., per doz	76 00@ 90 00
Jodot, second choice, 11 to 15 Kil. ₱ doz	60 00@ 76 00
Lemoine, 16 to 18 Kil., ₱ doz	75 00@ 77 50
Lewis, 12 to 13 Kil., per doz	68 00@ 70 00
Cornellian, 16 Kil., per doz	70 00@ —
Cornellian, 12 to 14 Kil., per doz	60 00@ 63 00
Ogerau Calf, ₱ doz	54 00@ —
Simon, 8 Kil., ₱ doz	65 00@ —
Simon, 20 Kil. ₱ doz	68 00
Simon, 24 Kil. ₱ doz	72 00
Robert Calf, 7 and 8 Kil	35 00@ 40 00
French Kips, ₱ lb	1 10@ 1 30
California Kip, ₱ doz	60 00@ 80 00
French Sheep, all colors, ₱ doz	15 00
Eastern Calf for Backs, ₱ lb	1 15@ 1 25
Sheep Roans for Topping, all colors, ₱ doz	9 00@ 13 00
Sheep Roans for Linings, ₱ doz	8 00@ 10 00
California Russett Sheep Linings	1 75@ 5 50
Best Jodot Calf Boot Legs, ₱ pair	5 25
Good French Calf Boot Legs, ₱ pair	4 50@ 5 00
French Calf Boot Legs, ₱ pair	4 00@ —
Harness Leather, ₱ lb	30@ 37½
Fair Bridle Leather, ₱ doz	48 00@ 72 00
Skirting Leather, ₱ lb	34@ 37½
Welt Leather, ₱ doz	30 00@ 50 00
Calf Leather, ₱ foot	18@ 21
Wax Side Leather, ₱ foot	18@ 29

STRAWBERRIES.—Ten days ago strawberries were bringing one dollar per pound at retail; now they are abundant in all the markets of the city at from 20 cents to 25 cents per pound. There is every prospect of abundant yield the present spring and summer, and prices will undoubtedly rule low. We hear of no blight, bugs or insects affecting the vines; but owing to the unusually wet spring, the berries though large, are not up to the full standard of sweetness.

MINERS and mechanics write for your paper.

The Hot Springs and Geysers of Montana.

In the February *Journal of Science* appears a description by Prof. T. V. Hayden of the hot springs and geysers of the Yellowstone and Firehole rivers of Montana. That wonderful region, until recently entirely unknown to the outside world, is now attracting wide attention to its natural curiosities, its scenery, its phenomena of artistic, scientific and medical interest.

Almost the whole area of the Yellowstone Basin is covered with volcanic material in some form. The basis rocks on the usual metamorphic granitoid series of the country, with every variety of basalts and basaltic conglomerates. The sedimentary rocks are Carboniferous, Jurassic, Cretaceous and Tertiary. It is doubtful whether any unchanged rocks older than the Carboniferous occur. The Triassic is probably wanting. There is evidence that the sedimentary rocks covered all the country up to the Eocene Tertiary inclusive.

Warm springs are not uncommon in the valley of the Lower Yellowstone, but seldom over 80° in temperature. At Gardiner's river, a branch on the west side, they commence in full force. About 3 miles above the junction the valley bottom is covered with a thick calcareous crust, the deposit of springs now extinct, under which flows a stream of hot water, of 132°, 6 feet wide and 2 feet deep. A little distance up is a group of four placid springs, 6 to 10 feet in diameter, whose curative effects were loudly praised by a number of invalids residing there.

A Wonderful Hill.

Near this spring is a high hill on whose slope is a system of terraces, each from 200 to 300 feet high, covered with a thick deposit of lime. The surface of the first two is fast decomposing, and the springs are nearly extinct. Higher up occurs a hot spring deposit, wonderful even in this land of wonders, in the distance appearing like a vast glacier. Indeed the different terraces in beauty can be compared only to a frozen cascade. First comes a broad terrace with old chimneys, irregular openings, like entrances to caverns, which extend beneath the crust, here probably from 20 to 50 feet deep. A little further up are basin-like pools, 4 to 8 feet in diameter and 1 to 4 feet deep, with semi-circular rims most beautifully scalloped; and underneath these rims are rows of stalactites with every variety of surface ornamentation. These continue about fifty yards, gradually ascending, and then occurs an abrupt declivity of about a hundred and fifty feet, rising in steps formed of these exquisitely moulded pools, of every size and variety. Upon the terrace above are numerous active springs with basins 20 to 50 feet in diameter, and with water heated to 150° or 160°, which, however, flowing down the declivity from one beautiful pool to another, gradually loses some of its heat; and we may find a bathing pool of any desired temperature.

Upon this lower terrace springs are continually dying out and others are breaking out anew. There are also several extinct geysers. One has a circular deposit of carbonate of lime, 50 feet high and 25 feet in diameter at the base, looking in the distance somewhat like a conical column. The layers of deposit are arranged on the almost vertical sides of the cone like the straw on a thatched roof, or hay on a stack.

Upon this terrace the principal portion of the active springs is now located; and here is presented another picture to the eye which transcends any description in words. The water is wonderfully transparent; one sees with perfect distinctness through it the minuted ornament on the inner sides of the basin, and the exquisite beauty of the coloring, and the variety of forms baffle any attempt to portray them with pen or pencil. Then, too, around the borders of springs, especially those of rather low temperature, and on the sides and bottoms of the numerous little channels of the streams flowing from these springs, there is a striking variety of the most vivid colors, comparable only to our most brilliant aniline dyes; various shades of red, from the most brilliant scarlet to light purple; yellow, from deep bright sulphur to light cream color; then also various shades of green. All these colors are rendered very vivid by the water. The springs are also full of a kind of vegetation, composed of diatoms; and in quiet springs and little streams from boiling springs there are great quantities of a fibrous silky substance which vibrates at the slightest movement of the water, and has the appearance of the finest cashmere wool.

About 300 feet further up the mountain are other localities, where the springs, however, are nearly extinct, and the surface covered with the remains of a still nobler natural architecture. A few small springs throw up jets of water two to four feet high. The orifices are lined with a light cream-yellow mixture of lime and sulphur. There are also chimneys, with walls 4 to 10 feet high, some nearly circular at the base, lined inside with a coating of carbonate of lime which is hard, smooth and like porcelain in luster. The oblong mounds, from a few feet to a hundred yards long, 10 to 20 feet high and 15 to 20 feet around the base, generally have a fissure along the summit, in some of which the water can be heard seething and boiling. These fissures all have the same beautiful white porcelain lining, and in some the brilliancy is intensified by the precipitation of vivid yellow sulphur in acicular crystals, but so delicate that they disappear at the touch. A qualitative analysis shows that the spring water contains sulphuretted hydrogen, lime, soda, alumina and a little magnesia. Carbonate of lime predominates, and they may therefore be called calcareous springs.

Classes of Springs—Their Age.

There are two classes of springs in the Yellowstone valley, one in which lime predominates, the other, silica. With the exception of those mentioned and one or two of lesser importance, most of the springs of the Yellowstone and Firebole Basins are siliceous. They may again be divided into intermittent, boiling and spouting, and quiet springs. The first are always above the boiling point when in action, but during the interval the temperature lowers to 150°. The second are always at the boiling point, and some of them throw the water up 2 to 6 feet by regular pulsations. The third class may once have been geysers, but are are now quiet, and range from 188° to 90°. When the temperature is below 150° great quantities of iron sesquioxide are deposited by the water.

An interesting question is that in regard to the time required for the deposition of this material. The position of the active springs is continually changing. In the aggregate they have been in constant operation during our present period. The center of activity may have removed and returned to its present position several times. There are no data to estimate at all accurately the period of any one era of deposition. Around the springs now active are dead pines, 6 to 18 inches in diameter, buried 4 to 6 feet in the calcareous deposit. From evidence gathered, one may estimate that at least 6 feet have been deposited within the space of one century.

Another interesting feature is the antiquity and great compactness of some of these deposits. On the mountain summits 1,500 to 2,000 feet above the river, evidently lifted by the forces which elevated the whole range, is a bed of hard, white and yellowish-white, regularly stratified limestone, 50 to 150 feet thick, which once evidently extended over a large portion of the valley. We may ask the question whether the geological structure of this region has anything to do with the calcareous character of this deposit. On the side of Gardiner's river, opposite the hot springs, is a bluff extending 6 miles, composed in the aggregate of 1,500 feet of Upper Cretaceous and Eocene Tertiary Strata, with some irregular intercalated bed of basalt. A thick bed upon the summit rests uncomfortably on the Tertiary beds. This group of strata inclines northeast at a moderate angle, and undoubtedly extended across the river over the area now occupied by the hot springs. Under the hot spring deposit, beds of older date incline in the same direction, the angle increasing as we ascend the mountains. The whole mountain side is covered with basalt of a thick deposit of local detritus, with here and there an outcrop of arenaceous Jurassic limestones. We therefore know that beneath this calcareous deposit there are at least 1,500 feet of Carboniferous limestones. If the origin of the heat which so elevates the temperature of these spring waters is as deep seated as is generally supposed, then the heated waters have ample play for their powers in dissolving the calcareous rocks beneath.

Hot Springs of the Upper Basin.

A few springs occur at the mouth of Tower creek, at the lower end of the Grand cañon, but the great hot spring district commences beyond the mountain range forming the north wall of the upper basin, 20 miles above the Lake. Here is an area, 40 miles long and 15 wide, which either is or has been occupied by hot springs. The Grand cañon is a channel 1,000 to 1,500 feet deep, carved out of basaltic rocks and hot spring deposits, on the sides of whose walls may be seen the irregular fissures which communicate from the surface with the heated interior. Resting upon an irregular surface of basalt are immense deposits of silica of every shade of red, yellow and white.

On Mt. Washburn is a remarkable group of springs now in constant action. Alum, sulphur, soda and common salt are found upon the surface in considerable quantities. Sulphuretted hydrogen is emitted in such amounts as to fill the air and render it oppressive. This group extends across the Yellowstone to the eastward for several miles. The springs now in action are only a few out of the many hundreds which once covered the entire area.

Sulphur and Mud Springs.

The largest group of these is at Crater Hills, 8 miles below the lake, in a district about half a mile square. Here are several mounds, 50 to 150 feet high, of siliceous deposits from extinct springs. The old craters and immense deposits show that the present active springs represent only the last stages of a once magnificent group. Even those now remaining excite intense astonishment. All around the base and high up on the sides of the hill are vents from which steam constantly issues, and around the edges and inside the orifices a most brilliant yellow layer of sulphur has been precipitated. On the west side, one of these jets produces a sound like that of a locomotive, which can be heard for a long distance. The surface is fairly riddled with little steam vents, and the crust seuds forth a hollow sound beneath the tread; and on removing this shelly covering at any point, hot vapors come forth, while its inner surface is encrusted with beautiful sulphur crystals. The springs here are either boiling, mud, or quiet springs. The principal boiling spring is near the base of the hills, and is in a constant state of violent ebullition sending up a colum of water 2 to 4 feet. It has a basin about 15 feet in diameter and gives forth a huge column of steam. The rim of this spring is a marvel of beauty. It is composed of silica, but scalloped and covered over with the most delicate head-work, and upon the pure white silica is deposited a thin layer of sulphur of the most delicate cream color.

Perhaps the most interesting objects here are the mud springs, which are of every size from 1 inch to 20 feet in diameter. One of the largest is filled with fine light-brown mud which is in constant agitation, its surface covered all over with puffs like basty pudding. Others send forth a thud-like noise every second, with an impulse at longer intervals which throws the mud up several feet. The water and mud in the vicinity are thoroughly impregnated with alum.

Two miles above is another group of boiling, turbid, placid, or mud springs and geysers. Upon the side of the hill bordering the river is a most terrific mud cauldron. A large column of steam is constantly ascending, 500 feet or more, from a deep funnel-shaped basin, 25 feet in diameter; when the wind carries away the steam for a moment, the thin black mud may be seen boiling violently about 20 feet below the rim, with a noise like distant thunder. The ground and trees for 200 feet around were covered with the mud which had been ejected at some of its periodical outbursts.

Checkmating the Cats.—A writer in the *English Mechanic* exults greatly on account of the success of a device put into practice by him for preventing cats from coming over the fence into his yard. This consists in nailing down horizontally along the top of the fence a piece of wire gauze or netting, having a coarse mesh, and projecting about two feet on each side. The netting will bend slightly downward by its own weight, and while it does not exclude the light or rain from the garden, will resist the most persevering efforts of any cat to surmount it.

The iron exports of Great Britain to the United States in 1871 amounted to nearly $38,000,000 in value, being more than one-half the iron exportations. This statement does not include the hardware trade, which foots up near $2,500,000.

About one person in fifty is said to have good luck in the South African diamond fields.

The Use of Sewage for Irrigation.

The city of Berlin, Prussia, has for a long time been considering the various methods of removing its refuse, etc., with a view to introducing the best process. Among other things it tried some experiments in utilizing the sewage for irrigation, and we propose to use freely Prof. Dunkelberg's article written on this subject for the Cologne *Zeitung*, as being of considerable interest both to people within and to those without the precincts of a city.

We omit the discussion of the question as to whether or no it is best to lead the matter from water-closets and other receptacles of human excrement into sewers. Many suppose that sewage without these excrements is worthless for agricultural purposes. That this supposition is wrong, is shown by V. Liebig's report to the Lord Mayor of London, in 1859. The analysis of water in which fish and certain vegetables (potatoes, cabbage and cauliflowers) had been cooked showed that in 472,768 tons of this water there were contained 414 tons of potash and 125 tons of phosphoric acid. If we take into consideration the immense amount of valuable matter sure to find its way into the sewers of large cities, we can see that by letting the sewage run away unutilized, whether or no the human excrements be carried off with it, there is a tremendous loss to agriculture. In the Berlin experiments the water from the sewer of the Königgrätz street was used to irrigate a sandy waste of about 4 acres. Part of this area was devoted to strawberries and other kitchen vegetables of various kinds and part was sown with grass. On the part devoted to grass it was necessary first to sow winter rye in order that the ground might be bound together; otherwise the water would have washed away grass, seed and sand together. The experimental irrigation was commenced on July 24th 1870, but was interrupted from October 2d to November 13th, and was continued for 81 working days of 20.3 hours (on the average) each, or 1642 hours. In this time about 1,436,000 cubic feet of water were used, equal to about 1½ inches (in hight) per day.

The sewer water was of excellent quality and the rye grew luxuriantly, so much so, in fact, that although cut twice and in places three times, it prevented the growth of the grass, the seed of which was mixed with the rye. Hence no grass crop was obtained in 1870, and the winter irrigation had to be tried on rye land, which was less adapted therefor than is grass land. There was no help for this, one of the main objects of the experiment being to see whether winter irrigation was feasible in the climate of Berlin.

On the 1st of December, 1870, the irrigation was recommenced and carried on for 102 days at the rate of 2.165 inches (in hight) per day. The result showed the feasibility of the plan, for notwithstanding the severity of the winter [unfortunately no data concerning the temperature are given] the ground was never frozen, and even where ice formed on its surface, the irrigation water flowed regularly beneath the ice and prevented the ground from freezing. For the sewer-water, on account of its formation and underground flow, can not get below the freezing point, and always showed at least one degree above the freezing point. The amount of this water obtainable for the experiments was very limited, and a large amount would have had a higher temperature. On account of an overflow from the Spree canal the pumping machinery was submerged and the irrigation stopped on the 15th of March for a considerable period.

The appearance of the field in March and April was not all that could be wished. In the upper part, which had received the most water, there were spots where the rye had been killed; between these places, however, individual bunches of (timothy) grass were in full growth. In other parts the rye had survived. The ground was then sown with grass seed (about 24 lbs. to the acre) and lightly harrowed with iron rakes.

In spite of the cold, unfavorable spring the young grass grew well and that sown the preceeding year spread and flourished so luxuriantly that a crop of 8,280 lbs. were obtained from 2½ acres early in May. A second crop of 7,259 lbs. was obtained in June 2d to 11th. Both of these crops came from the seed sown the previous autumn, proof enough that the winter irrigation had not destroyed all vegetation as very many had predicted it would. On the 25th day of June the third crop of grass was 18 inches high, the strawberry vines bore ripe fruit and the salad had been harvested and a crop of celery planted in its place.

To this may be added that a report of the 25th of August showed that the irrigated land had produced nearly 57 tons of grass in three crops while a fourth crop, only partially cut, had given 10½ tons more; that the strawberries (not including the many given away) had produced to the value of over $2¼; the salad per square rutho (about 153 sq. ft.) about 75 cts.; peas, 60 cts.; cauliflower, $3¼; beans, 34 cts.; varieties of cabbage from 25 cts. to 50 cts.; another variety of bean, not yet fully gathered, 90 cts.; and that the part of the field harvested had been sown with another crop. The maize (a variety called "Giant maize" in Germany) had grown to the hight of 9 feet. Table beets were in fine condition and sugar beets had a circumference of 21 inches.

Taking into consideration the many disadvantages encountered in the experiments, the results must be admitted to be very strong evidence in favor of the utilization of irrigation, both winter and summer, by sewage.

Useful Information.

Utilizing Insects in India.—Wallace in his "Malay Archipelago" gives the following account of the manner in which the superabundance of insect life is turned to account in the islands of the Malay Archipelago. Writing of Lombock, an island at the east end of Java, he says:—Every day boys were to be seen walking along the roads and by the hedges and ditches catching dragon flies with bird-lime. They carry a slender stick, with a few twigs at the end, well anointed so that the least touch captures the insect, whose wings are removed before it is dropped into the basket.

The dragon flies are so abundant at the time of the rice flowering, that thousands are soon caught in this way. The bodies are fried in oil with onions and preserved shrimps or sometimes alone, and are considered a great delicacy.

In Borneo and Celebes, the larvae of bees and wasps are eaten either alive as pulled out of their cells or fried like the dragon flies.

In the Moluccas islands the grubs of the Palm beetles (Calandra) are regularly brought to market in bamboos and sold for food; and many of the great Lamellicorn beetles are slightly roasted on the embers and eaten whenever met with.

Oiling and Blacking Harness.—All harness that is in constant use should be washed, oiled and blacked at least twice a year. When it is to be oiled, unbuckle all the parts and wash the surface clean with strong soapsuds. Any coating of gum which the soapsuds will not remove, may be removed by a little turpentine or benzine. Then warm the leather through and through. As soon as it is dry on the surface, and before it is dry to the center, apply the oil. Neat's-foot oil is the best. Linseed oil will make the harness dry and stiff. Apply the oil with a paint brush or swab, the harness lying on a bench or smooth board. The small pieces may be dipped in a pan of oil and drawn out slowly between the thumb and fingers to wipe off the excess of the fluid. By using a large pan one can oil a harness in a few moments neatly and thoroughly, and without wasting any oil. As soon as the oil has dried in, a coat of leather varnish should be applied. *Industrial Monthly.*

What is Fermentation?—It is asserted by Miss Coleman and "Beechwood" that fermentation is "rottenness," "death." On the contrary, it is life, literally and philosophically speaking. It is the progenitor of all life from the germination of the smallest seed to the hatching of the largest egg. Without it no life could begin, no life could continue. It is thus described in *Wood's Botany*:—"When a seed is planted in moist soil at a moderate temperature, the integuments gradually absorb water, soften and expand. The water is decomposed, its oxygen combines with the carbon of the starch stored up in the tissues, carbonic acid is evolved, and the starch is converted into sugar for the nourishment of the embryo, which now begins to dilate and develop its parts," and life begins.

Fermentation is a changing of the materials of organism for the creation of new ones for the purpose of nourishing life. It is not rottenness; neither is it death; but if properly arrested, may endure for ages, as in the case of "old wine."

Safety-Matches.—Casualties are continually occurring from fires caused by ignition from the still burning ends of lighted matches thrown carelessly aside; and it may be of interest to learn that a mode of preparation has lately been devised by which such a result may be entirely prevented. The principle of the new match consists in impregnating the wood of which it is made with a chemical solution which prevents the carbon from remaining a fiery mass for a single instant, as in the case of ordinary matches, so that as soon as it is blown out it may be thrown with perfect safety upon inflammable or explosive substances. The manufacture is said to be no more expensive than those now in use.

Mounting Drawing Paper.—First moisten the paper thoroughly; then lay it upon the board in proper position and with blotting paper remove most of the moisture for a distance of about one-half inch from the edges; then take strips of Manila paper (not too stiff), about 1⅛ inches wide, covered on one side with mucilage, and paste them down on both paper and board, allowing them to lap on the edges of the sheet about half an inch. Keep the middle of the sheet thoroughly wet until the mucilage has set, when the whole sheet may be allowed to dry gradually. This method is quick, sure and of especial use when coloring is necessary.—*Industrial Monthly.*

Snoring.—Snoring is, of all bad habits, the most intolerable, and it is comforting to know that a device has been found out to mitigate its horrors. A long and flexible tube leads from the nose of the patient to his ear, and thus the undulcet sounds which he creates awakes the author. He, in effect, consumes his own snoring, much as a well-constructed factory chimney consumes its own smoke; and, being thus convinced of the enormity of his own sin, learns to repent him and keep his own nose under better control.

The number of miles of railroad now in operation in the United States is 60,382.

Hints to Manufacturers.—The most important rule for a workshop is "a place for everything, and everything in its place;" and its rigid enforcement will save hours in time, and dollars in money, every week. Keep your floors and benches clean, and force journeymen and apprentices to take some degree of pride in the appearance of the benches and parts of the floors they occupy. It is not difficult to get a good workman interested in such matters; and the best workman, if he be a reliable man, is the cheapest under every circumstance. "Cheap help" waste and destroy as much as they earn, and the result of their labors is seldom satisfactory. We could never understand why a manufacturer, who could not think of touching his cash-drawer without the knowledge of his book-keeper, should deem it proper to walk into his factory and give his journeymen instructions regarding their work without first informing his foreman of his intention to do so. A competent foreman is naturally sensitive of his perogatives; an incompetent one you do not anticipate employing. If you engage a foreman, give him entire charge and control; if not, engage an assistant foreman and be foreman yourself, taking the responsibility as well as the credit of so being.—*Cabinet Maker.*

Mechanical Hints.

To Make Superior Lath.—Much of the lath of commerce is of poor quality, and unequal in thickness and width. Often it is sawed out of pine slabs saturated with pine gum which will often strike through a heavy coat of mortar and color the wall. In many instances a builder is located 20 or 30 miles from a market where lath can be obtained. But he may possess an abundance of cheap timber of the best quality for lath, and may have convenient machinery for sawing. The writer was once thus located, having plenty of basswood, which makes excellent laths. He hauled to the sawmill a few logs 16 feet long (the width of the rooms) and had them sawed into plank 1½ inches thick. These he hauled home and sawed into lath three-eighths of an inch thick and 16 feet long. In no place in the dwelling did the lath break joint. The mortar, of clean sand and good lime, was laid on half an inch thick and neatly troweled off; and for more than 20 years, no crack appeared in the walls. The laths were sawed as follows: A circular saw, one foot in diameter, was put on the journal of the firewood-cutter; a movable table, about 16 feet long, was made to move easily on a roller way, about 32 feet long; and the saw was driven by two one-horse railway powers placed side by side. A two-horse railway power or a steam engine would be much better. With such an apparatus one man could saw lath as fast as he could handle a plank.

A Cheap Cellar-bottom.—Grade the bottom of the cellar, letting the outside be at least two inches lower than the middle. Lay cobblestones down in rows and ram them down one-third their thickness into the ground so that they will not rock nor be sunk by heavy weights, as molasses barrels, etc. Fill all the interstices with a grouting of clean sand and water lime, or Rosendale cement. When this has set, cover with a layer, one inch thick, of good cement mortar. In order to spread the mortar even on the surface, lay an inch board one foot from the wall on the surface of the pavement, stand on the board, and fill the space with mortar even with the top of the board. After this move the board one foot, fill the space with mortar and trowel off smoothly. Such a floor is cheaper than one of boards, and exceedingly durable.—*Industrial Monthly.*

Keeping Frost out of the Cellar.—The temperature of a cellar can be kept above the freezing point, and thus vegetables therein preserved against frost, by keeping fire in a small stove, or by letting a pipe extend from the kitchen stove to the bottom of the cellar and then, by means of two elbows, return up to the chimney flue. The hatchways and windows should always be packed or shielded with shavings, sawdust, hay or some other material which will prevent a current of cold air from entering.

How to Build Brick Chimney-tops.—All the brickwork above the superstructure, whatever the material of the building, should be made with cement mortar, which absorbs less moisture than that made of caustic lime and sand. The bricks for a chimney-top should be soaked in water for a few minutes, so that they will not extract the water from the mortar. In order to have mortar become very hard, it must dry slowly. By laying wet bricks, the mortar will set slowly, dry slowly, and eventually become almost as hard as the bricks. Every brick chimney should be covered at the top with a copestone, an arched top, or bricks placed over the flues, like the rafter of a building, for the purpose of turning off the water which would go down the inside, be absorbed by the bricks and perhaps soak through and wet the paper or kalsomining on the inside. A chimney-top made as above will stand the influences of the weather over a hundred years without repairs.—*Industrial Monthly.*

A Cheap Packing.—An engineer says that for packing for the stuffing-boxes of pumps he uses common wood shavings from a carpenter's bench. Fill the box well with shavings and press them down either with a packing-stick or by screwing down the valve once or twice. The water causes the shavings to swell; they are found to be effectual and durable.

Good Health.

Curious Antipathies.

The subject of sympathies and antipathies is extremely curious. Boyle fainted when he heard the splashing of water; Scaliger turned pale at the sight of water cresses; Erasmus became feverish when he saw a fish. A curious story is told of a clergyman, that he always fainted when he heard a certain verse in Jeremiah read. Zimmerman tells us of a lady who could not endure the touch of silk or satin, and shuddered when touching the velvety skin of a peach. Mr. Julian Young tells the story of an officer who could not endure the sound of a drum, and ultimately fell dead when compelled to hear it. There are whole families who entertain a horror of cheese; on the other hand there was a physician, Dr. Starke, of Edinburg, who lost his life by subsisting almost entirely upon it. Some people have been unable to take mutton, even when administered in the microscopic form of pills. There is the case of a man falling down at the smell of mutton, as if bereaved of life, and in strong convulsions. Sir James Eyre, in his well-known little book mentions three curious instances of idiosyncrasy—the case of a gentleman who could not eat a single strawberry with impunity; the case of another, whose head would become frightfully swollen if he touched the smallest particle of hair; the case of a third who would inevitably have an attack of gout a few hours after eating fish.—*London Society.*

Australian Cure for Sore Throat.—A correspondent of the *Queenslander* gives the following cure for sore throat: It cannot be too generally known that all forms of sore throat, whether simple, ulcerated, quinsy, diptheria, scarlet fever, or otherwise, can be either totally cured or greatly alleviated by simply wearing a soft oil silk kerchief twice around the neck, high up and next the skin, especially if worn at night when the pain is first felt. Like Naaman the Syrian, people will take any trouble but the right one, and fly to gargles, blisters, lotions, pills, etc., and keep at them for a month at a time; but an old silk square—why it's too absurd, and so they hug their sore throat and wonder why it don't get better. Not only does the silk cure the sore throat, but it prevents a recurrence of it. I was formerly a martyr to quinsy and ulcerated sore throat, and used to have a whole month of it regularly every winter, and in spite, too, of all the usual battery of pills, gargles, etc., it run its course till I tried the silk; the sore throat then took the hint and has left me alone ever since as a bad customer. I invariably killed it within an hour of any attempt it makes upon me; an old sore throat will take a day to cure. Mind, I do not pretend to say that the silk will cure fever or any other symptom or complication that may accompany sore throat, but this I do say, that it will cure and remove all pain and difficulty of swallowing in the throat without the aid of any local remedy, or it will do it in spite of them, if you do apply them and it both, but, without it, cure only comes by nature, not physic, as far as the sore throat goes; other remedies are neither good nor harm, except as they keep you from trying the infallible silk. —*Australian Paper.*

How the Skull Protects the Brain.—A child bears knocks which would be fatal in old age. This is owing to the skull being thin, uniform in texture, and elastic, in childhood; and to the brain being of a corresponding structure. The brain is at this age soft to a degree that would be unnatural in mature years. This resiliency of the skull, and yielding quality of the brain, explain how the child is uninjured by blows which would be attended with fatal concussions in after life. But there is also a provision in adults for moderating the effects of such accidents. In proportion as the brain acquires firmness during growth, a gradual change takes place in the structure of the bones of the head; the protecting cranium is not simply strengthened; it is not merely thickened; the flat bones which surround the brain are split into layers, an external and an internal one. Those layers have each a different density, and a softer substance than either is interposed between them; the effect of which is, to interrupt that vibration which would otherwise ring around the skull, and reach every molecule of the brain.—*Phrenological Journal.*

Sleep.—A sufficient amount of good refreshing sleep is just as necessary to the health of the body, as proper food and sunlight. No one can do well without it; indeed, he cannot do at all, for when one loses his sleep he loses his strength and power of endurance with it. It is sleep that strengthens our bodies and repairs the waste of our tissues. Every movement we make during the day—every thought, ever action—is attended with a loss of substance. Like a mill running by steam or by water, every hour's work uses up a certain quantity of motive power. During the night, while we sleep, this is all replaced, and we wake feeling refreshed and new, and ready for action again. No matter how hard a person may work, if he only gets a sufficient amount of sleep, he will thrive and do well. If he does not get sleep enough, no matter how little he works, he will always feel tired and uncomfortable. Sleep is the great restorer, the great invigorator. It is poor economy to steal an hour from refreshing sleep, with the expectation of making a paying thing of it.

Growing Men.

Dr. W. Holmes has shown what every body knows, that we are, as a race, deteriorating. But he has not given us the reason why the New England man grows smaller in bone and muscle. Chemistry tells us it is owing to the want of material in the soil to produce bones. Much is owing to our unnatural habits of life. Much to the weakness of our female sex, who do anything but develop their muscular powers. But the main reason why the race deteriorates so rapidly in the eastern part of New England, is owing to the hard granite soil, which does not furnish limestone sufficient to form the bones. In Kentucky, Ohio and Western Vermont, men grow to large size because of the limestone formation beneath the soil. Parts of families have emigrated from Massachusetts to limestone regions, and the result in the next generation, has been a larger bone development in those who left Massachusetts than those who remained. Kentucky, Ohio and Iowa will grow great men. The finest figures in the world will be found in the valley of the Mississippi in a few generations. Indoor labor, so unnatural for men, will weaken the vital powers and stop the growth in large cities, but the great and glorious West, with its broad prairies, will compensate for the growing feebleness of the Eastern States.

Protest of London Physicians Against Alcohol.—A considerable degree of stir has been produced in London by the circulation of a declaration from a large number of the most eminent physicians of that city, in regard to alcohol, in which they state that, believing the inconsiderate prescription of large quantities of alcoholic liquids by medical men to have given rise, in many instances, to the foundation of intemperate habits, they are of the opinion that no medical practitioner should prescribe them without a grave sense of responsibility. They believe that alcohol, in whatever form, should be prescribed with as much care as any powerful drug, and that the directions should be accompanied by the understanding that its use is not to be interpreted as a sanction of exeess, or for the countenance of its use when the occasion is past. They also state that many people immensely exaggerate the value of alcohol as an article of diet; and hold that every practitioner is bound to exert his utmost influence to inculcate great moderation in the use of alcoholic liquids. Being also firmly convinced that the large amount of alcoholic drinking is one of the greatest evils of the day, they urge the utmost caution against doing anything, either in their character as physicians or citizens, to extend its use.

Perspiration.—The amount of liquid matter which passes through the microscopical tubes of the skin in twenty-four hours, in an adult person of sound health, is about sixteen fluid ounces, or one pint. One ounce of the sixteen is the solid matter made up of organic and inorganic substances, which if allowed to remain in the system for a brief space of time would cause death. The rest is water. Beside the water and solid matter, a large amount of carbonic acid, a gaseous body, passes through the tubes; so we cannot fail to understand that they are active workers, and also we cannot fail to see the importance of keeping them in perfect working order, removing obstructions by frequent application of water or by some other means. Suppose we obstruct the functions of the skin perfectly by varnishing a person completely with a compound impervious to moisture. How long will he live? Not over six hours. The experiment was once tried in Florence. Pope Leo, the Tenth, on the occasion of his accession to the Papal chair, wished to have a living figure to represent the Golden Age and so he gilded a poor child all over with varnish and gold leaf. The child died in a few hours. If the fur of a rabbit or the skin of a pig be covered with a solution of India rubber in Naptha, the animal ceases to breathe in two hours.—*Journal of Chemistry.*

Death in the Pipe.—A correspondent who recently visited an English tobacco dealer, was attracted by a sample of which that looked like a superior quality of Cavendish tobacco. The dealer remarked, "what do you think of that?" The correspondent replied "that he thought it looked nice and asked where it came from." "From New York," was the reply. "It's a weed that grows wild. It is not tobacco at all, they tell me." "Does it sell?" asked the other. "It seems to suit the public taste," answered he, "for we sell a good deal of it."

Curious Accidents.—The following described occurrences show how trifling a matter will sometimes result in serious accidents to the human system: The Waranga, (N. S. W.) *Chronicle* reports that a man feeling an ant on his back, in endeavoring to drive it away, dislocated his shoulder. The *Gipps Land Mercury* states that a Mr. Day, of Bairnsdale, while in the act of pulling of his boot, fractured the bone of one of his legs.

Excellent Tooth Paste.—Suds of castile soap and spirits of camphor, of each an equal quantity, thicken with pulverized chalk and charcoal, to a thick paste. Apply with the finger or brush.

Cundurango has long been known to botanists, as reported by Dr. Scherzer. It is used, in Guaco, in infusion or extract of the leaves for snake-bites, hydrophobia and cholera.

Scientific Press.

W. B. EWER.....GENIOR EDITOR.

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San Francisco:

Saturday Morning, April 6, 1872.

Gold and Legal Tender Rates.

San Francisco, Wednesday, April 3, 1872.—Legal Tenders buying, 91¾; selling, 91¾. Gold in New York to-day, 110¼.

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Sales.—The "Brown's Hope" mine in Lida Valley, Inyo county, has been sold to Messrs. Hiskey & Walker for $5,000.

The Placerville *Republican* reports the sale of the St. Lawrence claim of Buel, Bateman & Co., situated about six miles north of Placerville, in Kelsoy township. No figures are given but the amount is probably large as the mill ou the property cost the proprietors $50,000 alone, and the mine ie pronounced a good one.

The Davenport lode in Little Cottonwood, U. T., is reported as sold for $125,000.

A dispatch received here on the 4th inst. says that it is stated on reliable authority that the Eureka Company's property in Tintic District, U. T., has been sold to English capitalists for $720,000.

A Handy Book.—We have received from John Taylor & Co., 512 and 514 Washington strcet, a neatly bound volume containing tables showing the value of silver and gold per ounce Troy of different degrees of fineness. It has also a numher of other convenient tables for the use of assayers, among them one showing the amount of gold and silver, in ounces and fractions, contained in one ton of ore, of 2,000 pounds, from the weight of hullion ohtained in an assay of 20 grammes of ore.

Change of Address.—Samuel Pelton, inventor of Pelton's improved horse-power has removed from Marysville and may he addressed Box 1732 in this city.

A Company has been incorporated in Portland, Oregon, to work the galena mines on the Sautian river.

The Baltimore copper mine, in Fresno county, is to he re-opened and worked.

The Region of the Late Earthquake.

The late remarkahle earthquake in Inyo County will no doubt attract the attention of the world to that locality, and any points concerning its geological formation, appearance, characteristics, etc., will he of interest. Mr. Henry G. Hanks, who resided in that part of tho country for a number of years, has given us a few notes, the result of his personal observation, whichgive a very good idea of the volcanic nature of a region of which hut little is known.

Those who have visited Owen's Valley have heen struck with the strongly marked evidences of intense and comparatively recent volcanic action for a hundred miles north and south of Lone Pine. As far north as Owen's Lake very ancient outflowe of lava form the surface of the country. The valloy in which this lake is situated, is a circular basin about fifty miles in diameter, surrounded by low mountains. The body of water, which is about 25 miles long, lies near the southeast side. Near the lake is a remarkable mountain, which from a distance seems to be loose sand, but which on a close examination proves to be volcauic ashes and pumice, a disintegrated portion of which forms the soil of the valley in which it is situated. Pieces of pumice are sometimes seen floating in the lake or thrown by the winds and tide upon its shores. Great bouldors and masses of obsidian are found in the vicinity, while small angular fragments are scattered through the loose alkaline soil.

That the lake once filled the whole valley seems to be proved by the fact that water marks are seen along the hase of the surrounding mountains, and banks wonderfully formed by the ancient lake, are seen in successive terraces approaching the present level of the water.

The watere of the lake aro strongly alkalino and very offensive both to taste and smell. The odor arisiug from them is that of the refuse of soap works. The hot spring at Benton which hy a bold eacrilege is conducted almost hoiling through a flume and compelled to turn the wheel of a quartz mill, and tho remarkable thermal spring which gushes in a broad stream from the foothills in Adobe meadowe are evidences of latent volcanic action.

Let two or more intelligent observers express their opinion of this locality in ordinary conversation and they would soou be unanimous iu the opinion that Mono Lake valley is in itself a volcanic crater and that all of the volcanic rocks seem on every eide had their origin in it. From its margin, in every direction except west, streams of lava have flowed across hills and plain. For many miles the whole country is covered with blocks of lava, pumice, obsidian and trap. During the eruption, valleye were filled up and what were formerly mountain tops, are now outliers, projecting like islands above the frozen sea of lava.

In some localities since this action ceased, denudation has taken place, deep gorges and cañons have heen cut hy water and in some cases new hills have been formed, capped in every case with the ancient lava. Other beds of pumice of more recent origin flowed across the country in a southeasterly direction, crossing Adobe meadows, and the hills forming Black lake valley and entering Owens' valley at Whisky Flat. It seems to have heen formed hy two eruptions of different ages. It is a sort of breccia. A stream of pale yellow lava or pumice seems to have flowed over boulders of a darker colored variety, washed from an older deposit, surrounding without fusing them and the whole congealing into a breccia or conglomerate. Throughout the mass are small rounded nodules of a nearly transparent obsidian and angular fragments of a darker colored and uearly opaque variety. This formation extends nearly to the foot of the White mountains. At Adobe Meadows a stream of water has cut through it at a point where it is several hundred feet thick. The soil of Adobe Meadows is formed entirely of this formation. Its color is the same, and a microscopical examination shows its composition to bo identical.

About nine or ten miles abovo Camp Independeace aro a uumber of volcanic cones which have every appearance of having been in recent action. "The Volcano" is a cone which stands in the valley apart from the Sierras. This cone has evidently formed itself. I have never heen to the summit although I have often wondered at the immense outflow of lava which has cougealed upon its sides. From all these cones, black pathways to the valley reveal the course of the lava streams which must have epread devastation and ruin in thoir wake. On the Inyo side a single crator appears, from which, however, an astonishing quantity of lava has been thrown out.

The waters of Owens river which flow dowu from the high Sierras as pure as the snows that give them hirth, begin to collect the soluble salts from the decomposing lavas even before they reach the level of the valley, as the stream has cut a deep cañon through the peculiar lava before mentioned, which is soveral hundred feet deep. During the summer, wheu the freshets occur and the rain overflows its banks, minature lakes are formed, which, drying as the watere return to the channel, deposit an incrustation of alkali and salt which gleams in the bright and fervid sunshine like patches of snow. At Black Rocke the waters which burst out from under the lava are nauseous and alkaline. This alkaline solution mixes with the already contaminated waters of the river and increases its impurity. When it reachcs the barrier which checks its further flow, the waters spread out and form Owens' Great Lake. The river is extremely crooked. In travorsing 84 miles of latitude it flows hundreds of miles, so circuitous is its course. Every mile adds to its impurity until it deposits its collocted salts in the lake. The heat of the sun maintains an irregular equilibrium. The water soon becomes saturated and supersaturated and deposits the matter it can hold no louger in solution, in the form of a remarkable travertine, which coats the rocks and grows like coral upon any objoct which offers itself as a nucleus.

The waters of the lake are remarkable, having a specific gravity of 1.060 with the appearance of a thin yellowish oil. An analysis shows it to consist of potash and eoda with a trace of magnesia, and sulphuric acid and chlorine with traces of horacic, phosphoric, silicic and hydrosulphuric acide.

There is a remarkable similarity be tween this lake and the Dead Sea, not only in the lake itself, but its surroundings.

From the foot of Owen's Lake to Haiwee meadows the distauce is 14 miles. There is nothing remarkable or characteristic at this point besides a small extent of grass land and a stream of brackish water; but the evidences of recent volcanic action are seen on every side. It is difficult to put aside the idea that Owen's river formerly ran through this region, and that some terrihle convulsion of nature has lifted the walls which ehut off its flow and caused the lake to spread out. This seems to be one of the centers of a wide spread action, which resulted in the formation of the deserts of the Great Basin. This must have heen comparatively recent, for Owen's river valley was formed before the age of the mastodon and the extinct species of horse, the remains of which have been found in digging wells. There is reason to believe that hefore the eruption, or age of eruptions occurred, that Owen's Valley was as fertile and its waters as sweet as those of the Yo Semite or any other mountain valley in the Sierras. All the volcanic deposits I ohserved seemod superficial. There ie nothing to indicate that the Iuyo mountains owe their origin to this or any similar cause.

Between Haiwee meadows and Little lake there is a large volcano which stands prominent in a wide plain from which in every direction streams of lava havo run. This cono is intensely red in color, which is due probahly to the oxidatio nof the ferruginous matter thrown out during its eruptions.

During several years residence in that county I did not experience auy earthquakes of magnitude. But one occurred several years ago in the mountaine near the head waters of Kern river, which was very similar. I think an account of it was published at the time. The ehocks were very violent and often repeated. Those who were there describe the scene as one of terror. Large houlders were dctached from the mountain sides and rolled into the valley helow. The ground was in almost constant vibration for several hours. From what I know of the country I ehould not be eurprised to hear of eome of the ancieut volcanoes bursting into a state of eruption at any time.

Death of Professor Morse.

The telegraph, like a son carrying the news of the death of a fathor, has brought us the intelligence that Samuel Finley Breese Morse, the inventor of telegraphy, died in New York on the 2d inst. The death of Prof. Morse has heen hourly expected for some days. The benefit of the inveution which was created by his fertile brain, to the civilization and progrese of the world at largo can nover be calculated, and the personal distinction achieved by its success has been a subject of congratulation to the people of the United States. His name is well worthy of being placed at the head of the list of benefactors to mankind and will no doubt exist in the memory of man as long as history ehall remain.

Prof. Morse was born in Charlestown, Mass., April 27th, 1791, and had almost finished his eighty-first yoar at the time of his decease. He wae the son of Jedediah Morse, a clergyman and geographer, known as tho father of American geography. He graduated from Yale College in 1810, and eailed for London in 1811, to etudy painting, where he succeeded well in his profession. In 1813 he received tho gold medal of the Adelphi Society of Arts for a plaster model of "Dying Hercules" taken from an original painting of his own. He returned to the United States in 1815, and became subsequently one of the founders of the National Academy of Desigu, being its first president. In 1829 he paid another visit to Europe and returned in 1832. A fellow passenger on his returu trip, Prof. C. T. Jackson, was describing the experiments that had just been made in Paris with the electro-magnet, when a questiou arose as to the time occupied by the electric finid passing through the wire. Tho reply being made that it was iustantaneous, Jackson suggested that it might he carried to any distance and that the electric spark might be made a means of conveying intelligence. Thie suggestion took deep hold of Morse, who proposed to develop the idea; and hefore the voyage was over he had drawn out the general plau of the system known by his name.

It was not until four years afterwards that he succeeded in fully demonstrating his thoory upon a wire half a mile long. Congress voted him $30,000 to enahle him to carry out his views and, in 1844 he saw the realization of his hopes in the perfect

working of a wire 40 miles long, which had been constructed between Baltimore and Washington. Honors have been freely showered upon this greatest of American inventors both at home and abroad. He was a member of a number of American and European scientific and art associations, and medals and crosses have been presented to him by many European rulers. The most distinguished tribute ever paid him was by ten European governments combined—those of France, Russia, Sweden, Belgium, Holland, Austria, Sardinia, Tuscany, the Holy See and Turkey, whose representatives assembled in Paris at the instance of Emperor Napoleon to consider the best means of giving him a collective testimonial, which resulted in a vote of 400,000 francs as "an honorary and personal reward to Mr. Morse for his useful labors."

Professor Morse lived to see the system he invented adopted in every portion of the globe, bringing its most distant parts within speaking distance of each other, and all the nations of the world have vied in doing him honor. Like all inventors he experienced considerable trouble in bringing his method before the people, but when it was once understood its vast importance was at once recognized and it has been ever since one of the greatest of educators, the chief aid of commerce, the highest convenience of civilization, and one which revolutionized the entire business of the world. He has gone from us, not like a meteor in a wild blaze of transient brilliancy; but in the full effulgence and glory, of honors as enduring as the world.

The Late Earthquake.

The earthquake which occurred on the 26th ult. was felt the whole length of California and as far inland as Winnemucca. The shock though comparatively a light one in this city, was one of the most severe on record in other localities, as well as one of the most widely diffused. A great variety of opinion is expressed as to the intensity, and in the numerous descriptions much discrepancy exists concerning the duration. The center or initial point of the shock seems to have been at Lone Pine, in Inyo County, the center of a mining district of that name, situated on the western base of the Inyo Mountains not far east of Mount Whitney. The country in which it is located is undoubtedly of volcanic origin and abounds with evidences of comparatively recent volcanic action. From facts elicited by the late "temblor" it is reasonable to suppose that the Kern or Inyo region is the seat of the greatest energy of the failing volcanic forces which raised the Sierra Nevadas and covered the surface of the country with the evidences of its power.

The phenomena which occurred in that region were of the most appalling kind and some twenty three persons were killed and thirty injured by the falling buildings. Eye witnesses describe the scene in a manner which leaves no doubt of the power of the shock, and makes it a subject of congratulation that this city with its thousands of inhabitants, lofty brick buildings, and crowded houses, was so far from the center of disturbance. It is said that an instant after the shock occurred at Lone Pine (about half past two in the morning) not a building was left standing. The houses appeared to crumble away and fall into ruins. Cries for help from the wounded filled the air, and shock succeeded shock, added to the already overwhelming fright of the people who had escaped the first disastrous effects. Different accounts place the number of shocks all the way from 500 to 1,000, and it is asserted that each was invariably accompanied by an appalling noise, the reverberations of which through the mountains were as terrific as the noise itself. It sounded like the thundering explosion of a thousand heavy cannon fired at the same time. It seemed to be directly under foot, and at Independence the noise could be heard advancing from Lone Pine, and as the shock came on, thousands of huge rocks tumbled from the crags on either hand and crashed into the ravines and upon the edges of the valley below.

Big Owens Lake is said to have risen some four feet, and the Owens river overflowed its banks, whilst Little Owens Lake, 24 feet in depth, has entirely dried up. The earth is cracked and seamed in many places, and old springs dried up, while new ones were created.

Notices of Recent Patents.

Among the patents recently obtained through Dewey & Co's. Scientific Press American and Foreign Patent Agency, the following are worthy of mention:

Machine for Painting Wire Cloth.—Samuel Graves, S. F. The object of this invention is to provide a machine by which fibrous substances, and wire cloth especially, can be rapidly and thoroughly painted. It consists in passing the long strips of cloth from a reel, through a bath of paint where it is thoroughly coated, and thence between one or more sets of elastic rollers which squeeze out all superfluous paint from the meshes, but leave the wire thoroughly coated.

Permutation Lock.—Wm. C. Bussey, S. F., Cal. The object of this invention is to provide an improvement in that class of locks which are commonly employed for safes and bank-vaults. It is called a detached cylinder lock, and consists mainly in the employment of operating devices which render it possible to remove the lock to a considerable distance from the knob, and also in the use of novel devices between the knob and the lock proper by which the combination is set and operated. An elastic connection is employed so that it will be impossible to tamper with the lock from the outside.

Brick Kiln.—Francis F. Boudrye, S. F., Cal. The object of this invention is to provide such an arrangement of the lines of bricks and the conducting passages for

THE SUGAR MITE.

heat, that all parts of the kiln shall be exposed uniformly to the heat and thereby the burning and spoiling of many brick in every kiln is avoided.

Improvement in Traction Engines.—W. W. Hanscom, San Francisco, Cal. This invention relates mainly to improvements in applying power to the wheels of traction engines so that all gearing and complicated machinery are dispensed with. It consists in the employment of hydraulic pumps which are operated by means of steam cylinders. The hydraulic cylinders which are operated by the pumps are connected directly with cranks, which are fixed upon the axles or wheel centers, and in such positions as to have no dead point. The whole mechanism is much simplified.

Submarine, and Other Walls.—Wm. H. Foye, San Francisco, Cal. This invention relates mainly to an improved method of constructing walls, by which a system of ground and vertical rods are employed which guide and assist in placing the stones, and also serve to retain them firmly in place after they are there. It also relates to a device for attaching a cornice when employed upon buildings.

Little and Big Cottonwood Districts, in Utah are still covered with snow. The Emma and other mines are working, however, with full sets of hands and good prospects.

Wheat Shipment.—The large ship, Adriatic, cleared for England this week with 3,300 tons of wheat, the heaviest shipment this season. The "Glory of the Seas" carried 3,200 tons. The total shipment since the 1st of July amounts to 1,162,000 centals against 3,500,000 centals for the same time last year.

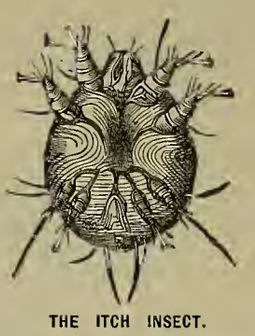
Microscopic Wonders.

The uses and advantages of the microscope crowd upon us in such profusion that a volume would be required to merely enumerate them. There is no department of science, art or manufactures for the benefit of which it is not called into requisition. It is no longer a costly toy, as at its first introduction, but it is a genuine and practical aid to man in almost every research or employment in which he is engaged.

Perhaps in no direction has its wonder-revealing powers been more fully exhibited than in the world of microscopic life which it has made known to us. Equally interesting and useful is the assistance which it has rendered in the study of the various orders of insects, not strictly microscopical, but whose minuteness rendered any practical study of their structure, habits, etc., utterly impossible.

There is a class of insects known as *Acarus*, commonly called mites, and belonging to the spider family, a more accurate knowledge of which, than can be obtained by the naked eye, is almost indispensable to man, in his present advanced social condition. We allude to the parasitical insects which so seriously interfere with him by their depredations upon his food, his domestic animals, the feathered friends by which he is surrounded and most of the vegetables, etc., which he cultivates, and even with his own person.

We have herewith figured two of these insects, the *Acarus sacchari*, found in unrefined or raw sugar, and the *Acarus scabici*, sometimes found under the human skin in the pustules of a well known cutaneous disease. There are, besides these, great numbers of similar insects, some one of which is peculiar to nearly or quite every quadruped or feathered creature. A microscopical knowledge of the physical constitution, habits etc., of such insects is



THE ITCH INSECT.

almost indispensable in enabling us to rid ourselves and our domesticated friends of their annoyances, which if not arrested often lead to fatal and most destructive results.

Many people were much startled by the reports of the immense number of mites found in raw or unrefined sugar, when their presence was first announced by Dr. Hassel in 1868. The Dr. found them in no less than 69 out of 72 samples of sugar examined; but he did not detect them in a single specimen of refined sugar. The conditions of refined sugar are doubtless unfitted to their existence therein. In one sample of raw sugar he found no less than 500 mites in 10 grains; equivalent to 100,000 in a single pound! When they are present in great numbers they may sometimes be detected by a good eye, unaided by a glass—appearing like little white specks. The "Grocer's itch" is caused by transference of these mites to the human skin. *Mem.*—Don't eat raw sugar.

A mere sight of the picture of the ugly looking little fellow which we have placed by the side of the *Acarus sacchari*, will probably be all our readers will care for, at this time, and we will not inflict them with any further reference.

This class of insects have a rounded oval body, without the usual division between the head and body. They usually have four pairs of legs. Perhaps the most familiar type of this class of insects is the common head louse—*Pedicule Capitis*, and the insect which infests the common barn-yard fowl—more easily detected on the head or under the wings of very young chickens.

One of the cheapest microscopes extant is that advertised in another column, and known as Craig's microscope. This instrument will do very well for beginners, or for cultivating a taste for such studies; but we cannot recommend it as a very affective instrument for practical study.

The Coming Centennial Anniversary.

Mr. John Graham, of this city, has received a letter from Judge J. D. Creigh, the California delegate to the Commission which was called to meet at Philadelphia for the purpose of making arrangements for the approaching Centennial anniversary of our National Independence. From a perusal of that letter we infer that the preparations indicate that the event will be made one of greater magnitude than anything of the kind which has yet entered into the civil history of any nation on the globe.

The Commission, which consisted of twenty-seven members, has held several sessions, and has selected as a site for the celebration, the well known locality of Fairmount Park, upon which will be erected a main building which will cover about 50 acres of ground! The building will consist entirely of iron and glass and will cost about *seven and a half millions of dollars!* Other minor and special buildings will also be erected. The Commission estimate that the entire cost of the celebration will reach *fifteen millions* or more. The city and entire State, in fact, is alive to the importance and magnitude of the event, and citizens of all classes are making every possible exertion to encourage and help on the enterprise.

In consequence of some needed legislation by Congress and the State of Pennsylvania, the committee has adjourned until the 22d of May, when they expect to meet again and make all necessary arrangements to put in active progress the material preparations for the grand event. Very properly, and with a due appreciation of the importance of the feeling which should pervade the national heart, the most thorough arrangements are contemplated to unite all sections of the country in this demonstration; and every good citizen will hope that nothing may transpire to, in the least, interfere with the realization of this purpose in its fullest and most comprehensive sense.

Mr. Morrell, who was offered the Presidency of the Commission, has declined the honor in such a manner as to give the whole country more time for consideration in its choice of a gentleman in whom might be centered such feeling and confidence as would command the greatest amount of admiration. Some gentleman will undoubtedly be selected for the office, who, by position and all the amenities of nature and other circumstances, will be able to conduct the first grand celebration of the birth of the Nation in a manner worthy of the event and satisfactory to the people as a whole.

As we understand it, the design is not to make the occasion simply a grand gala-day, but in addition to the ceremonies, displays, addresses, etc., appropriate to such an event, the day will also be made the grand opening of one of the most magnificent industrial displays which the world has ever yet witnessed. The main building alluded to is designed for the reception and display of the industries of the country, and it is confidently expected that the United States will be able to show more strength and genius, in the mechanic arts and sciences, through the influence of that celebration, than has yet been shown by any "World's Fair" or other similar means yet attempted by the nations of the earth. If the proper current is set running, the only difficulty will be for Philadelphia to find room for all that is offered to show the productive resources of the country, and the progress which has been made during the first century of our national existence. It is confidently expected that the first centennial of the United States will be the grandest civil and industrial exhibition ever known in history.

California Machinery for Colorado. A 15-ton mill is being built at the Union Foundry for Hon. N. B. Judd and F. W. Crosby of Georgetown, Colorado. This is a pioneer movement in that quarter, California machinery being hitherto unrepresented in that Territory. The mining interests of Colorado, more especially her silver interests are now in their infancy but are full of promise for the future. Our foundrymen have had over 20 years' experience in building milling and mining machinery, and their work we think cannot be equalled, let alone surpassed, in the world, and we believe that if the proper steps are taken they will find in Colorado a good customer.

Numbers of miners are leaving Salt Lake City and going to Star and other districts south.

Domestic Economy.

Crumbs of Piecrust—The Grumbler.

The grumbler is one of the most unfortunate of beings; he travels the worst roads, drives the worst horses, drawing the worst vehicle under the sun. He eats the worst dinners, especially at home, and wears the worst clothes of any live man.

He spends most of his thoughts in wondering why he is not Alexis, or the Prince of Wales, or the President of the United States, or the Grand Mogul of somewhere, instead of plain John Smith, Jr.

To the discontented man his wife, heaven help her, is a constant source of annoyance. She is too tall or too short, too grave or too gay, too voluble or too reticent, in fact, it is doubtful whether a companion imported directly from the celestial regions, would be a complete success in his eyes.

If she goes with him to an evening entertainment or for an afternoon visit, he spends the homeward ride in grumbling because she does not sing like Mrs. A., or play like Mrs. B., or dance like Mrs. C., or talk like Mrs. D., and ends by complaining because she is moodily silent, and won't answer him at all.

He wonders why she looks so sad and careworn, why she does not welcome him as gladly, or laugh as cheerily as before marriage; why she has the habit of starting nervously every time he enters the room; and why she does not care to ride, or walk, or talk with him. Poor man! he is continually planting briers by the way! What wonder if he reaps a plentiful harvest of thorns?

Does our grumbler travel, he meets with more hair-breadth escapes, comes in contact with more villainous people who make him the sole object of their vile intentions, which, however, from his superior discernment he succeeds in eluding, than Ledyard or Von Humboldt ever encountered.

The best way to cure a discontented man is to help him complain; agree with him that he is the most unfortunate person living, and he will very soon undertake to prove that he has quite as much to be thankful for as the most of people.

A friend whom I was once visiting had the misfortune to have a husband who was always exaggerating the ills of life. One morning he sat down to breakfast as usual, ate a hearty meal, and just before its close, leaned back in his chair, saying that he was unwell; and forthwith began to descant upon his many ailments. He declared that he felt that he was not long for this world; it was his fate, but he was resigned. Here he recounted a number of incidents to prove that an evil genius had followed him from his cradle to the present moment. Said he:

"I must consult a physician immediately."

"Yes," replied his wife anxiously; "you must go to Dr. Cur'em this very day. Start right away, do dear; don't defer; now please don't—"

"There, that's just like a woman," replied the husband, "you always think that I can leave my business at any moment."

"But," rejoined the wife, "only think of the danger of delay; you are going to put it off until it is too late. You will die, I know you will! Oh, dear, oh, dear! I know you will," she cried hysterically.

"Well," said he angrily, I can't nor shan't leave my business to-day; so there is no use in making a fuss," and marching firmly to the hat rack he invested himself in coat and hat and left for his place of business.

As he passed out of sight my hostess burst into a merry laugh; and seeing my look of surprised inquiry, remarked, "you know Henry is rather notional, and I find it best to humor him."

I think she was right, for during my stay I heard nothing more of Henry's ailments. His wife's prescription no doubt proved more efficacious than any which Dr. Cur'em could have administered.—*Western Rural.*

Look to your Wall Paper.—The filthy custom of pasting one wall paper over another till a thickness of an eighth of an inch or more is accumulated is too common, and is attended with the worst consequences. This, as ascertained by the *Lancet*, was the cause of the puzzling offensive smell at Knightsbridge Barracks, England, that recently threatened the whole establishment with fever. The examination of the drains and taking up of the floors revealed nothing, while the introduction of increased means of ventilation left the evil as it was. At last an examination was made of the wall papering, when it was found that one paper was pasted upon another till a thickness was accumulated amounting in one case to fourteen layers. Between these layers there was rotten paste, in which fungi and even maggots germinated; while the wall being hollow, the stench spread into the passages and over the establishment.

Apple Puffs.—Peel and core as many sour apples as will be needed, simmer with a little water till tender, then add a half pound of sugar to a pound of apples, let it simmer till the apples become a kind of marmalade; take it up, and when cold put it into puff paste and bake quickly; when done ice it, return to the oven just long enough to turn the icing golden.

How to Make Good Bread.

Put what flour will be needed for two or four loaves, according to the size of your family, into your bread bowl or pan. Make a hole in the middle, pressing the flower compactly up to the sides of the pan, then pour in sufficient boiling water to thouroughly scald and wet about one-half of the flour. When cool stir in one cupful of lively domestic yeast, previously soaked in warm water. Set it near the stove or in a warm place in cool weather, cover closely just before retiring at night, and it will be light by morning, when a teaspoonful of salt, and enough more warm, but not hot, water to wet all the flour must be added; knead it very thoroughly, and set it to rise again. When light, work it again, and put it in the pans to rise for the last time, and as soon as it is light bake in a moderately heated oven. If the oven is too hot at first the bread is apt to get brown on top and bottom too soon, and then it will not be done in the middle. A moderate oven at first is best, increasing the heat gradually until the bread is about half done, when it should be of a steady heat till the bread is done.

The Secret of Baking Bread.

The grand secret and mystery in having the bread come out of the oven delicious, inviting and nutritive, is the exact point of time in putting it in. While in the state of dough it will readily run into various stages of fermentation—the first of these is saccharine, or that which produces sugar—the next is the vinous—the third the acetous, or that producing vinegar, etc. If the dough be formed into loaves, and placed in the oven before the first fermentation has taken place, the bread will turn out heavy. If it be kept from the oven until the second fermentation, it will prove light enought but tasteless, and little better than the same quantity of saw-dust. If it be delayed until the acetous fermentation had occurred, it comes out sour, and altogether uneatable.

It is, then, during the first or saccharine fermentation that it should be cast into the oven; and it will, if sufficiently baked, be found a sweet and wholesome food. That bread should be without sweetness, when allowed to run into the vinous fermentation is very easily explained—the saccharine matter produced by the first fermentation being converted into a vinous spirit, which is driven off by evaporation during the process of baking. This kind of bread may be easily distinguished without tasting, by its loose, open appearance—the pores or cells being very large—whereas, really good bread is marked by fine pores, and a sort of net work in uniform appearance.

A French Broil.—Select a spider or saucepan with a smooth, clean bottom, set it over the range or stove until really hot, and then lay on a good tenderloin or sirloin steak; keep the spider very hot, and turn the steak as often as every two minutes—no longer; when done sprinkle over salt and pepper to suit the taste of those who are to eat it; continue to turn the steak often till sufficiently done; just as you are to take up and dish the steak dust a little flour over it, spread on a tablespoonful of butter, or, if a large steak, a little more; turn it over, dust on more flour, and spread on the butter as on the first side; turn again, set the saucepan back from the hot fire, take the steak on to the platter, and set in heater or oven to keep hot, but not to cook any more; shake more flour into the butter in the saucepan, set again over the fire, and as soon as the butter bubbles up through the flour, rub it smooth with a spoon, and pour in a few spoonfuls of boiling water, and as soon as it thickens pour over the steak and serve hot.

Know How to Live.—Prof. Blot can never teach you this. Books on cookery will never enable you to learn the secret. Care and experience only will enable you to attain such a desirable end—they are as essential to good housekeeping as to any other duty.

It would seem ridiculous for a man to attempt to do business without going to his office and knowing, from day to day, what is being done there.

The extravagance of living is not all in high prices, or high rents. It is in *waste*. Take a house full of the best servants, and if the mistress is always occupied with company, or engagements away from home, what hope can she have that her servants will be careful. They get no credit for it. Their work *seems* well done, as far as it is likely to meet their mistress' eyes, as she passes from her chamber to the parlor or dining room; and knowing that she will not search out their shortcomings any further, they save themselves trouble by slighting all that is under the surface.

We forget that our servants are human; and conscientious, and well-meaning as we may be, are we sure if we were in their subordinate position, we should do any better?

Be better housekeepers. Look more carefully after your homes and home cares, and there will be fewer hotels and crowded boarding-houses, and more happy husbands, and well-trained children, and less distress on the part of uneasy women because they have not enough to do.—*Home Monthly.*

To Clean Smoky Mantels.—A strong solution of alum and water, applied while hot, will, it is said, effectually clean a smoky mantel. When dry, it should be sand-papered and receive one coat of paint.

How Summer Suits Should be Washed.

Summer suits are nearly all made of white or buff linnen, pique, cambric or muslin, and the art of preserving the new appearance after washing is a matter of the greatest importance. Common washerwomen spoils everything with soda, and nothing is more frequent than to see the delicate tints of lawns and percales turned into dark blotches and muddy streaks by the ignorance and vandalism of a laundress. It is worth while for ladies to pay attention to this, and insist upon having their summer dresses washed according to the directions to which they should be prepared to give their lanudresses themselves. In the first place, the water should be tepid, the soap should not be allowed to touch the fabric; it should be washed and rinsed quick, turned upon the wrong side, and hung in the shade to dry, and when starched (in thin boiled, but not boiling starch) should be folded in sheets or towels, and ironed upon the wrong side, as soon as possible. But linen should be washed in water in which bay has been boiled, or a quart bag of bran. This last will be found to answer for starch as well and is excellent for print dresses of all kinds, but a handful of salt is very useful also to set the colors of light cambrics and dotted lawns; and a little beef's gall will not only set, but brighten, yellow and purple tints, and has a good effect upon green.—*N. Y. World.*

Pickles.—If Hippocrates could escape from the dominions of Pluto and visit this country of pickles, pancakes and hot bread, and contemplate the consequent pasty faces, hot breaths and toothless gums, he would every where meet with, he would see just cause to undertake the *communis* of his maxim. He would see people, sensible in other respects, munching pickles as boys munch apples, filling themselves with hot new bread, and meat with all its juices dried up, which by way of destroying the efficiency of nature's solvent, the saliva, diluting it at every mouthful with water or other liquid, and to crown all, taking bodily exercise in an inverse ratio, to the amount of food swallowed—we might fancy that dyspepsia and indigestion would be seen holding high carnival over every barrel of pickles which *pater* or *matter familias* provides to correct the greasy messes of the frying-pan. Thus we find, as one crime leads to another, so one error causes many—remove the superabundant grease, and there will be no need for a peck of pickles—probably the safest and surest plan would be to knock the bottom out of the frying-pan which is the father or mother of nearly all the ills the belly is heir to. There are more constitutions ruined by the frying-pan than by the whisky barrel; indeed, the former leads to the latter.—*Ex.*

Packing Cucumber Pickles in Brine.—If they are dirty or sandy, wash them by throwing water over them, but do not rub them if it can be avoided. Put the pickles, as soon as picked, into clean barrels only, avoiding kerosene or greasy barrels especially, even if burned out. Fill up the barrel and gently shake them down; then put on brine made of fifteen gallons of water and a half bushel of common fine salt. This is sufficient for all that can be put into a forty gallon barrel; then trim off the edges of the barrel head, and lay on it the pickles, and put on two bricks, or a small stone, to keep the pickles under the brine all the time.

Examine the barrels daily, to see that the brine does not leak or soak away, and leave the pickles out of the brine. If the pickles need more brine, put it on. Fill up the barrel every ten days until you have added one more bushel of pickles. See that the picklos are kept under the brine all the time; and when ready to ship, pour off two gallons of brine, and nail a piece of board crosswise over the head and they are ready to send to the depot. *Western Rural.*

Mrs. Snow's Cream Cakes.—One cup of boiling water, one-half cup of butter, put this on the stove, when boiling add one cup of flour, stir it five minutes, set away till it is almost cold, then stir in one egg at a time till you get in five eggs, then take a piece of soda the size of a pea dissolved in a teaspoonful of cold water, and put it in the mixture. Heat your tin hot that you are to bake your cakes on, grease it, drop your cakes on, bake twenty-five minutes, and do not take them off the tin till they are cold. Have your oven hot to commence with, and when the cakes are almost done let it cool a little.

For the Cream—One pint of milk, one cup of sugar, one-half cup of flour, two eggs. Beat the eggs, sugar and flour together, put the milk on the stove to heat it, then stir the mixture into the milk slowly and when it boils to thicken take it off and let it cool before putting in the cakes.

Cider Without Apples.—Water, 1 gal., common sugar, 1 lb., tartaric acid, 1 oz., yeast, 1 tablespoonful; shake well; make it in the evening and it will be fit for use the next day. In quantities for bottling up, put in a barrel 5 gallons of hot water, 30 lbs. common sugar, ¾ lb. of tartaric acid, 25 gallons cold water, 3 pints hop or brewer's yeast, worked into paste with one pt. water and 1 lb. flour. Let it work in the barrel 48 hours, the yeast running out at the bung all the time, putting in a little occasionally to keep it full, then bottle, putting in 2 or 3 broken raisins to each bottle, and it will nearly equal champagne.

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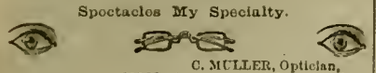
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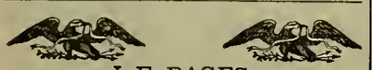
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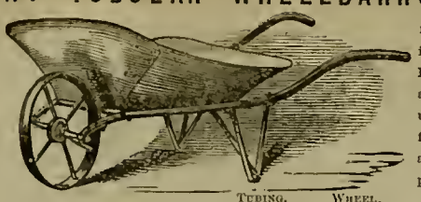
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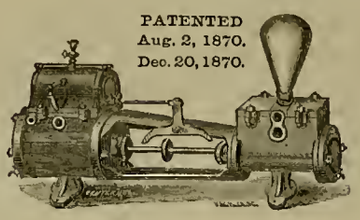
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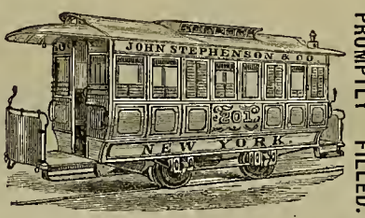

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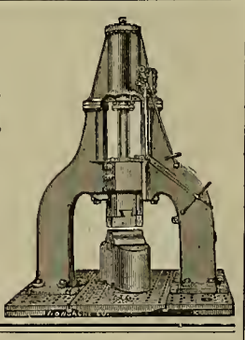

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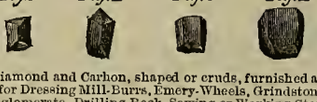

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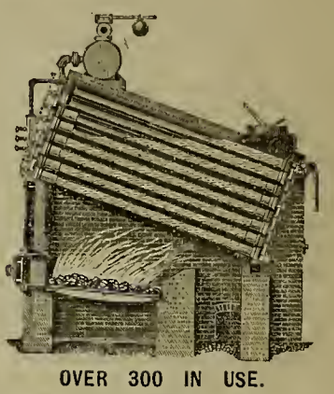
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Academy of Sciences.

The Academy held its regular semi-monthly meeting on the 1st inst. Messrs. John Williamson, Wm. Henry Knight, Eugene E. Dewey, Albert S. Evans and Thomas P. Madden were elected to membership and Col. E. Sparrow Purdy, now in Egypt, was elected a corresponding member.

A New Mineral.

Mr. T. E. Durand presented a description of a new mineral found by him in the new Almaden quicksilver mine. It is of a very bright pure yellow color, is found embedded iu crystalline silicious dolomite. It can be very easily separated from dolomite by sublimation. When warmed in a glass tube it volatilizes when it has become dark red, and gives a strong yellow sublimate which appears amorphous, but which, under the microscope, shows very fine needles like crystals. If heated very quickly it carbonizes and gives a residue of carbon and an empyreumatic odor. Strong acids have no influeuce upon it. When tried for sulphur or arsenic it furnishes no traces of their presence. This mineral is very likely a kind of volatile hydro-carbon, probably belonging to the class of idrialine. When treated by the ordinary dissolvents of carburetted compounds, oil of turpentine, alcohol and ether, it appears to be entirely insoluble. On some specimons of cinnabar from the Redington mine the same substance is found in small scales. In fact, all the characteristios show that the miueral is a new substance, and for it has been adopted the name, *Aragotite*.

About the Earthquake.

Mr. Hanks introduced to the academy Mr. A. C. Diggins, who was at Independence during the recent earthquakes. Mr. Diggins said that he had been interviewed by a reporter of the *Bulletin* and that he had little more to add to what had already been published. He was willing to answer any questions, however, as far as it was in his power. In answer to a number of questions by different members he stated that a rumbling souud was distinctly heard at Independence preceding each shock. The sounds were loud and rumbling, like a train of cars, or distant artillery. At first they seemed to come from the air, and then a rumbling directly under foot would follow. The shocks followed each other so rapidly that this rumbling under foot might have been the noise of the shock, and the sound which apparently came from the air might have been the precursor of the shock immediately to follow. Which sounds preceded and which followed the convnlsions could not be determined. The first shock came about half-past two in the morning. At four o'clock Mr. Diggins said he was in the stage traveling north. Wherever the stage stopped the passengers felt one or more shocks, and always heard that terrible sound accompanying the convulsion. They noticed it more particularly at Bishop Creek, 75 or 80 miles north of Lone Pine. At Independence, where he felt the first shocks, he was near mountains, and the inhabitants at first ascribed the sounds to the rolling of masses of rocks down the mountains. He noticed no peculiarity in the atmosphere the night preceding the shocks; it was a bright moonlight one. He mentioned having been told by a lady and gentleman, that they saw fire coming from the top of the mountains, and the next day there was a black streak down the side of the extinct volcano, which had never been noticed before.

Mr. Hanks gave a short description of the country with which he was familiar. Dr. Gibbons, Dr. Blake, Mr. Stearns and Dr. Hewston all made some remards on earthquakes in general.

Mr Hanks, in answer to a question, said the ouly experiment he had ever made with an earthquake indicator was to construct an arrangement similar to what, he had been informed, they used in China. He had been told that they suspended a steel weight from a magnet, and that just before an earthqnake the electricity of the atmosphere would cause the magnet to lose its power, the weight would drop, and, striking a gong, would give the people the alarm, so that they could escape into the street. He had constructed one on this principle, but it had passed through several earthquakes and had given no indication.

Paper Manufacture.

Dr. Gibbous exhibited a section of the cactus plant, a portion of which he said had been sent East that its qualities for the manufacture of paper might be tested. Some of the pulp made therefrom had been returned, with the statement that it was the very best material for paper. This production grows in great abundance in the southern counties of California.

Senator Cole's Land Bill.

An excellent bill for the protection of settlers on public lands was offered in the United States Senate by Mr. Cole, of this State, which was referred to the Committee on Public Lands, and ordered printed. Following is the full text of the bill:

SECTION 1. That every citizen now residing upon the public lands of the United States or who may hereafter settle upon such land, shall he held and deemed to be, in law, the owner of the same; *Provided, however*, that his or her possessions do not exceed in extent one hundred and sixty acres of agricultural land fitted for cultivation; or six hundred and forty acres of land if the same be useful for pasturage or timber only; or forty acres if the same be known as placer mining lands.

SEC. 2. That every person occupying the public lands of the United States, as provided in the preceding section, shall, after two years of actual continuous possession, if the same be agricultural or pasture lands, be entitled to a patent for the same from the United States free from all costs and charge whatsoever, and if timber land, or placer mining land, or other mineral land, at the rate or price now prescribed by law.

SEC. 3. That none of the public agricultural, pasture, timber or placer mining lands of the United States shall he disposed of otherwise than as in this act provided.

SEC. 4 That all agricultural, pasture, timber, mineral and other public lands of the United States, except reservations for Government purposes, whether surveyed hy the United States authorities, or unsurveyed, or whether offered by the Government or not, if the same remains uncovered by patent, shall be free and open to occupation and settlement, and shall be subject to the provisions of this act, any former act of Congress relating to the same to the contrary notwithstanding.

New Incorporations.

The following have filed certificates with the County Clerk, San Francisco:

NEWARK S. M. Co.—March 29. Location: Ely M. District, Lincoln county, Nevada. Capital stock, $3,200,000, in 32,200 shares. Trustees—Wm. Blanding, S. Heydenfelt, Jesse S. Wall, Jose E. De la Montanya, A. A. Young.

GAUDALUPE G. S. AND C. M. Co.—March 31. Location: Comondee District, Lower California. Capital stock, $200,000, in 20,000 shares. Trustees—H. H. Pearson, Edward Landers, John Wade, C. J. Hutchinson, and Wm. Williams.

KENTUCKY G. ANN S. M. Co.—March 31. Location: Lincoln county, Nev. Capital stock, $3,000,000, in 30,000 shares. Trustees—J. B. E. Cavallier, Alexander Austin, Richard O'Neill, E. J. Baldwin and Pierre G. Venard.

GWIN M. Co.—March 31. Location: Middle Bar District, Calaveras county. Capital stock, $2,000,000, in 20,000 shares. Trustees—W. M. Gwin, J. D. Fry, H. D. Bacon, A. K. P. Harmon and E. J. Coleman.

FREMONT M. AND M. Co.—March 31. Location: Drytown, Amador county. Capital stock, $2,500,000, in 50,000 shares. Trustees—Cyrus Wilson, John Tregloan, John S. Wilson, Levi H. and Mark T. Ashby.

BECKWITH M. Co.—April 2. Location: Kanaka Flat, Ely M. District. Capital stock, $2,000,000, in 20,000 shares. Trustees—Isaac Wormser, Charles Jones, George D. Roberts, J. M. Miner and L. Garstle.

ROCK ISLAND G. ANN S. M. Co.—April 3. Location: Storey county, Nevada. Capital stock, $2,400,000. Trustses--A. K. P. Harmon, A. E. Head, Joseph Clark, J. E. de la Montanyna, and B. Thornhurgh.

NORMON G. M. Co.—April 3. Location: Aqueduct District, Amador county. Capital stock, $1,250,000. Trustees—J. M. Thompson, W. G. Wayman, Benjamin Dore, M. D. Plummer and E. J. Moore.

The following have filed certificates of incorporation in the Secretary of State's office in Sacramento:

COTTONWOOD CREEK G. M. Co.—Location: Tehama county, Cal. Capital stock, $2,000,000; principal office in San Francisco. Trustees—S. M. Van Wyck, Wm. Welch, Geo. Rutledge, James L. and Parker Crittenden.

STERLING M. Co.—Location: Ely District, Nevada. Capital stock, $3,000,000; principal office in San Francisco. Trustees—J. D. Fry, P. J. Bradford, C. W. Fox, G. W. Beaver and R. R. Givens.

Meetings and Elections.

PACIFIC SILK MANUFACTORY.—On Friday, March 29th, the Trustees of the Union Pacific Silk Manufacturing Company, held their first meeting for the election of officers, when the following named gentlemen were appointed: C. W. H. Coney, President; R. A. Ruttcr, Vice President: J. D. Stewart, Secretary; W. C. Ralston, Treasurer; Joseph Warhurton, Superintendent and General Manager.

PHENIX S. M. Co.—At the annual election of the stockholders of the Phenix S. M. Co., the following persons were elected Trustees to serve for the ensuing year: Robert Sherwood, President; A. J. Ellis, H. F. Cutter, T. Wiswell, O. Livermore, and Joseph Maguire, Secretary.

FRANCIS M. Co.—At the annual stockholders' meeting of the Francis M. Co., the following Trustees were chosen for the ensuing year: Messrs. A. C. Peachy, President; Geo. D Roberts, J. W. Gashwiler, Richard Ivers and M. Mayblum. T. F. Cronise was elected Secretary.

JULIAN G. M. Co.—At a meeting of the Trustees of the Julian Gold M. Co., T. J. Poulterer was chosen President; M. Mayblum, Vice-Prcsident; Alex. Forbes, Treasurer; T. F. Cronise, Secretary.

BECKWORTH M. Co.—At a meeting of the Beckworth M. Co., the following officers were elected for the first three months: President, Charles Jones; Vice-President, G. D. Roberts; Secretary, W. H. Watson; Treasurer, Isaac Wormser.

From an Old Inventor.

MARYAVILLE, Cal., March 2, 1872.—Measrs. DEWEY & Co., U. S. and Foreign Patent Attorneys, San Francisco. My Patent, through your Agency, is received. Please accept my warmest thanks for the ahility you displayed n obtaining it. Thirty years experience in inventing and obtaining patents haa taught me the lesson that *that* patent agency is tbe cheapest whlch has the most ahility, integrity and energy; and without flattory, permit me to say that I have tried the most prominent patent agents of the Atlantic Coast, and have never had my work so ably done aa hy your firm. I have carefully reviewed the specifications and claims of my patent, and am unable to find an error, nor would I add a word or line thereto; yet it ia the most complicated and difficult invention to specify clearly that I over invented; still, your lucid specificationa and drawings so divest it of its apparent complication, that it may easily be understood by any one. Permit me to say, in conclusion, that the inventors of thia coast bave cause for just pride in the poasession of so able a medium as DEWEY & Co., through whicb they may obtain justice at the Patent Office.

10v3-1am3t Yours truly, S. PELTON.

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State University.—The next term of the Preparatory Department will begin April 20th, 1872.

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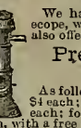

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CENTRAL PACIFIC RAILROAD.

March 10th, 1872.

San Francisco & Sacramento.

Leave going East.			Arrive from East.
*4.00 P M	2.00 A M	....San Francisco..	8.30 P M / *2.20 P M
4.35 P M	7.35 A M	....Oakland.....	8.00 P M / 1.50 P M
4.10 P M	7.50 A M	.... San Jose..... ..	8.30 P M / 2.10 P M
5.35 P M	8.35 A M	....Niles.....	7.05 P M / 12.45 P M
8.25 P M	11.28 A M	....Lathrop.....	4.43 P M / 9.45 P M
8.48 P M	11.50 A M	....Stockton.....	4.07 P M / 9.07 P M
10.45 P M	1.45 P M	....Sacramento....	2.20 P M / 7.15 A M
Arrive from West.			Leave going West.

San Francisco & San Jose.

Leave going South			Arrive from South
.....	3.40 P M	....San Francisco..	10.40 A M / .....
.....	4.40 P M	....Niles.....	8.35 A M / .....
.....	5.30 P M	....San Jose.....	7. 0 A M / .....
Arrive from North.			Leave going North

Stockton, Lathrop & Merced.

Leave going South			Arrive from Sontb
.....	7.35 P M	....Stockton.....	10.20 A M / .....
*9.45 A M	8.25 P M	....Lathrop.....	9.30 A M / *8.20 P M
11.35 A M	9.45 P M	....Modcsto.....	8.13 A M / 6.45 P M
2.40 P M	12.15 A M	....Merced.....	5.45 A M / 3.30 P M
Arrive from North			Leave going North

Sacramento, Colfax, Reno & Ogden.

Leave going East.			Arrive from East.
	2.00 P M	....Sacramento.....	2.00 PM /
	5.40 P M	....Colfax.....	10.20 A M /
	1.00 A M	....Reno.....	2.10 A M /
	9.10 A M	....Winnemucca....	4.15 P M /
	12.00 M	....Battle Mountain	1.25 P M /
	4.40 P M	....Elko.....	8.45 A M /
	6.20 A M	....Ogden	5.20 P M /
Arrive from West.			Leave going West.

Sacramento, Marysville & Red Bluff.

Leave going North			Arrive from North
*8.45 A M	2.35 P M	....Sacramento	1.05 P M / *4.45 P M
10.25 A M	3.25 P M	....Junction.....	12.15 P M / 3.25 P M
1.50 P M	6.10 P M	....Marysville.....	10.20 A M / 12.00 M
8.00 P M	8.35 P M	....Tehama.....	6.50 A M / 5.30 A M
.....	9.30 P M	....Red Bluff.....	6 00 A M / .....
Arrive from South			Leave going South

San Francisco, Vallejo & Calistoga.

Leave going North			Arrive from North
*4.00 P M	2.30 A M	....San Francisco..	*11.20 A M / *8.00 P M
6.30 P M	9.30 A M	....Vallejo.....	6.05 P M / 9.30 A M
7.18 P M	10.40 A M	....Napa.....	4.50 P M / 8.30 A M
8.50 P M	1.00 P M	....Calietoga.....	3.00 P M / 7.00 A M
Arrive from South			Leave going South

San Francisco, Vallejo & Knight's Landing.

Leave going East.			Arrive from East.
†7.30 A M	*4.00 P M	....San Francisco..	*11.30 A M / *8.00 P M
9.35 A M	6.35 P M	....Vallejo.....	9.30 A M / 6.05 P M
12.05 P M	10.10 P M	....Davis.....	6.40 A M / 3.30 P M
1.00 P M	11 45 P M	....Knight's Land'g	5.00 A M / 2.30 P M
Arrive from West.			Leave going West.

San Francisco & Healdsburg.

Leave going North			Arrive from North.
.....	*2.00 P M	....San Francisco.	*11.00 A M / .....
7.10 A M	4.35 P M	....Donnhue.....	8.45 A M / *5.35 P M
8.20 A M	5.00 P M	....Petaluma.....	8.20 A M / 5.00 P M
9 45 A M	6.00 P M	....Santa Rosa.....	7.30 A M / 3.30 P M
10.20 A M	6.45 P M	....Healdsburg.....	6.45 A M / 2.00 P M
Arrive from South			Leave going South

Stockton, Milton & Oak Dale.

Leave going South			Arrive from South
.....	*11.25 A M	....Stockton.....	*4.25 P M / .....
.....	11.52 A M	....C.P.R.R. Depot.	3.52 P M / .....
.....	12.42 P M	....Peters.....	3.02 P M / .....
.....	1.32 P M	....Milton.....	2.12 P M / .....
.....	1.44 P M	....Oak Dale.....	2.00 P M / .....
Arrive from North			Leave going North

CAL. P. R. R. CO.'S STEAMERS.

Leave going East.			Arrive from East.
*4.00 P M	*4.00 P M	....San Francisco..	*10.00 P M / *8.00 P M
6.00 P M	.....	....Vallejo.....	..... / 6.00 P M
7.00 P M	6.00 P M	....Benicia.....	8.00 P M / 5.00 P M
.....	2.00 A M	....Stockton.....	2.00 P M / .....
2.00 A M	.....	....Sacramento	..... / 12.00 M.
Arrive from West.			Leave going West.

Explanation.

For trains running "from" San Francisco, take the left hand columns and read downwards.

For trains running "towards" San Francisco, take the right hand columns and read upwards.

OAKLAND BRANCH.—LEAVE SAN FRANCISCO, 7 00, 8 10, 9 2‹, 10 10 and 11 20 a. m., 12 10, 1 50, 3 00, 4 00, 5 15, 6 30, 8 00 9.20 and *11 30 p. m. (9 20, 11 20 and 3 00 to Oakland only).

LEAVE BROOKLYN, *8 20, 6 40, 7 50, 9 00 and 11 00 a. m., 1 30, 2 40, 4 55, 6 10, 7.40 and 10 10 p. m.

LEAVE OAKLAND, *5 40, 6 50, 8 00, 9 10, 10 00, and 11 10 a. m., 12 00, 1 40, 2 50, 3 50, 5 05, 6 20, 7.50 and 10 20 p. m.

ALAMEDA BRANCH.—LEAVE SAN FRANCISCO, 7 20, 9 00, and 11 15 a. m., 1 30, 4 00, 5 20, and 7 00 p. m. (7 20, 11 15, and 5 30 to Fruit Vale only).

LEAVE HAYWARDS, *4 30, 7 00 and 10 45 a. m., and 3 30 p. m.

LEAVE FRUIT VALE, *5 25, 7 35, 9 00 and 11 20 a. m., 1 30, 4 05 and 5 30 p. m.

—*Sundays excepted. †Sundays only.

T. H. GOODMAN, Gen'l Pass'gr and Ticket Agt. A. N. TOWNE, Gen'l Supt.

Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the Scientific Press we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

Ingomar Silver Mining Company—Location of works, Ely Mining District, Lincoln County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 2d day of April, 1872, an assessment of 25 cents per share was levied upon the capital stock of said company, payable immediately, in U. S. gold coin, to the Secretary, at the office of the company, Room 21, Hayward's Building, 419 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Wednesday, the 8th day of May, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Friday, the 31st day of May, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

By order of the Board of Trustees.

CHAS. S. NEAL, Secretary.

Office, Room 21, Hayward's Building, No 419 California street, San Francisco, California. ap6-4t

Marcelina Silver Mining Company.—Location of Works: Eureka District, Lander County, Nevada.

Notice is hereby given that at a meeting of the Board of Trustees of said company held on the eighth day of March, 1872, an assessment of ten cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company, Room 21, Hayward's Building, 419 California street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the fifteenth day of April, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the seventh day of May, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

CHAS. E. ELLIOTT, Secretary.

Office, Room 21, Hayward's Building, 419 California street, San Francisco, California. mar19-3w

Nevada Land and Mining Company—

Location: Spruce Mountain, Antelope and Clifton Mining Districts, Elko County, State of Nevada

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 28th day of March, 1872, an assessment of four cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the Co.'s office, room 5, No. 302 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Thursday the 2d day of May, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Friday the 24th day of May, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.

Office—Room 5, No. 302 Montgomery st., San Francisco, California. mar30-td

Nuestra Senora de Guadelupe Silver Mining Company.—Location of Works: Tayoltita, San Dimas District, Durango, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twelfth day of May, 1869, an assessment of two dollars per share was levied upon the assessable capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, E. J. Pfeiffer, No. 210 Post street, or to the Treasurer, A. Himmelmann, No. 637 Washington street, San Francisco, to settle the indebtedness of the said Company.

And whereas there has been an error in the course of proceedings for the collection of said Assessment, by reason of which, as provided by law, all previous proceedings, except the levying of the Assessment, are void, and publication required to be begun anew, NOW, therefore, by order of the Board of Trustees of said Company, at a meeting of said Trustees, held on the eighth day of March, 1872, said Assessment is hereby re-published, and notice thereof given as follows, to wit:

Nuestra Senora de Guadelupe Silver Mining Company.—Location of Works: Tayoltita, San Dimas District, Durango, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twelfth day of May, 1869, an assessment of two dollars per share was levied upon the assessable capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, E. J. Pfeiffer, No. 210 Post street, or to the Treasurer, A. Himmelmann, No. 637 Washington street, San Francisco, to settle the indebtedness of the said Company.

Any stock upon which said assessment shall remain unpaid on the fifteenth day of April, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the eighth day of May, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

E. J. PFEIFFER, Secretary.

Office, No. 210 Post street, San Francisco, California.

Ophir Copper, Silver and Gold M. Company—Location of Works, Ophir, Placer County, Cal.

Notice is hereby given that at a meeting of the Board of Trustees of said Company, held on the 18th day of March, 1872, an assessment of twenty (20) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, N. E. Cor. Sansome and Halleck Sts., entrance on Halleck street, San Francisco. Any stock upon which said assessment shall remain unpaid on the 20th day of April, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 14th day of May, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

R. G. BRUSH, Secretary.

Office, N. E. Corner Sansome and Halleck Streets, S. F.

Quail Hill Mining and Water Company—

Location of works: Calaveras County, California.

NOTICE.—There are delinquent upon the following described stock, on amount of assessment levied on the 15th day of February, 1872, the several amounts set opposite the names of the respective shareholder as follows.

Names.	No. Certificate.	No. Shares.	Am't.
F. S. Spring, Trustee	44	120	600
E. F. Dennison	42	1	5
A E. Hill, Trustee	40	7	35
A. E. Hill, Trustee	39	1 0	60
A. E. Hill, Trustee	37	119	595
A. E. Richardson, Trustee	36	60	300
A. E. Hill, Trustee	31	50	250

And in accordance with law, and an order of the Board of Trustees, made on the 15th day of February, 1872, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Company, No. 409 California street, San Francisco, California, on the 16th day of April, 1872, at the hour of 12 o'clock M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale. T. F. CRONISE, Secretary.

Office, 409 California street, San Francisco, Cal. mar30-3t

Siempre Viva Silver Mining Co.—Location of works, District of Zaragoza, Sinaloa, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 26th day of March, 1872, an assessment of 25 cents per share was levied upon the capital stock of said company, payable immediately, in U. S. gold coin, to the Secretary, at the office of the company, No. 314 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Thursday, the 2d day of May, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 20th day of May, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOHN F. LOHSE, Secretary.

Office, No. 314 California street, San Francisco, Cal.

PACIFIC BRIDGE COMPANY,

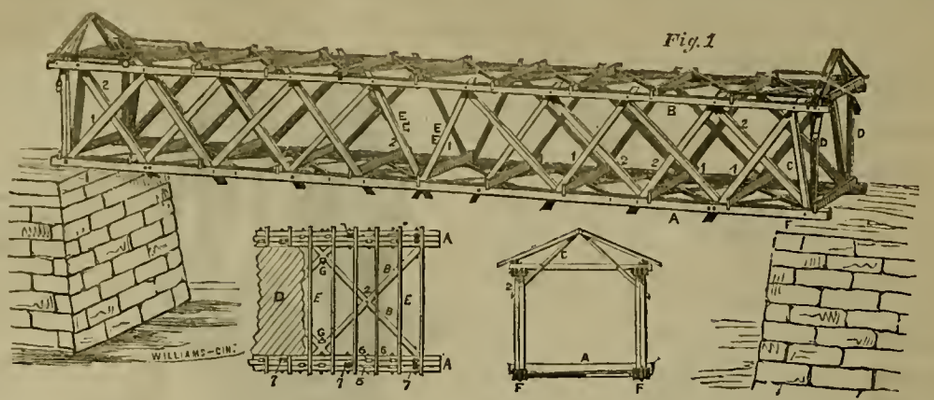


Fig. 1

OAKLAND, CAL.,

ARE PREPARED TO BUILD ALL KINDS OF WOODEN BRIDGES ON

Smith's Patent Truss Plan.

These Bridges have been thoroughly tested in the East for Three Years, and wherever tried have proved superior to any other Bridge in the following points:

Being built of wood entirely, they are not affected by change of temperature.

The timber used is placed so directly in the line of strain, that less material is required to support the same load.

It is not perceptibly affected by shrinkage. It is the most Economical Bridge built. It is adapted to any practicable LENGTH OF SPAN.

Plans, Specifications and Terms will be sent to any County, Township or Person wishing to build a Bridge, and no charge made unless the Plan is used. For all Public Bridges the Plan will always be open to competition.

Smith's celebrated CAST IRON PIER, economical, and adapted to heavy currents, built at low rates.

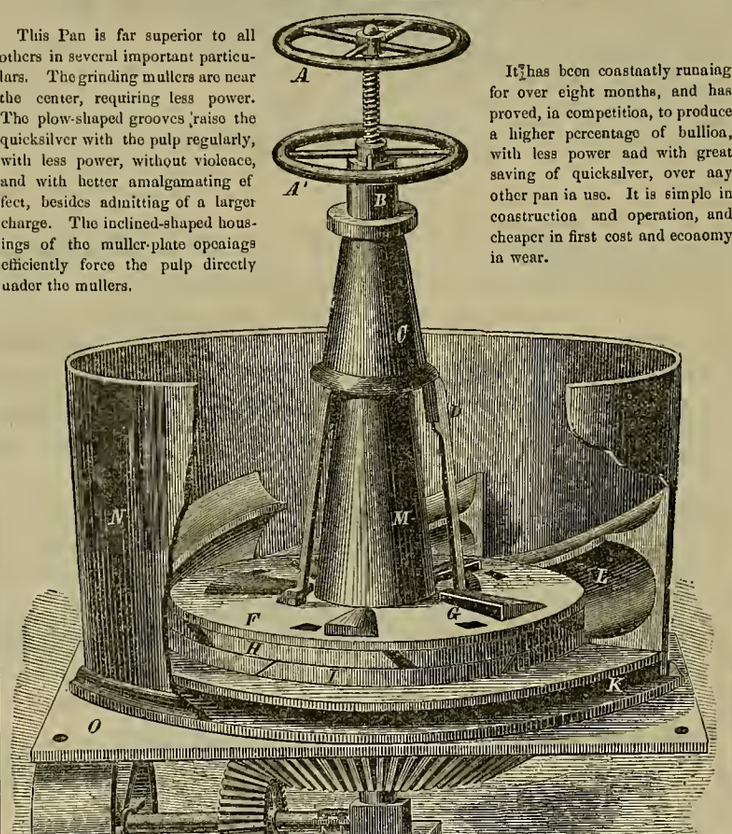
C. H. GORRILL, Secretary.

W. H. GORRILL, President.

STEVENSON'S PATENT MOULD BOARD AMALGAMATING PAN.

This Pan is far superior to all others in several important particulars. The grinding mullers are near the center, requiring less power. The plow-shaped grooves raise the quicksilver with the pulp regularly, with less power, without violence, and with better amalgamating effect, besides admitting of a larger charge. The inclined-shaped housings of the muller-plate openings efficiently force the pulp directly under the mullers.

It has been constantly running for over eight months, and has proved, in competition, to produce a higher percentage of bullion, with less power and with great saving of quicksilver, over any other pan in use. It is simple in construction and operation, and cheaper in first cost and economy in wear.



Manufactured at the Golden State Iron Works (Co-operative). 19 First street, S. F.

Where it can be examined and further particulars be learned; or persons may apply to the inventor and patentee, Mr. C. O. STEVENSON, at the Douglas Mine, GOLD HILL, STATE OF NEVADA, where the Pans have long been in constant operation. 15v20-1mr,1amtf

Pocahontas Gold Mining Company—Location of works, Mud Springs, El Dorado County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 26th day of February, 1872, an assessment of Five Dollars per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, Room No. 26, Hayward's Building, No. 419 California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on Saturday, the 6th day of April, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before will be sold on Monday, the 8th day of May, 1872, to pay the delinquent assessment thereon, together with costs of advertising and expenses of the sale.

D. A. JENNINGS, Secretary.

Office, Room No. 26, Hayward's Building, 419 California street, San Francisco, Cal.
February 26, 1872. mar2-5w

Tecumseh Gold, Silver and Copper Mining Company.—Location of works, Gopher District, Calaveras County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 20th day of March, 1872, an assessment of fifteen cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, F. J Herrmann, at the office of the company, No. 634 Washington street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 23d day of April, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 14th day of May, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

F. J. HERRMANN, Secretary.

Office 634 Washington street, Room No. 2, up stairs, San Francisco, Cal. Office hours from 11 A.M. to 2 P.M. m23-4t

Spring Mountain Tunnel Company, Ely Mining District, Piocho, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 12th day of March, 1872, an assessment of fifteen cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, Room 37, Merchants' Exchange, California street, city and county of San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the 22d day of April, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 13th day of May, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. M. BUFFINGTON, Secretary.

Office, Room 37, New Merchant's Exchange, California street, San Francisco, California. mar16-td

San Francisco, March 16, 1872.

FERRACUTE MACHINE WORKS,

Bridgeton, N. J.

PRESSES, DIES and all FRUIT CANNERS TOOLS a specialty.

Improved 3-lb. Can Press for $65; Rotary Solder Cutter, $15, etc. 13v24-13t

Blowers, Steam Pumps, Hair Felt. **Mining Tools**

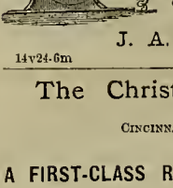
PORTABLE ENGINES, TURBINE WATER WHEELS, Wood and Iron Labor-Saving Machinery, Hardware, Belting, Lacing, Packing, and a general stock of Engineers', Miners', Farmers' and Mechanics' Tools and Mill Supplies.

TREADWELL & CO.,

At the Old Stand, } Cor. Market and Fremont Sts., SAN FRANCISCO.

12v24-oow

WOOD WORKING MACHINERY



MOLDING, MORTISING, TENONING AND SHAPING MACHINES, BAND SAWS, SCROLL SAWS, **Planing & Matching** MACHINES, ETC.,

For RAILROAD, CAR, and AGRICULTURAL SHOPS, Etc., Etc.

☞ Superior to any in use.

J. A. FAY & CO.,

14v24-6m CINCINNATI, OHIO.

The Christian World,

CINCINNATI, OHIO,

A FIRST-CLASS RELIGIOUS JOURNAL.

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DEVOTED TO

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Office, 176 and 178 Elm street.

$2 PER ANNUM, IN ADVANCE.

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Try it one year. You will be pleased.

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Machinists and Foundries.

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO

IRA P. RANKIN, A. P. BRAYTON,
GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS

Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

☞ Particular attention paid to Jobbing Work and Repairs.

N. B.—Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR.

18v20-3m GODDARD & CO.

FULTON
Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

E. corner of Tehama and Fremont streets, above Howard street, San Francisco. 3-qy

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GEORGE T. PRACY,
MACHINE WORKS,

109 and 111 Mission Street,

SAN FRANCISCO.

These Works have lately been increased, by additional Tools, and we are now able to turn out any kind of work, equal to and cheaper than any establishment in the State; that is to say:—

STEAM ENGINES,
Flour and Saw Mills,
QUARTZ MACHINERY
Printing Presses,

AND MACHINERY MADE OF EVERY DESCRIPTION.

Improved Safety Store Hoists,

Fitted with Cutting's Patent Cams, unequaled for safety, convenience and cheapness. This Hoist can be built for about half the price of any other in use. To be seen at HAWLEY & CO.'S.

ALSO, MANUFACTURER AND SOLE AGENT FOR

Pracy's Celebrated Governor.

TURNING LATHES, Etc., constantly on hand.

4v23tf

UNION IRON WORKS,
Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR

WILCOX'S PATENT WATER LIFTERS,

Dunbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,

SACRAMENTO CITY

PACIFIC
Rolling Mill Company,

SAN FRANCISCO, CAL.

Established for the Manufacture of

RAILROAD AND OTHER IRON

—AND—

Every Variety of Shafting,

Embracing ALL SIZES of

Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames

—ALSO—

HAMMERED IRON

Of every description and size.

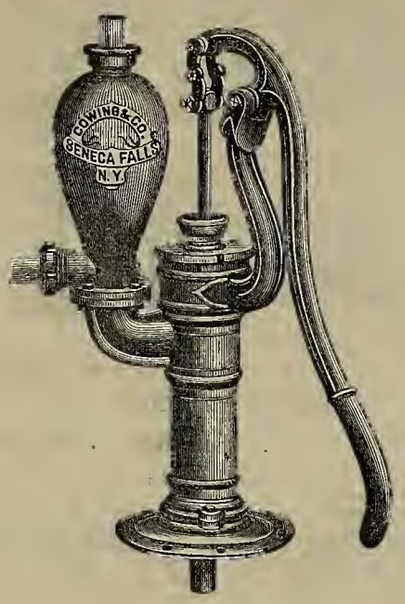
☞ Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention

☞ The highest price paid for Scrap Iron 9v14-3m

ALFRED S. MOORE & CO.,

428 SANSOME STREET,.....SAN FRANCISCO.

DURABILITY.



CHEAPNESS.

Importers and Dealers in

Iron and Brass Force and Lift PUMPS, Hydraulic Rams,

GARDEN ENGINES,
BUTCHERS' PICKLE PUMPS,
CHEAP DEEP WELL LIFT PUMPS,
DEEP WELL FORCE PUMPS,
BAILEY FEED PUMPS,
STEEL AMALGAM FARM BELLS,
PIPE HOSE, HOSE PIPES,
COUPLINGS, ETC., ETC.

The above named goods are unequaled for finish by any others in the market, and the prices will compare favorably. For instance, the price of the Three-inch Force PUMP represented in the cut, with air chamber having two outlets, is FIFTEEN DOLLARS. Illustrated Catalogue sent upon application. Pipe cut to any required length, and estimates furnished. 13v3-1am-hp

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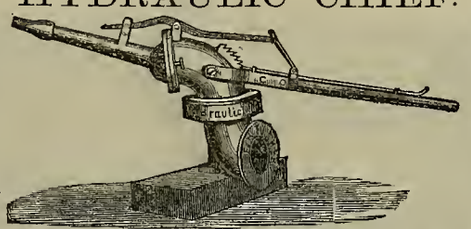
HYDRAULIC CHIEF.

FISHER'S **KNUCKLE JOINT** AND **NOZZLE**

IS THE Cheapest and Best Hydraulic Machine in use.



MACHINES Manufactured TO ORDER, to throw from One to an eight-inch STREAM.

The only reliable party in the Hydraulic business who protects his patrons.

9v23-tf Address F. H. FISHER, Nevada, Cal.

HYDRAULIC MINERS, TAKE NOTICE—I hereby caution Miners and Manufacturers against making, buying, selling or using a Hydraulic Machine or Joint known as the Little Giant, manufactured and sold by R. R. & J. Craig and Richard Hoskin, as the same is an infringement upon the invention of the machine known as FISHER'S HYDRAULIC CHIEF, secured by Letters Patent, No. 110,222, dated Dec. 20, 1870. All parties participating in such infringements will be rigorously prosecuted. Nevada, Jan. 13th. F. H. FISHER.

THE RISDON
Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1868.
CAPITAL.....$1,000,000.

LOCATION OF WORKS:
Corner of Beale and Howard Streets,
SAN FRANCISCO.

Manufacturers of Steam Engines, Quartz and Flour Mill Machinery, Steam Boilers (Marine, Locomotive and Stationary), Marine Engines (High and Low Pressure). All kinds of light and heavy Castings at lowest prices. Cams and Tappets, with chilled faces, guaranteed 40 per cent. more durable than ordinary iron.

Directors:

Wm. Alvord, C. J. Brenham, C. E. McLane,
Wm. Norris, Wm. H. Taylor, Lloyd Tevis,
James D. Walker.

WM. H. TAYLOR.....President.
C. E. McLANE.....Vice President.
JOSEPH MOORE.....Superintendent.
LEWIS R. MEAD.....Secretary.

24v17-qy

OCCIDENTAL FOUNDRY,

137 and 139 First st., near the Gas Works, San Francisco.

STEIGER & BOLAND,

IRON FOUNDERS.

IRON CASTINGS of all descriptions at short notice.

NOTICE.—Particular attention paid to the making of Superior Shoes and Dies. 3v24-3m

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Miners' Foundry and Machine Works,

CO-OPERATIVE,

First Street, bet. Howard and Folsom, SAN FRANCISCO.

Machinery and Castings of all kinds.

COPARTNERSHIP NOTICE.

We have this day admitted Mr. William R. Eckart as a member of our firm, the business of which will be hereafter conducted under the firm name of Prescott, Scheidel & Co. PRESCOTT & SCHEIDEL.

Marysville, Jan. 8, 1872.

MARYSVILLE FOUNDRY.

Referring to the above, we respectfully solicit the patronage which has for the past twenty years been enjoyed by our predecessors, pledging our best attention to the wants of all who may so favor us.

Quartz and Amalgamating Machinery,

SAW AND GRIST MILLS,
STEAM ENGINES,
HYDRAULIC MACHINES,
HOUSE FRONTS, ETC.

Repairs upon all kinds of machinery promptly made and at moderate charges. Having unrivalled facilities, we are prepared to make to order, at short notice, everything required in our line.

Specimens of our work may be seen in all the mining regions on this coast.

5v24-3m PRESCOTT, SCHEIDEL & CO.

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,

SAN FRANCISCO.

ALL KINDS of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch

☞ PRICES MODERATE. ☜

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H. J. BOOTH & CO.,
UNION IRON WORKS,

(The Oldest and most Extensive Foundry on the Pacific Coast).

Cor. First and Mission Sts.,

SAN FRANCISCO.

Marine, Locomotive and Stationary Engines, Quartz Crushing and Amalgamating Machines, Mill Irons and Brass and Iron Castings, of every description, made to order.

Steamboat Repairing, Boiler Making, Turning and Finishing,

EXECUTED WITH DISPATCH.

Beet Sugar Machinery complete in every part—made a specialty.

OIL MACHINERY.

A complete set of Machinery of our own design and patent for extracting oil from Castor Bean, dispensing with Hair Cloth. Also Machinery for Flax Seed Oil, Mustard Seed Oil, and Sun Flower Seed Oil.

MARBLE MACHINERY

For sawing Marble of any thickness or size.

Irrigating Pumps. Steam Pumps.

Plans, Estimates, and Advice promptly supplied.

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THOMPSON BROTHERS,
EUREKA FOUNDRY,

129 and 131 Beale street, between Mission and Howard, San Francisco.

LIGHT AND HEAVY CASTINGS,

of every description, manufactured 24v16qr

SAN FRANCISCO

SCREW BOLT WORKS,

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MANUFACTURERS OF ALL KINDS OF

Machine Bolts, Bridge Bolts, and Ship or Band Bolts,

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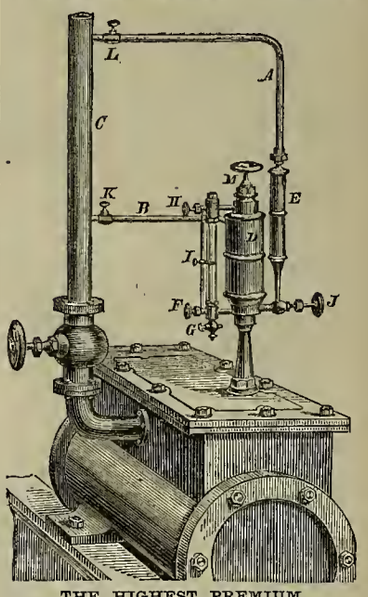
Machinery.

N. Seibert's Eureka Lubricators.



THE HIGHEST PREMIUM

Awarded by the Mechanics' Institute Fair, San Francisco, and State Fair, Sacramento, 1871.

These Lubricators are acknowledged by all engineers to be superior to any they have ever used; feed constantly by pressure of condensed water, supplied by pipe A, regulated under the oil by valve J, and forced out through check valve and pipe B into the steam pipe C; it then becomes greasy steam, passes to all the valves and cylinder at every stroke of the engine; glass tube I indicates amount used per hour. Packing on rods and stems lasts longer, and the rings on the piston will not corrode. One pint of oil will last from three to six days, according to speed and size of engine; l, sliding gauge; K, valve to shut off when engine stopps; H, F, valves to shut off in case of frost; steam does not enter the cup; it is always cool; warranted to give satisfaction. Patented February 14, 1871. Manufactured by California Brass Works, 125 First street, S. F. 24v23tf

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POWER, TAINTER & CO.,

MANUFACTURERS OF

WOOD-WORKING MACHINERY,

3003 Chestnut street (West end Chestnut street Bridge) PHILADELPHIA.

☞ Woodworth Planers a Specialty. 2v23-1y

McAFEE, SPIERS & CO.,
BOILER MAKERS
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Howard st, between Fremont and Beale, San Francisco.

California File Manuf'g Co.

Potrero, Solano street, bet. Tennessee and Minnesota streets, SAN FRANCISCO.

Manufacturers of New Files.

Old Files re-cut and warranted equal to new.

REAPER AND MOWER SECTIONS, BARS AND KNIVES COMPLETE,

at a saving of 50 per cent. Orders from the country promptly attended to. 9v19-by

---

Notice is hereby given, that the copartnership heretofore existing between A. J. Severance, Charles W. Randall and J. Gus. Burt, under the firm name of "Severance, Holt & Co.," is this day dissolved by mutual consent. A. J. Severance, having purchased all the interest of his late partners, will continue the business of manufacturing and selling Diamond Drills, as before, under the style of A. J. Severance & Co.

Dated San Francisco, Nov. 21, 1871.
Office, 315 California street. A. J. SEVERANCE,
CHAS. W. RANDALL.
22-v23-tf J. GUS. BURT.

THEODORE KALLENBERG,

MACHINIST,

and Maker of Models for Inventors. All kinds of Dies, Stamps and Punches made. Also, all kinds of Small Gears Cut.

Repairing done on very Reasonable Terms and in the best manner. No. 32 Fremont street, S. F. 19v23-3m

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WM. M. BETTS & BROTHER,

CARRIAGE SPRING WORKS,

218 Fremont street, bet. Howard and Folsom, SAN FRANCISCO.

LOCOMOTIVE, CAR,

And all kinds of Carriage and Wagon Springs made to Order and Warranted.
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CALDWELL'S

Improved Stop Governor,

Manufactured at the CYCLOPS MACHINE WORKS, 113 and 115 Beale street, San Francisco.
3v24-3m WM. CALDWELL.

JOS. THORNHILL,

Bricklayer and Contractor.

Particular attention paid to all kinds of Fire Work, such as Boilers, Furnaces, Ovens, Grates, Ranges, etc.

Orders left with C. W. WHITE, 47 Clay street, JOS. THORNHILL, 1612 Mason street, near Green, will be promptly attended to. 24v21-3m

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BROWN'S PATENT LAMP.

BROWN'S PATENT LAMP, FOR Mills and Hydraulic Mining Claims.

One of these Lamps, when placed at a distance of 200 feet from the bank, will light up a bank surface 250 feet in length and 100 feet high, and to a much better advantage than any other light heretofore tried, and at an expense not to exceed five cents per hour. Lamps furnished at short notice.

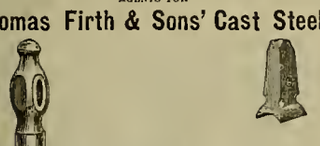
For further particulars address

C. B. BROWN,
7v24-t Placerville, Cal.

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.



MANUFACTURERS OF

Sledges, Hammers, Stone Cutters', Black smiths' and Horse-Shoers' Tools.

13 and 15 Fremont street, near Market, San Francis
10v14qr

SHEET IRON PIPE.

THE

Risdon Iron and Locomotive Works

Corner Howard and Beale Streets,

Are prepared to make SHEET IRON AND ASPHALTUM PIPE, of any size and for any pressure, and contract to lay the same where wanted, guaranteeing a perfect working pipe with the least amount of material.

All kinds of CAR WHEELS, AXLES and RAILROAD WORK made to order. Standard sizes of Wheels constantly on hand. Wheels bored and pressed on, Axles turned, etc., at Reasonable Rates.

☞ All kinds of Machinery made and repaired.

24v22-3m JOSEPH MOORE, Superintendent.

J. M. STOCKMAN,

Manufacturer of

PATTERNS AND MODELS,

(Over W. T. Garratt's Brass Foundry).

N. W. corner Natoma and Fremont streets, S. F. Entrance on Natoma street. 6v23-3m

---

BLAKE'S PATENT STEAM PUMPS.

WHAT IS SAID BY THOSE WHO USE THEM.

SALEM, Oregon, January 16th, 1872.

MESSRS. BERRY & PLACE, San Francisco—Gentlemen: In answer to your query regarding the working of the large Blake Steam Pump, our company purchased of you, we would say in all sincerity that the pump *has exceeded our expectation*. It has been in use since the 27th of September, 1871, and has thus far given the most perfect satisfaction. It does its work with ease, does not get out of order, and requires but little or no attention to run it. It is SIMPLE, DURABLE, and PERFECT in its construction. We have found it entirely satisfactory and just the pump *in every respect* needed for our work.

Yours, respectfully, W. F. BOOTHY, Pres't Salem Water Works.

PHŒNIX MINE, Napa County, January 10th, 1872.

MESSRS. BERRY & PLACE, San Francisco—Gentlemen: The No. 8, Blake Steam Pump we bought of you last fall is doing good service. We are having a large amount of water to contend with during this stormy weather; but the pump throws it all out of the main shaft (160 feet deep) with perfect ease, and is only working from 60 to 80 strokes a minute. It is a complete pump and no mistake. We are well satisfied with its working, and if you wish to use the name of our company, as a reference, you are at liberty to do so. Very resp'tly, GEO. FELLOWS, Supt. Phœnix Quicksilver M. Co.

OFFICE STARR MILLS, VALLEJO, Cal., January 13th, 1872.

MESSRS. BERRY & PLACE, San Francisco—Gentlemen: We are pleased to state that the No. 3 Blake Pump purchased of you, has constantly supplied our three boilers for the past year, with water heat to above boiling point with one of Armstrong's Patent Heaters. It has given us no trouble nor expense, and has in fact fully come up to your recommendations.

Yours, Etc., STARR BROS. & CAMPBELL.

OFFICE S. J. WOOLEN CO., SAN JOSE, January 29th, 1872.

MESSRS. BERRY & PLACE, San Francisco—Gentlemen: We have used a No. 6 Blake Steam Pump now for about two years, both as a Tank Pump and as a Fire Pump in case of need: and it has given excellent satisfaction. *It suits us in every respect.*

Very respectfully, R. F. PECKHAM, Pres't San Jose Woolen Co.

BELMONT, Cal., February 6th, 1872.

MESSRS. TREADWELL & CO.—Gentlemen: In reply to your inquiry concerning the large Blake Steam Pump, purchased of Berry & Place, by Mr. Ralston, I will say, that it gives ENTIRE *satisfaction*, even working as it now is, where no other Pump could; for it is *at present six feet under water*, yet it does its work PERFECTLY.

Yours, Etc., J. E. BUTLER, Supt. Water Works and Engineer at W. C. Ralston's.

BLAKE'S PATENT STEAM PUMP.

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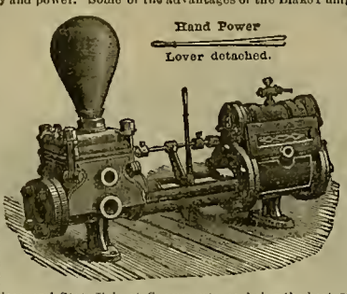

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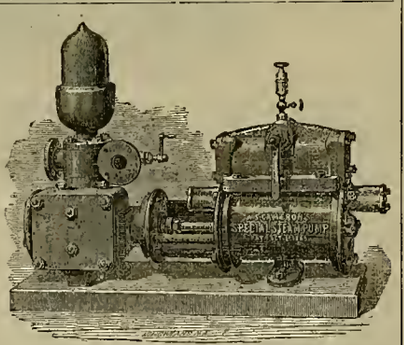

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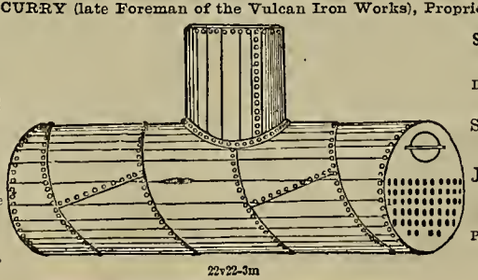

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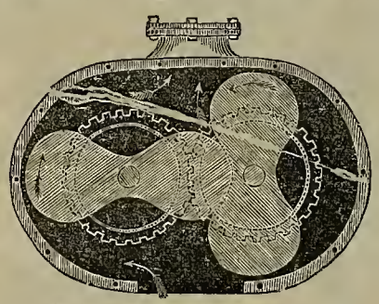

[Sectional view showing the pistons and gearing.]

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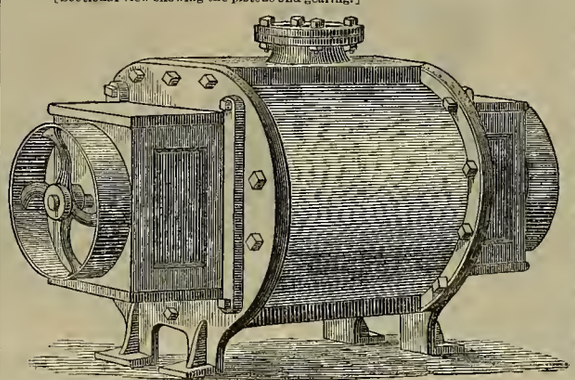

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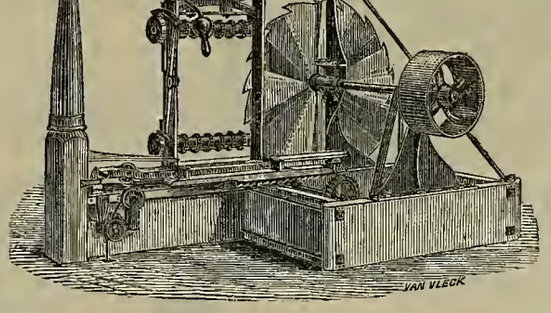

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SAN FRANCISCO, SATURDAY, APRIL 13, 1872.

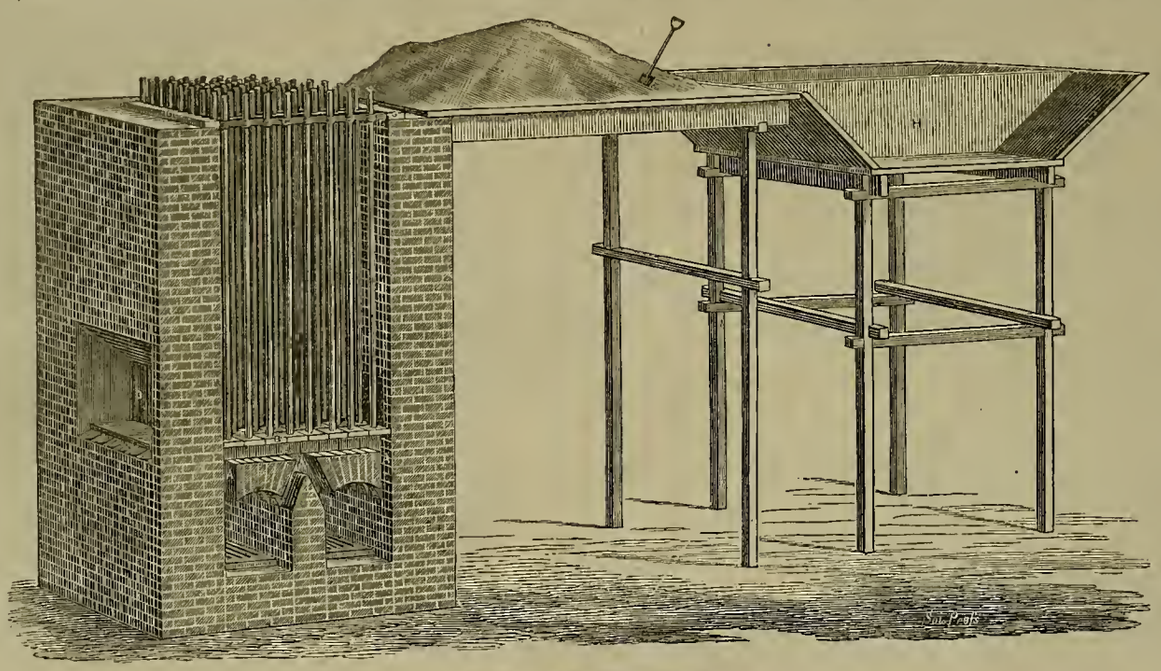
VOLUME XXIV. Number 15.

Improved Furnace for Roasting and Chloridizing Crushed Ores in Bulk.

Onr illustration represents a sectional view of an improved furnace for roasting metallic ores to be nsed in connection with an improved proccss for so doing, hy the same inventor. The peculiarity of the invention consists in opening passages for the circnlation of the heat and gascs needed in the reduction and purification of metallic ores, throughout a mass of pulverized ore, in the reducing chamber of a furnace, to facilitate and insnre its speedy desulphurization and reduction. In roasting pulverized ores, heretofore. difficulty has heen experienced from the fact, that owing to the fineness of the particles, the ore when in mass packs so closely as to prevent a draught and passage of heat; and of the reducing gases through the eame. To obviate this difficulty various expedients have heen resorted to, sueh as moulding the ore into bricke or balls, preparatory to suhmitting the same to the action of the fire; sifting the ore through cnrrents of flame and gascs, etc., all of which have proveu to be tedious and expensive in their nature. The ohject sought for in this invention is to provide a simple, cheap and effective method of roasting and chloridizing gold and silver ores *in bulk*, and is specially dcsigned for ores, slimes and tailings that have been wet crushed. To effect this by any other means now in vogue requires that the ore shall he firet dried and re-pulverized, an expense that few ores of that class can hear.

The furnace, as the cut shows, is substantially a large rectangular ore chamber with ordinary fireplaces underneath, the fines, *A A*, from which lead directly under the fleor of the chamber containing the ore. This floor, *B*, is constructed of tiles ahout six inches square, each one having a two-inch hole in its center so as to allow the heat and flames te pass from the fire helow to the ore chamber—above. A number of round wooden poles—two inches in diameter, to fit into the holes in the tiles of the floor, are made sufficiently long to permit their upper ends to extend above the fnrnace. They are secnred in position en tep hy light hoop iron guides, *C*, fastened to a frame work, *G G*, on the side eo that the whole can he lifted np in one piece when the poles are to he removed.

To prepare the furnace for a charge of ore, the first step is to place the wooden rods in an upright position, the lower ends being in the holes in the tiles and the upper secured by the guides. When the rods are all in, the side doors, *D*, are closed, and the furnace is ready for work. The tiles, *B*, of the floor are laid on fire-brick set on edge, *E E*, and they in tnrn are eet on the fire-arch. On each side of each fire-arch are a series of flues, *A A*, which permit the heat and flame to pass up through the floor into the chamber ahove. The grate bars and doors are constructed in the ordinary manner. A staging is erected heside the furnace npon which is a floer, *I*, connecting it with the settling tanks, *H*, and providing a convenient place to charge the furnace. This, however, would he unnecessary when the furnace could he erected beside a hill. The ore is run into settling tanks at a convenient distance from the furnace and then thrown on to the mixing floor.



CROSBY'S IMPROVED FURNACE.

Chopped hay or straw or any hollow vegetahle matter (straw is preferable) cut into lengths of from two to three inches, is thoroughly mixed with the ore, with a proportion of salt according to the charac- of the ore. The furnace being prepared as above described, the mixed ore is shevelled into the ore chamber so as to fill it nearly to the top. The charge is left as loose as possihle and no tamping done. The upper surface should he somewhat smoothed and levelled down, the guides removed, the poles drawn and the fire started. The wet pulvorized ore is of euch consistency that it packs closely in the chamher above tho upright rods and will not crnmhle. When the rods are withdrawn and the fire started it penetrates through the passagce left by their withdrawal, reaches the straw or fibrous material, speedily consuming it, and opening thousand of new passagee for the flame, heat and gas. This produces an exceedingly porous condition in the mass which is favorable to the speedy and effective action of the agents for its decomposition and reduction.

The proportion of straw which is found to work the best is 20 to 30 pounds to the ton of ore; the amount of salt will vary, with silver ores, from one to three per cent.; in good ores of course no salt is used. The charge can be quite wet, hut is hest when hut little moister than molder's sand. In silver ores the salt is hrought into direct contact with the ore and a more perfect chlorination is reached with a much less quantity than by other methods.

The cost of a 20-ton furnace of this description will vary from $400 to $800, exclusive of the right of use, according to locality. The lining of the fire hoxes with the arch and floor of the chamher should be of fire hrick hut the rest of the furnace can be made of almost any kind of etone or common brick. No iron work is necessary except grate hars and doers and the light guide frames. The furnace may be made of almost any capacity, but experience has ehown that those capahle of treating from 20 to 30 tons of ore at a charge are the most convenient to operate. Where there are two or more fnrnaces near each other one set of guides and polos will answer fer all. The furnace is ee cheap as to he within the reach of all, and can bo built in any locality with materials always at hand, as with careful usage common brick will do instead of fire-hrick. No power is required and any mason can erect it. This precess is now in no sense an experiment, it having been thoroughly and practically tested heth in Northern Nevada and Colorado. It was tried also for some time at the mines in Nerth Carolina, and is said to have worked well. Parties wishing further information concerning it can address the inventor, F. W. Croshy, Georgetown, Colorado, or Messrs. Taft and Smeeton, Ophir City, U. T. Col. C. S. Drew, 728 Howard St., in this city, is agent for California.

EASTERN SENSATIONALISM.—Our Eastern eotemperaries are circnlating nnwarranted reports with regard to the late Inyo earthquakes, such as leave the impression on distant readers that the entire State was severely shaken, when the fact wae eorrectly telegraphed from this city that the eeverity of the "tremhlor" was confined to a comparatively limited region, in a distant and thinly peopled portion of the State. With the exception of a natural sympathy in behalf of the Inyo sufferers, who were intimately connected in business and personal relations with our citizens, no more thought was given the earthquake in this city, or indeed throughout nineteen-twentieths of the State than though it had occurred in South America.

DETERIORATION OF WHEAT LANDS.—Russia seems to he following in the footsteps of this country in the neglect of her wheat lands, and, as a consequence, complainte are already being made that the average yield of her grain crops is constantly growing less. It is said that there, as in California, valuahle farm yard manure is, in many places, being conducted to the nearest waste gronnd or stream as a nuisance. Still, Russia is huying largely of reaping and threshing machines, netwithstanding, as well as ether agricultural machiuery, on a large scale.

BUSINESS neglected is business loet.

CORRESPONDENCE.

Notes of Travel in Placer County.

[By our Traveling Correspondent.]

Placer county, in proportion to its length, is the narrowest one in the State, being 80 miles long east and west, and having an average width of but 14 miles, containing about 1,120 square miles. Its county seat, Auburn, of which I will speak more fully in my next letter, is situated near the centre of the county, and about 150 miles distant from your city by rail. The lower part of the county is nearly at a level with tide water and the upper end is high up among the Sierras where the snow sometimes lies the year round. This being the case of course there is a variety of climate; the weather being mild and spring like in the western part and mild and pleasant in the center, while the eastern sections are hurled in snow and swept by furious storms.

It is traversed from south to north by one of the most extensive

Deep Channel

Auriferous gravel leads in the known world, commencing in the south at Todd's Valley and extending northward through Yaukee Jims, Wisconsin Hill, Iowa Hill, Indiana Hill and Gold Run. The channel at the latter point bears northeast to Dutch Flat, a distance of four miles, makes a short horse-shoe curve and turns directly to the westward, leaving the county at Little York a distance of three miles. The wash gravel along the entire channel is not only traceable, but pays to wash by hydraulic process, from one-half to three-quarters of a mile in width; the channel proper being from 100 to 800 feet in width, and the deposit from 75 to 500 feet deep.

Dutch Flat,

The largest town in the county, and most active mining camp on this gravel lead, is located one mile north from the railroad station bearing the same name, distance from your city about 200 miles, and about 35 miles a little north of east of the county seat, Auburn. It contains about 1,500 inhabitants. While mining is the chief occupation of its inhabitants, its lumber interests are second to none in the State. The Towle Bros. and Messrs Towle & Blanchard are the principal dealers in this line. These firms own, combined, 3 steam saw-mills situated severally, 3, 5 and 8 miles distant northeast, each of which is driven by steam with engines of from 20 to 40 horse-power. The largest has a capacity for making 27,000 feet of lumber per day, and the two smaller 15,000 feet each. The principal offices are situated at this place. Between these firms there is sold 9,000,000 feet of lumber annually, varying in price from $14 to $35 per thousand. The Towle Bros. also carry on an extensive manufacture of doors, windows, blinds, dressed flooring and all kinds of lumber for building and manufacturing material. The factory is situated in the suburbs of Dutch Flat. The principal interest in as extensive a mining section as this, is its water and water ditches, and the

Dutch Flat Water Co.,

The principal office of which is located here, is among the most important of its kind in the State. The company's ditches consist of the Placer county canal 30 miles long, and Cañon Creek and Little Bear River Ditches about 30 miles more, including other ditches leading to resevoirs, all of which center at Dutch Flat and Gold Run, and have a capacity of furnishing daily 5,500 inches for 24 hours run. This company own 12 resevoirs, the largest of which will furnish the above mentioned amount of water for one week, and all combined will furnish 30 days water without a drop running into them. The furthest point in an air line to where the water is taken up for these ditches is 25 miles easterly. This extensive enterprise is owned by E. L. Bradley and M. S. Gardner. The number of men engaged in the different departments is 13.

The water generally lasts from the middle of December to the middle of August, or from 6 to 8 months. It is reduced at the latter end of the season from August to December to about 100 inches. The company is at present disposing of from 3,500 inches of water per day up to their full capacity. Prices received for the same are 9 cents per inch for 12-hour water or 15 cents for 24-hour water. The measure is counted from the center of the issue with 7-inch pressure.

Summit Mining Co.

Leaving Little York, and going eastward, the first claim is that of the Summit Mining Co., situated 1¼ miles west by south from Dutch Flat. This company's possessions cover an area of 50 acres of mining ground and 190 more of timber land, all of which is covered by United States patent, the first ever granted to a gravel mining claim under the law of Congress. It is owned by eight equal partners, viz.: L. B. Tillotson, Chas. Voight, J. H. LaKamp, Wm. and John Rablin, Frank Sachs, W. T. Odgers and a Mr. Bailey. John Rablin is superintendent and Chas. Voight is secretary. The improvements consist of 1½ miles of 14-inch pipe and 600 feet of 4-foot flume 2 feet deep, with 5 undercurrents; the claim is better located for using the latter than any other on the flat. Working two of Hoskin's Little Giant monitors, with 3¼ and 4-inch nozzles, running 350 inches of water under 175-feet pressure; 125 feet more pressure will be added to this after the first of next month. Four hundred feet fall is had from their flume to the lowest undercurrent and 200 feet more of dump is obtained from there to Bear river where the tailings fall. This claim is one of the few that is being cleaned to the bed-rock as they go along, and the profits are satisfying to its proprietors. Still going eastward we meet a number of

Other Gravel Claims,

The first of which is known as the Kidder claim, consisting of about 10 acres of ground, located on the south side of Dutch Flat Cañon.

Jehosaphat claim comes next and is owned by the Dutch Flat Water Co. and H. C. Kelsey. This claim consists of about 15 acres of mining ground working regularly 4 or 5 men and two monitors.

Palmtag claim, next in order, is owned by the gentleman after whom it is named, who is working three men and using one monitor.

C. Straube's claim is an excellent claim containing 27 acres, working 3 men and one Little Giant monitor.

The Chinese Claim, called the American, is owned and worked by Chinamen. They own 12 acres of mining ground and employ regularly from 5 to 6 men and run one monitor.

Dutch Flat Blue Gravel Mining Co.

The principal office of the above named company is 401 California street, San Francisco. L. A. Booth is President and Geo. D. Roberts, J. B. Haggin, W. H. Raymond and E. B. Dorsey are its present Board of Trustees. The latter is Superintendent. This is an incorporation with 40,000 shares and $4,000,000 capital. The company's possessions consist of 27 acres of mining ground, covered by United States Patent. The water used is purchased of the Yuba Ditch Co., and they are at present running 2,000 inches through two 6-inch nozzles, of Hoskins Little Giant monitors, under a pressure of 400 feet, and by the time this is in type will be running under a pressure of 460 feet. Two more 8-inch nozzle monitors have been ordered, through each of which they expect to use 2,000 inches of water. In addition, their improvements consist of 2,500 feet of 30-inch pipe and 1,500 feet of tail flume 5 feet wide and two feet deep, with three under currents. They employ about 70 men. This is the largest enterprise in the State and they are at present using more water than any similar claim in the country. Several important blasts have lately been put off in this claim in one of which 700 kegs of powder were used; 14 chambers were drifted for the purpose, and it was fired by electricity. Using at present both black and Giant powder. This company have in project a bed-rock tunnel 1,500 feet in length for which they have ordered a "Diamond Drill." Up to the time of my visit to this mine, since being opened so systematically by its present owners, no clean-up has been made. It is not, however, to be supposed that an extensive clean-up could be made when they have only been washing top dirt, but the ultimate success of this mine is only a matter of time, for when it is thoroughly opened it will surely pay handsome dividends. The bed-rock under the principal portion of the channel in this claim has never been reached but they have a known depth of gravel of 150 feet, and the top gravel is 2,000 feet wide.

Columbia Gravel Claim, owned by Simons & Co., is the next adjoining the above and consists of 10 acres of mining ground where they are working 4 men with 2 Little Giant monitors. The claim is paying satisfactorially.

Gold Run,

Located four miles nearly west of Dutch Flat on the line of the Central Pacific Railroad, contains about 800 inhabitants and is now one of the busy mining towns of this county. Surrounding the town are a larger number of paying claims now working than at any other camp in the county. Beginning at the most southerly of these claims distant 1¼ miles southeast of the village is the Cement Mill Co. The company's possessions consist of a bed of hard cement 1,600x400 feet, and 9 feet thick. In their improvements is comprised an 8-stamp mill, run by water power which can crush about 40 tons per day, and which is now running to its full capacity. The average pay is about $4 per ton. They are at present engaged in drifting in a breast 100 feet wide, and are in 400 feet. Benches are left to support the mass above and but very little timbering is done. Working on an average 20 men. The claim is owned by 8 equal partners of whom John N. Jensen is Superintendent. The next claim passing northerly is the

Stewart & Sneff,

A rim rock claim, owned by gentlemen of the same name, which is nearly worked out except some back bottom gravel that will not at present pay to work. They are using one of Hoskin's monitors. After one more run of 30 days this claim will temporarily be laid up. It has paid its owners satisfactorily.

The Brink's and Hawkin's claims are the next two met in passing in the same direction and adjoining the above on the northeast. They are not at present working but are considered good claims in this vicinity.

The Indiana Hill Claim,

Owned by Judd, Brown & Miner, is a very extensive claim of about 40 acres, situated right on the channel adjoining the above. It is at present being vigorously worked, using two monitors, running 500 inches of water, and working 6 men night and day. It pays as well as any mine in the vicinity.

Gold Run Hydraulic M. Co. (Limited).

The property owned by this company was formerly known as the "Cedar Claim" and consists of about 37 acres in the heart of this mining section, the channel running the entire length of it. A deeper deposit of blue gravel is found here, probably, than at any other point on this celebrated channel. This property has recently been purchased by an English Co. for the sum of $60,000; the principal office is in London. O. S. Kipp is general superintendent. This company own no ditches but are purchasing their water for hydraulic purposes. Their improvements consist of about 1,400 feet of flume 4 feet wide by 2 feet deep, blocked the entire length. The flume has a grade of 8 inches to 12 feet. They also have 1,500 ft. of 16-inch pipe and the same amount of 11-inch pipe; working two Little Giant monitors with 4 and 5-inch nozzlee using 500 inches of water under a pressure of 240 feet. Their present working is at least 125 feet above bed-rock with a bank of gravel above and facing them 215 feet high. The northwest line of this company's claims is within ¾ of a mile of Gold Run station. Six men are employed night and day. The average yield for 30 days' run has been from $6,000 to $8,000. A sufficient amount of pay gravel is in sight in this claim to last for the next 25 years with the present method of washing.

Gold Run Mining Claim,

Located about one mile east of Gold Run station and adjoining the above on the north-east is owned by E. L. Bradley and W. H. Kinder. H. C. Kelsey is the present superintendent and lessee. The claim consists of 40 acres of mining ground on the main channel and their improvements are 650 feet of bed-rock tunnel that cost $30 per foot to construct; also 1,300 feet of bed-rock flume (being doubled through the tunnel) 4 feet wide by two feet deep. They have 1,600 feet of 30-inch, and 900 feet of 16-inch pipe. Working two of Hoskin's Little Giant monitors of 3¼ and 4 inch nozzles, lead pipes 11 inches in diameter, carrying 640 inches of water under 325 feet pressure. Working regularly 12 men night and day. The bank of pay gravel at present facing them is 130 feet high and fully 150 feet above bed rock; average receipts $6.000 per month. Making semi-monthly runs. There are a number of

Other Claims,

All of which are considered first-class, and most of which are at present working, as follows: Sherman, owned by Fitzpatrick; Newark, owned by Miners' Ditch Co.; Tayler & Harriman's; Frank Sach's; Beale & Co.'s and the Hawkins', all of which are extensive claims. The following are owned by the Dutch Flat Water Co.; Gold Run, Golden Gate, Union, Pacific, Ellison, Gem, Schuylkill and Central, all of which are extensive and most of them being worked with good profit. From Colfax and Auburn in my next.

L. P. Mc.

Sales of Mining Interests Unconstitutional.

Yesterday morning, Judge Reardan decided the case of Cullovin vs. Morarity, involving the constitutionality of the law passed by the Legislature concerning "mining partnership." The law provided that when owners of a mining claim desired to develop their claims, they could by notice call a meeting, levy an assessment, and afterwards, if the assessments were not paid, sell the interest of the delinquent according to the terms of the law. In this case the plaintiff, Cullovin, was sold out and he brought suit by his attorney, W. W. Cross, for possession of the ground. The defendant, by his attorneys, Williams & Johnson, answered, setting up as a defence, the assessment and sale under the law above alluded to. Mr. Cross moved the Court to strike out this defense on the ground that it was unconstitutional. The regularity of the proceedings for assessment and sale were not questioned, the motion resting entirely upon the questioner of the constutionality of the law. The case was argued on Saturday, by Mr. Cross, in favor of the motion, and Mr. Williams in opposition. Yesterday morning Judge Reardan rendered his decision sustaining the position of Mr. Cross. He held the law to be in contravention of the part of the constitution, providing "no person shall be deprived of life, liberty, without due process of law," holding that the latter phrase meant a suit and judgment of a court of competent jurisdiction. As a number of sales have been made in this and other mining counties of the State, under the law, the decision has an important bearing upon the interests of parties. We have not learned whether this case will be taken to the Supreme Court or not.—*Nevada Transcript.*

Wonderful Railway Bridge.

The Wallkill Valley Railroad bridge at Rosendale, Ulster county, deserves to be placed among the wonders of railroad construction. It is built across a deep gorge in the Shawangunk Mountains, in which lies the romantic village of Rosendale, and through which sweeps the Rondout creek. The immense chasm lay directly in the route of the surveyors, when the line was run, and there was no possible way to get around it, and the gigantic task of bridging it was commenced. The Western Manufacturing Company, of Paterson, was awarded the contract for the superstructure, and A. L. Dolhy & Co. the excavation and abutments. Work was commenced on the abutments in the fall of 1870, but owing to the prevalence of quicksand in the excavation, it was a year before everything was in readiness for the superstructure. It was completed in January last, nearly a hundred men having been steadily employed on it during that time. The bridge is a diagonal truss, Post's patent. There are three iron spans and two wooden ones. The entire length of the bridge is 987 feet, the iron spans being 876 feet, and each of the wooden ones 56 It is 150 feet above the Rondout creek. In putting up the iron work 300,000 feet of timber were used, it being necessary to put it up for each span at a time. One thousand tons of iron were used in the construction, and its supporting capacity is 4,000 pounds to the lineal foot. For the stringers, cross-pieces, etc., 120,000 pieces of timber were required. The structure is the highest span bridge in the United States. It cost $125,000. The rails will be laid over it next month. —*N. Y. Times.*

Preserving Fruit and Flowers.—Dr. Piesse has recommended preserving fruit and flowers by simply emersing in melted paraffine and withdrawing quickly, when a thin coat of paraffine instantly sets and closes all the pores of the plants thus treated. The paraffine should not be hotter than just sufficient to liquefy it; and the flowers should be dipped in separately (held by the stalk) and moved about in order to get rid of air bubbles.

Miners and Mechanics, write for your paper.

MECHANICAL PROGRESS.

Petroleum as Fuel in Iron Manufacture.

Much attention has been drawn to experiments with petrolenm in iron-making for some months past in progress in the La Clede Mills, St. Louis. No reliable data are afforded concerning the smelting of ores, but the reanlts in converting pig into bar and malleable iron are said to be good. We qnote the *Pittsburgh Commercial*:

One of the tests—all of which are said to have been of the most thorough character—employed to ascertain the effect of petroleum heat, consisted in puddling 1,000 pounds of pig-iron, smelted with raw Illinois coal in 1859, and which, owing to the large debasement by sulphur, had been thrown aside as worthless. Frequent efforts have been made from time to time to reduce the mixture to merchantable iron, but to no avail. Since 1864 it had lain neglected. A single hour's treatment with liquid gas, however, is said to have turned the mass out in the shape of iron of the finest quality, closely resembling steel, and perfectly free from sulphur and all other impurities. Specimens were exhibited, and were pronounced by old iron men as of the very finest quality of metal, equal if not superior to the best charcoal iron.

Other experiments are said to have demonstrated that common Iron Mountain pig-iron could, by a single application of the liquid fuel in the puddling furnaces, ha made into the best flange boiler iron, which, under the severest tests, was shown to be eqnal to the first quality Sligo or Low Moor iron, a range of capacity which is reported to have astonished even the most sanguine believers in the patent.

It is asserted that the iron manufactured by using this fuel has been tested in almost every conceivable manner, and that these tests prove its tensile strength as well as its capacity to anstain weight to be far above the average; in the former showing a tensile strength of more than 1,000 pounds greater than specimens of Low Moore iron. The workmen in the mill are said to be greatly interested in the experiments. They recently satisfied their curiosity by rolling this iron in sheets, and thongh still experimenting, have produced sheets so thin that five hnndred of them are but one inch thick. These sheets are described as being remarkably tough and flexible. Numerous other experiments are also reported to have been made, with only temporary machinery and apparatns for the nse of petroleum fnel, but with the most satisfactory results.

From these experiments it would appear to be considerably cheaper than coal in its use and handling, so far as the heating of the iron for the rolls is concerned, while the saving in 'scrapping' gives it a still further economic advantage, as the following results obtained in the acrapping furnace show:—

Iron placed in the furnace	7,950 lbs.
Iron taken out	7,761 lbs.
Showing a loss of	199 lbs.
Loss with coal 15 per cent. on	1,192 lbs.
Deduct loss with liquid fuel	199 lbs.
Saving with liquid fuel	993 lbs.

"Although petrolenm is generally known to be a concentration or distillation of coal, and that in proportion to the crudity of the coal to the concentrated character of the petroleum is the intensity of the heat produced by the petroleum greater than the heat of the coal, yet this seems to be the first definite and sustained attempt to apply the greater intensity to practical uses, aud to employ it as a refined mechanical force.

Heretofore, coal has been the main aliment of industry, and such is its importance and valne throughout the civilized world, that any material which supersedes it in cheapness and importance in the more essential uses of industry aud commerce, must necessarially be an agency of incalculable value, and work a corresponding revolution in the development of the resources of the country and their adaptation to the requirements of civilization and the interests of man. As to the snpply of the new fuel, so as to render its use a question for economy, there need be no alarm, for the quantity of it in many parts of the world seems to be inexhaustible and easy of access, and especially is this the case in our own country. Should the claims which are made in its behalf be substantiated by further experiments and investigations, it will probably work an eventful revolution, not only in the manufacture of iron, but wherever heat, steam, or artificial light are employed.

Labor-Saving Machines.—The beneficial effect of labor-saving machines in improving the conditiou of workmen, it is stated, has been exemplified by the application of the sewing machine to the manufactnre of shoes. The workmen of Lynu, Masa., who in 1862 were earning ten dollara a week without the assistance of the leather aewing machine, are now, it is reported, earning fifty dollars a week with the aid of thia useful apparatus. The inventor, who in 1862 was threatened with mob violence, is now considered by the workmen as their greatest benefactor. Within the last ten yeara the town of Lynn haa doubled in population and taxable property, and it is estimated that forty-four millions dollara have been saved to the whole country by the invention of the aewing machine aa applied to the manufacture of articles of leather.—*Public Ledger.*

High-Speed Engines.

F. A. P. Barnard, President of tha American Institute has recently made an elaborate investigation of a high-speed Alleu engine, the resnlts of which we find given in the New York *Engineering and Mining Journal* as follows:

High velocities and considerable weight in the reciprocating parts of cylinder steam engines, working expansively, are advantageons in the following particulars:

First, in distributing the work dono with a near approach to uniformity over the circumference described by the crank in its revolutiou; and secondly, in greatly reducing the irregnlarities of strain experienced by the working parts of the engine, especially as it respects the torsion of the shaft.

Tho advantage derivable from the use of heavy pistons increases with increase of weight only up to a certain point and is dependent on the initial pressure of the steam in the cylinder, on the point of the stroke at which cut-off is made, and on the velocity of revolution.

A high speed, heavy piston engine, depends, like every other reciprocating engine, upon the inertia of its fly-wheel or other rotating parts for the facility with which it passes the centers, but it taxes these regulators less than the ordinary reciprocating engine, becanse of the brevity of the intervals during which the effective force intermits. There must be at the beginning of the stroke a large excess of steam pressnre above that which is required to overcome the inertia of the piston, and impart to it the necessary acceleration; otherwise the advantages derivable from this constructiou and mode of working will not be fully secured, and the irregularity of working of the engine may even be exagerated.

The counterpoise weight employed to balance the strain exerted toward the close of the stroke by the heavy piston upon the crank, ought not to exceed one half the weight of the reciprocating mass to which it is opposed; otherwise, immediately after the passage of the centers, the strain on the main shaft in the direction opposite the crank will be excessive, and may be injurious.

Improved Canal Boat.—The first iron canal boat made in this country, or in the world, is now being built at the Continental Works, Green Point, N. Y. The boat is constructed on what is known as the longitudinal and transverse plan, with water-bottom divided by the framing into water-tight compartments. She has three entire hulkheads, dividing the machinery, cargo, and cabin spaces from each other. The boat is especially designed to carry grain, and has a cargo capacity of 200 tons of wheat. It is being built for the Fowler Improved Steam Propeller Co., and is especially designed for the improved screw of this company, the peculiar advantages of which for canal navigation, and the lightness aud strength of this boat, it is expected will settle the vexed problem of how to carry a paying freight at a fair rate of speed upon canals. It is thought that time now reqnired for through freights will be reduced to one-third or one-fourth of that now taken.—*Coal and Iron Record.*

Iron and Steel Rails.—As compared with iron the breaking tests which steel rails will stand are something wonderful; 1,000 pounds falling 10¾ ft. has long been applied as a breaking test for first-class iron rails, while steel rails stand a test of 2,000 ponnds falling 13½ feet.

The object sought in railway coustruction is a rail which will be hard enough to stand abrasion and wear, but strong enough to stand all the strains to which it is liable. The railroad engineer's idea of hardness is that quality which imparts durability without brittleness.

Freezing by Mechanical Action.—M. Foselli has annnounced to the French Academy of Science that he has snceeeded in producing an amount of cold just below the zero of the Fahrenheit scale, by simple mechanical action creating rapid evaporation. He employs a wheel formed of a spiral tube, both ends of which are open, set vertically and half immersed in the fluid to he cooled, so that the latter passes constantly through the whole length of the tube, half of which is constantly above the liquid, and, being wet, gives rise to active evaporation and consequent refrigeration within it.

The Largest Iron Casting ever attempted has been successfully achieved at the Elswick Ordnance Works, Newcastle-on-Tyne, under the direction of Sir William Armstrong and Captain Noble. It was a huge auvil block, weighing 125 tons, to he used with a twenty-ton double action forge hammer, for performing the necessary forging for the 35-ton Armstroug gun.

Iron ann Steel Dust.—A Boston mechanic recommenda the placing of electro magnets in shops where iron and steel dust prevails, to take up the particlea and prevent them from pervading the atmosphere and injuring the health. The experimeat would undoubtedly prove effectnal.

A machine haa been invented in Chicago for making type by a cold pressure process out of copper. It ia aaid that copper type made by this procesa lasta ten times as loug as cast type.

Four iron ships of the capacity of 2,000 tons each are now building at Buffalo, to run in the Buffalo and Chicago trade.

SCIENTIFIC PROGRESS.

New Triumphs of the Chemical Laboratory.

Reports from abroad chronicle another great step forward in the art of compounding certain chemical products, thns far only obtained by the intervention of vegetation, ont of their inorganic elements. The discoverer is Professor Schulze, who recently at the session of the chemical section of the German Association for the Advancement of Science, at Rostock, communicated his discovery of a method of making a series of hydro-carbon compounds, as benzole, nitro-benzole, or oil of myrbane, anihn, and anilin colors, from their inorganic element.

We have before ns a memorandum of the process employed, which is too lengthy for the columns of the Press.

The learned Professor also makes millitic acid, from any form of carbon, such as mineral coal or charcoal, also from graphite or plumbago. When this acid was first produced the Professor called it anthraconic acid; hut he soon found that it rosembled mellitio acid very closely, and finally that it was identical with the same. This being the case, the road was open to make successfully from inorganic snbstances, snch as carbon, permanganate of potash, soda, nitric acid, irou-filings and cbloride of lime, the series of mellitic acid, benzole, oil of myrbane, anilin and the anilin colors. As in a similar way the isatine, one of the coloring matters in the indigo, and the garancine, one of the coloring principles in the madder, have beeu made, the road is open to produce all these dye-stuffs, and probably several others, from the elemeuts, without having recourse to vegetable growth.

If, however, the growing of the plants producing these dye-stuffs, will, for the present, be not more econominal than compounding them out of their elements in the chemical laboratory, is a totally different question, which practical experience will decide. A great triumph, in the meantime, is the fact that tbe possihility to do this has been proved. Very likely, in the progress of these investigations, we may find the means to compound from their inorganic elements all the products now derived from the destructive metamorphosis of organic growth; and as oxalic acid, viuegar and alcohol have already been thns obtained, so we may some day produce grape sugar, dextrine, etc. However, it is very unlikely that we will be able to compound the smallest starch granule, as this possesses a highly-elaborate, organized structure, which is easily ascertained by the polarizing microscope. By the destruction of the starch granules, we obtain successively dextrine, gum, sugar, alcohol, vinegar, and ultimately carbonic acid and water.

Mechanical Effect of Magnetization.—The following is from a lecture by Prof. Tyndall: "The effect I wish to make manifest was discovered by Mr. Joule, and was subsequently examined by MM. De la Rive, Wertheim, Marian, Matteucci, and Wartmann. It is this:—At the moment when the current passes through the coil surrounding the electro-magnet, a clink is heard emanating from the body of the iron, aud at the moment the current ceases a clink is also heard. In fact, the acts of magnetization and demagnetization so stir the particles of the magnetized body that they, in their turn, can stir the air and send sonorous impulses to our auditory nerves. The sounds occur at the moment of magnetization, and at the moment when magnetization ceases; hence, if means be devised of making and breaking, in quick succession, the circuit through which the current flows, we shall obtain an equally quick succession of sounds. I do this by means of a contact breaker which belongs to a Ruhmkorff's induction coil. A thin bar of iron stretches from one of the bridges of this monochord to the other. This bar is placed in a glass tube, which is surrounded by copper wire. Tho contact breaker is placed in a distant room, so that you cannot hear its noise. The current is now active, and every individual in this large assembly hears something between a dry crackle and a musical sound issuing from the bar in consequence of its successive magnetization and demagnetization.

Obtaining Absolute Alcohol.—A German *savan* has recently improved on the well kuown method, employed by Mendelejeff, for obtaining absolute alcohol. Alcohol of ·792 is boiled with quicklime, the pieces of the latter projecting above the surface of tho liquid, for half an hour or more, with a condenser inverted so that the liquid may return by its own gravity to the flask. The condenser is then reversed, and the alcohol redistilled. If the alcohol contains more than 5 per cent. of water, the process must be repeated two or three times. The vessel should only be half filled with the pieces of lime, as the rapid formation of hydrate of lime may break it to pieces.

Electric Currants.—In the *Comptes Rendus*, for Jauuary 2d, M. P. Volpicelli has a memoir "On Electric Currents Obtained by the Bending of Metals." From this it appears that all metals, being bent or twisted, give rise to the development of an electric current, and that copper exhibits this phenomenon in the highest degree.

Recent Obsenvations of the Planet Venus. Although this "star of lova" is our nearest neighbor among the planetary bodies, wa know less about her than about several of tho family that are more distant. Her very brilliancy has interfered with the study of her face, blinding the observer "with excess of light," and little has been learned on the subject since the days of the indefatigable Schröter. At the heginning of the present year a committeo of the "Observing Astronomical Society," in Eugland, arranged for a series of systematic observations of the planet, and no less than thirty-seven gentlemen promised to aid in the work. They began their operations in March, and valuable results have already been attained. Markings upon the surface of the planet have been seen and deliueated by several of the observers, and there is a general similarity in the drawings made at the samo date by different persons. When the various sketches and observations have been carefully compared we may expect that our knowledge of the "geography" of Venus will be materially enlarged.

Sinking of Bodies in the Ocean.—Douhts about the sinking of bodies in tho ocean can only be entertained by those who imagine the water is more compressiblo than the bodies sinking in the same. Now the reverso is the case. Water at a depth of 8,000 feet is only increased one-hundredth part in its density or specific weight, while cork, wood or other porous bodies, will at a much less depth become so much compressed as to be unable to even reascend to the surface. They have become heavier than water, and, consequently, will float no longer, aud this is called water-logged. We have heard people who even went so far in their error as to assert that, at a sufficient depth, the density of the water is such as to prevent even stones from sinking further; the absurdity of this notion is evideut from the fact that in this case the whole ocean bottom would be floating.

Scientific Achievements.—What would the great father of British chemistry have said, had he stood in the lecture room of the Royal Institution, where his great discoveries were made, and seen the burning hydrogen extracted by our great countryman Graham, from a meteorite, the heat and light of another world; or could he look with Lockyer on the burning flames of hydrogen, which dart np from the sun to a hight of 50,000 miles, or could he read the flashing telegrams which so rapidly run around the world, that our notions of time are completely upset, and we actually receive intelligence to-day which was sent to-morrow? —*Ex.*

The Spectroscope ann Nebular Hypothesis Prof. Kirkwood says that the spectroscope has demonstrated the present existence of immense nebulous masses, such as that from which Laplace snpposes the solar system to have been derived. It has shown, moreover, a progressive change in their physical structure, in accordance with the views of the same astronomer. In short, the evidence afforded by spectrum analysis in favor of the nebular hypothesis is cumulative and of itself sufficient to give this celebrated theory a high degree of probability.

Power of the Sun's Rays.—Mr. Siemens, the well known English telegraphist, has invented a photometer which has proved that light penetrates to a depth of one hundred fathoms below the surface of the sea. Hitherto it has been supposed that thirty fathoms was the farthest depth to which the sun's rays could reach, but an apparatus, of which the maiu feature is chemically prepared paper, has proved that the sun is more than three times as powerful as was supposed.

Vapors from Smelting Works ann Vegetation.—The apparently injurious effect on vegetation of the vapors from the smelting works at Freiberg, Saxony, has given rise to careful investigatious and elaborate experiments with certain plants on the part of the authorities. It has been found that neither the soot or the arsenious acid of the vapors injures the vegetation, but the sulpburous acid, even in very small amounts, has a deadly effect. Moreover, the feed raised in the vicinity causes peculiar diseases of cattle.

Buddhu's Rays.—A resident of Colombo, in the island of Ceylon, writes to *Nature*, describing a curious meteorological phenomenon which occurs there, and which the inhabitants call "Buddhu's Rays." It consists of radiated bands in the sky, alteruately of rose color and blue, proceeding from a point close to the horizon, and is generally noticed in the west at sunset, although it occasionally appears in the east. It commonly extends from thirty to forty degrees.

Professor Shepard, of Amherst College, Mass., has one of the largest collectiona of meteorites in the world. It embraces 146 different meteoric stones and 94 meteoric irons. The heaviest specimen of the irons ia one from Aerotopaa, weighing 438 pounds, and the largest of the stones is that from New Concord, weighing 52 pounds.

A microscope lena was recently made in London, at the cost of $1,250, from a diamond, its magnifying power being an increase over that of glass as eight to three.

MINING SUMMARY.

THE following is mostly condensed from journals published in the interior,in proximity to the mines mentioned

California.

ALPINE COUNTY.

RICHER AND BETTER.—Monitor *Miner*, March 30: The Tarshish miners struck this week the richest and finest body of ore ever opened in any part of this lode.

AMADOR COUNTY.

KENNEDY.—Jackson *Ledger*, April 6: On Monday and Tuesday the Kennedy made a clean up of 365 ozs., after a run of 19 days. A new ledge about 2½ ft. thick has appeared on the 400-ft. level, which surpasses in richness any rock yet discovered. The Kennedy now has 2 distinct ledges, either of which are charged heavily with free gold.

CALAVERAS COUNTY.

PETTICOAT.—San Andreas *Citizen*, April 6: This claim is down 400 ft. and the rock becomes richer as they progress.

CAPITOL.—This claim, about one mile from town, has struck some very rich rock, showing free gold.

HUDSON.—Last week some ore tested assayed $15.06 to the ton. The Co. are still sinking on their shaft and the ore seems to grow richer as they progress.

MILL'S GRAVEL LEAD.—This claim is paying remarkably well. A shaft was originally sunk on the lead about 40 or 45 ft. deep. Thence the Co. have followed up the lead hy drifting and are in over 500 ft. The gold seems to grow coarser as the drift progresses. Last Saturday a 2-week's run was cleaned up, netting over 40 ozs. The Co. are working 10 men day and night.

WHISKY HILL.—Cor. same: The mines are heing worked vigorously. Three hydraulics are running; Bunker Hill and Whiskey Hill Tunnel Cos. are using the large patent nozzles; Collins & Co. and Meyers & Co. are running a hydraulic, and other small claims are by no means idle.

WORK RESUMED.—Calaveras *Chronicle*, April 6: Operations have been resumed upon the Whisky Slide mine. The battery is once more in motion, crushing a fair quality of rock, and work upon the lead is also heing pushed ahead.

EL DORADO COUNTY.

GARDEN VALLEY.—Cor. Placerville *Republican*, April 4: The Isahel is worked by Swain & Co., who have a 10-stamp steam mill erected. There are some good claims that are heing worked by hydraulics, and among them Capt. Blaisdell's and Mr. Stowe's.

NEVADA COUNTY.

RICH ROCK.—Grass Valley *Republican*, April 5: Ryan and Donahue had 12 tons of quartz from their ledge in Woodpecker's ravine crushed this week at the Gold Hill mill which yielded $62 a ton.

HEAVY BRICK.—A gold brick weighing 529 oz. made its appearance at Delano's banking house yesterday, from the Empire mine, valued at $8,900.

RICH DISCOVERY.—A party of prospectors a few days ago discovered a rich pocket of quartz on Woods' ravine, and took out about $700 worth of specimens.

ERIE MINE.—The mine on Deadman's Flat was located in May last. The first crushing of two loads of rock yielded $222. The second crushing of 9 loads in July yielded $145 a load. The third crushing iu Oct. of 15 loads yielded nearly $500 a load. Last Friday 20 loads were crushed, yielding $60 per load. The owners have sunk only about 50 ft. on the ledge, which averages only ahout 6 inches in thickness.

IMPETUS TO MINING.—Good paying ore has been struck in the Gold Tunnel mine near Nevada City, at a depth of about 400 ft. from the surface. In codsequence of the discovery Gashwiler and others of S. F. have purchashed the California mine, which is a continuation of the Gold Tunnel, as also the Illinois.

LOCATIONS.—Nevada *Gazette*, April 6: F. Hoffman & Co. havelocated 1,000 inches of water of Little Greenhorn creek to be taken out of the creek one mile helow the Greenhorn quartz mill, and to he conveyed by ditch to Boyd's ravino, for mining purposes.

The same parties havo located 1,000 ft. of ground fronting on Boyd's ravine, and also the ravine for fluming and mining purposes.

Gamble & Co. have located 800 ft. on the Gracie ledge southwest of the Gracie Co's location, in Nevada township.

R. C. Walrath and others yesterday located 800 ft. as a southern extension of the Grarie ledge, commencing at the southerly houndry of Graire Co.'s claim and running southeasterly 800 ft.

HANDSOME RESULT—Grass Valley *Union*, April 4: A lot of hlack sand, containing gold covered with rust and slime, 220 pounds, from the Webster gravel claim, from which the gold could not he saved hy ordinary sluice washing, was yesterday cleaned up at the Coe mill, from Justin Michel's amalgamating pan, and produced 17 ounces of hard amalgam, which retorted 11 ounces of excellent gold, worth over $18 per ounce, or a net result of something over $200.

MINING MATTERS.—The shaft of the Daisy Hill mine is down to a point where drifts are to he run.

The repairs having heen made to the pumping machiuery of the North Star, tho pumps are again at work and rapidly freeing the mine of water.

CHUNK OF GOLD.—Nevada *Transcript*, April 7. We saw a heautiful lot of gold, yesterday, valued at $2,560, the result of 10 days' work in a placer claim, near this city.

PLACER COUNTY.

GOOD YIELD.—Auburn *Herald*, April 6: Jones of the Bellevue has finished crushing the rock taken from that mine, at the St. Patrick mill. The amount of ore reduced was 429 tons, and the yield was some $18,000, an average of over $40 per ton.

SAN DIEGO COUNTY.

BULLION.—San Diego *Union*, Maroh 28: Bullion valued at $10,138 was shipped to S. F. last Sunday, all from Sau Diego mines.

CLEAN UP.—Mr. Farley of the Stonewall mine, arrived on Wednesday. He brought with him a gold brick, valued at $1,800, result of an 8-day run at the mill.

ITEMS.—San Diego *Bulletin*, March 30: C. Pauley returned from the mines yesterday, bringing a gold hrick worth $800, the product of 21 tons of rock from the Helvetia, crushed at Pierce's mill, the clean up of last Tuesday.

TRINITY COUNTY.

DOUGLAS CITY.—Cor. Weaverville *Journal*, March 30: Roderic & Rabbit are working a point on Mule Gulch which pays them $10 per day to the hand regularly. Jas. A. Johnson has his new derrick upon Stratton's old claim and it works splendidly. They hoist boulders out that weigh several tons with a 12 foot wheel.—Mr. Silcox makes $300 per week regularly. Manuel Silva & Co. have made a partial clean-up of 102 ounces in a five weeks' run. Gahriel & Co. have ground enough sluiced to keep them cleaning up all Summer. Frank Silva & Co. have done very well. Hennessey & O'Keefe are rushing things on Spring gulch and are making money fast, but Morris & Smith heat them all. They have no rocks to handle, nothing hut red loam. They pipe away the loam and there lays the gold. They pick up pieces that weigh from $2 to $5, 2 ft from the hed-rock. Last week they took out 40 ounces with only 2 men at work.

Nevada.

ELKO COUNTY.

RAILROAD DIST. — Elko *Independent*, April 6: The erection of 2 smelters will probably be commenced within 10 days by the Hussey Co.

THE Lee mine, at a depth of 120 ft., has a large body of ore assaying on an average $390 per ton.

THE Elko tunnel, at a distance of 200 ft., has struck a large body of ore 7 ft. between the walls.

A LEDGE 15 ft. wide of rich coppor ore has heen struck in the State of Maine Tunnel.

THE Hunter mine has a fine body of ore at a depth of 90 ft.

THE Hussey Co. has commenced to work on a tunnel which will strike the Last Chance mine at a depth of 300 ft.

ELY DISTRICT.

BULLION.—Ely *Record*, March 31: W. F. & Co. shipped to-day, hullion valued at $53,695 87.

BRISTOL DIST.—In the hay State the ledge is fine-looking, and from present developments it is a valuable mine. The ore is 4 ft in thickness, and looks well. On the dump there are about 250 tons that will average over $100 per ton. At the lowest point of the incline, 83 ft from the surface, the ore looks well, and is as extensive as in any other part of the mine. The ore is oxide of lead, with a small percentage of carhonate, all carrying silver aud a small percentage of gold.

In the Mayflower but little work has been done, almost 40 tons of good ore are on the dump.

The Cave mine is on the northside of Copper Mt. This mine is worked by a tunnel which starts into the mountains ahout 100 ft ahove the hed of the cañon. The tunnel follows the hanging wall of the ledge 122 ft, but the ore being so very thick, it was found necessary to raise up to another level, 17 ft ahove the main tunnel, and from this point the tunnel continues 85 ft further, the full size of the tunnel heing in ore. The ore is oxide and carbonate. The ledge will average over 8 ft in thickness from the mouth of the tunnel to the point, 225 ft back in the mountain. The dump contains over 1,250 tons of ore that will average an assay of $80 per ton. The National is the south extension of the Cave and is a very fine claim. It is opened by a tunnel which follows the ledge 80 ft, and from this point an incline is sunk 40 ft deep, every foot of the workings showing a fine ledge.

EUREKA DISTRICT.

FINE ORE.—Eureka *Sentinel*, April 2: The Eureka Con. Co. shipped to S. F., a few days ago, 16,000 lbs. of the fine ore recently developed in the lower workings of the mine.

DIAMOND DIST.—The owners of the Champion are working their property day and night and are opening a fine body of mineral.

SILVER LICK.—The main shaft is down 70 ft. and the ledge is one of the largest and best defined in the dist. At the first station, 35 ft. from the surface, drifts are being run each way on the ledge. In one of these drifts an immense body of high grade ore has heon developed withiu the last few days.

HOT CREEK.—Cor. same: Our mines are not in as forward a condition as they might he, from the fact that the owners have not the means to reduce their ores into bullion.

At Moore's dist., 15 miles northeasterly from Hot Creek, about 7 tons per month of assorted ores are shipped to the Manhattan mill. This ore works ahout $400 per ton.

The New Philadelphia mine, in Rattlesnake Cañon, 6 miles northwesterly from Hot Creek, is about to be operated on.

The "2 G" (Twogee) mine is, perhaps, the leading miue of Tyho dist. The props. have opened the mine, in several new places, from the hottom to the top of the hill, a perpendicular of about 300 ft, and in so doing have stripped large bodies of galena, rich in silver. They have sunk also a shaft, 70 ft., at the foot of the hill, hringing up good ore from a well defined ledge, and the work still goes on upon the shaft.

In Empire dist., which joins Tybo dist. on the north, John Centraz has struck a mass of surface ore of a peculiarly deceptive character. This mass is a very large out-crop of lime spar and quartz of a speckled or freckled appearance, hut it assays variously from $20 up to $12,600 in silver per ton.

HUMBOLDT.

RICH MINE.—Unionville *Silver State*, April 6: One of the richest silver mines in this county has heen opened and is heing steadily worked by C. Gregg. The mine is 20 miles from Golconda Station in Gold Run Dist., and at present a shaft 60 ft in depth has been sunk, from which ore has heen taken which worked $421 to the ton.

NATCHEZ.—This mine, in Sierra Dist., a short distance south of the Gem mine, is turning out ore which yields ahout $400 to the ton.

PATTERSON.—The mine helonging to this Co., commonly called the "Lead mine," is about 4 miles from Golconda Station, on the C. P. R. R. A shaft is down ahout 30 ft. with good prospects for a valuable mine

BONDED.—The Eagle in Indian Dist. was honded on last Thursday for 90 days and the price is $25,000.

COPPER MINES.—Capt. Winn, at Summit Springs, has recently discovered some valuahle copper mines in that vicinity.

CENTRAL DIST.—A lot of ore recently shipped from the mine of Ruse & Co. is said to have yielded very handsomely. Work will be prosecuted with vigor on that side of the river this summer.

REESE RIVER.

BULLION SHIPMENT FOR MARCH.—Reese River *Reville*, April 2: The following is a summary of the bullion shipped through the office of W. F. & Co. in this city during March. 134 bars, 11,826 lbs., of the value of $128,646.65. Of these, 11 bars were from the Murphy Mill, valued at $10,515.20; 38 from the Belmont mill, valued at $18,791.69; 11 from the Ellsworth mill, valued at $10,640.36 and 74 bars from the Manhattan mill, valued at $88,709.40.

WASHOE.

BULLION SHIPMENT FOR THE PAST QUARTER.—The following is the hullion shipment of W. F. & Co., from their office in this city, for the past 3 months: Shipped during Jan. 468 hars, 34,939 lbs., valued at $914,189.22; for Feb. 476 hars, 37,061 lbs., valued at $954,111.38; and for March 509 bars, 39,024 lbs., valued at $1,066,247.70. This makes a total for the quarter of 1,453 bars, weighing 111,024 lbs., worth $2,934,548.30.

SUTRO TUNNEL.—The Tunnel was in March 30th 2,811 ft. Shaft No. 1 was down 132 ft.; No. 2, 307 ft.; No. 3, 156 ft; No. 4, 150 ft.

It is rumored that a new and promising deposit of ore has heen struck in the Savage, near the winze which connects with the drift on the 1,400 ft. level.

WHITE PINE.

NORTH AURORA.—White Pine *News*, March 30: TREASURE HILL MINES.—The force of miners in tho Ridsdale chamher has been increased since our last visit. The ore in sight averages over $100 per ton, and requires but little assorting. The hody has increased since last report, and from present appearance promises to prove as extensive as the famous Lady's chamher. Hoisting ore, day and night, hy whim.

SECOND SOUTH EX. OF HIDDEN TREASURE.—Extracting ore from the bottom and South side of the Anchor incline. The ore extracted will mill $30 to $40 per ton. The drift running north to connect with the drift from the north shaft is pushed ahead with 2 shifts, and shows a well defined spar wall for the whole distance. The indications are favorable for developing a good mine.

SAN JUAN DEL RIO.—The usual force is employed, with improved prospects, completing the prospecting shaft to the depth of 125 ft. The shaft is down 48 ft. and shows richer ore iu the hottom than any yet found since the mine started up. Capt. Boyle will, after a depth of 125 ft. is attained, run levels from the main shaft, and commence stoping out ore for shipment to mill.

EAST SHEBOYGAN.—Breasting out in the west cross-cut. Coutractors have pushed the drift from the Exchange incline ahead 6 ft. the past week. The chances for coming on the ore-hody soon are favorahle.

BEECHER CON.—Four men are employed running the east drift from ore chamher.

SILVER WAVE.—Rich ore is extracted from the Boswell shaft.

EBERHARDT.—Breasting ont in the south stope of the Keystone shaft, in a fair grade of ore.

WARD BEECHER.—Working in the east drift to connect with the Lady's chamber.

SCHELL CREEK.—Cor. Elko *Independent*, April 6: The Wide West, on Ruby Hill, has a shaft on it 30. ft., showing good ore all the way. The ledge is 10 ft. between the walls, and work has heen resumed on it, and will he prosecuted vigorously. The ore is of a high grade.

THE Ajax, helonging to the same cluster of rich mines discovered last fall, although hut partially prospected, is looked npon as one of the most promising mines in the Dist. This ledge has a shaft sunk on it 10 ft. deep, showing at that depth rich ore, 8 ft. between casings.

THE Silver Wreath is heing rapidly developed, showing good ore the whole depth of the shaft, which is down 20 ft., with a 7 ft. ledge hetween the walls.

THE Lookout is in the same neighborhood, showing a ledge of rich carbonate ore, 5 ft. wide. A shaft 30 ft. deep has heen sunk on the mine, and the owners are busily at work going down.

NEAR Schellbourne the most promising mines are as follows: McHahn, which has a shaft 15 ft. deep and is 10 ft. hetween the walls; Woodhurn, with incline 12 ft., shows a rich hody of ore, $240 per ton, 6 ft. wide; Ontario, with incline 30 ft., shows a 3½ ft. ledge, that assays from $1,500 to $2,100. This mine is in the vicinity of the Ferguson spring, which affords 30 inches of water the year around.

THE St. Paul is another promising ledge, north of the overland road. Work already done on it demonstrates it to he a trne fissure vein of high grade ore.

Arizona.

WALLAPAI.—Cor. Prescott *Miner*, Mar. 23: Meechem & Harey's mill is working on splendid ore from several ledges. I saw 26½ lbs. of hullion taken from 3 tons of ore of the Rilay ledge.

THE furnace of the Chloride City will be ready for work in about 2 weeks, and another one for Cerbat, is on the road between Los Angeles and the Colorado river. It is expected to he in operation in about 8 weeks.

THE ledges around here are very promising. The Fairfield, Keystone, and other lodes are heing worked night and day, and are gradually becoming richer as the work progresses.

SEVERAL capitalists have arrived from San Francisco and the East, with a view of erecting mills, etc., here.

HUALAPAI.—(Some paper Mar. 30:) J. Leopold exhibited to us yesterday specimens of ore from the mines of Chloride, 5 miles from Mineral Park. One specimen was taken from the shaft of the Silver Hill Co., at 120 ft. from the surface, and another was obtained from another shaft on the ground of the same Co. at 80 ft. from the surface, both of which are exceedingly rich in silver. The lowest average assay value of this ore, is $213.56. The ledge is 7½ ft. in width and increases in richness with depth. They are engaged in driving a tunnel to tap the vein, having commenced operations simultaneously on both sides of the hill. Specimens of ore obtained from the Pink-eye, 10 ft. from the surface, assay as high as $1,500 per ton. Work is being vigorously pushed, and they are down 30 ft. Sinking on the Diana ledge has reached 40 ft. The assays of ore are various, but in every instance exceedingly rich. All the ledges that have been prospected are looking well, and every effort is being made to develop them. Mr. Cover's smelting works are going up rapidly. There is a sufficient quantity of ore on the dumps to keep these works employed for at least 2 years. The average width of the ledges throughout the dist. is about 20 inches.

Colorado.

ITEMS.—Colorado *Miner*, Mar. 28: H. Utter shipped on account of owners, during March, 170,000 lbs. of smelting ore to Black Hawk. There were crushed, sampled and sacked, at G. W. Hall's mill, during March, 120,957 lbs. of smelting ore. Palmer & Nichols who have shut down for repairs, have started up again. Baily & Nott shipped during March, on account of owners, 90½ tons of smelting ore. This firm have on hand, ready for shipment, 250 tons. The value of the ore shipped and on hand will reach $140,000.

SNOW & Co. seem to be cracking away bravely in the Butler lode, Gunnell Hill. The main shaft is 35 ft. in depth, carrying a rich vein of ore. The works have been put into first-class order.

J. W. CLAYTON, of Nevada, has placed upon our table a retort weighing 100 ozs., the result obtained from his stamp-mill from 9 cords of ore from the claim of Roberts & Co., on the Kansas lode.

THE COOK property, on the Gunuell lode, that has lain idle for so long was leased a short time since to Richards, Grow & Co. During the present week 5 cords were treated at Kimber's mill, Black Hawk; yield, 9 ozs. per cord.

ROBERTS & Co., on the Kansas are working the Ophir G. M. Co.'s claim. Throughout the mine, in levels, stopes and shafts, the pay ore averages 30 inches in width, 1-class ore selling for $85 per ton, and the 2-class paying 11 and 12 ozs. per cord under stamps.

BOULDER Co.—Cor. same: Three Cos. are working on the Celestial lode, in Ward. They are taking out a good quality of ore, and have about 10 cords on the dump, ready for milling.

JOE LONG and Chas. Holverson are at work on the Columbia, and have about 5 cords on the dump. L. & H. will soon start up their 10-stamp mill on Left Hand.

ALBERT OSBORNE will commence work in the gulch mines on Four-mile creek, as soon as the water starts running.

BOULDER.—The North Boulder ditch running from Graham's old ranch to the White Rock Mill, is to be enlarged to 6 ft on the bottom, and will carry about 3 ft of water.

At Switchville, Williams & Mitchell are sinking on their lode, and are down 20 ft. At that depth, the ore is running from $350 to $800 per ton. Amasa Bixby and Tom Davis, think they have discovered the extension of Williams & Mitchell's lode. The ore looks well at a depth of 10 ft.

Idaho.

WARREN'S CAMP.—Cor. Lewiston *Signal*, March 16: Both the Rescue mine and mill are in full operation. On the 10th they expected to make a clean-up of a 2 week's run. The prospects look as well as ever, if not better. A second chimney of good ore had been reached in drifting east about 200 ft from the terminus of the tunnel.

THE MINES.—Walla Walla *Union*, March 23: A busy and prosperous season is anticipated by all. In Warrens' diggings everything is being put in readiness. In the Oro Fino dist in the vicinity of Pierce city a new ditch was completed last season and there will be an abundant supply of water. At Florence, one Co. commenced work about 2 weeks ago, and others were preparing to follow. In the Elk City camp the Chinamen have commenced working their claims, and expect a long season as the snow is about 10 ft deep on the summit. On Newsome creek the miners are getting to work, all the hydraulics being in full operation.

Montana.

DIAMOND CITY.—Helena *Gazette*, March 25: The mining interests in old Confederate gulch present a lively appearance, and several Co.'s have been drifting and washing up dirt all winter with very rich results. D. P. Rankin is running his claim night and day, and employs some 40 men. The har diggings will be started up immediately. Michael Welsh, of El Dorado Bar, is making preparations to commence work on an extensive scale next week.

THE REDUCTION WORKS.—Helena *Herald*, March 28: This morning the largest silver button ever cast in this Territory was turned out at the Helena Reduction Works. Its weight is 308 lbs, and its value is upwards of $6,000.

WEST SIDE.—Cor. same: Lyon's mill is running day and night, turning out bullion of superior fineness.

The St. Louis mill has just started up, crushing ore from the Eastern Comanche.

Work on the Eastern and Western Comanche is being prosecuted. A shaft is being extended on the Hope, and the newly discovered Little Emma lode is likely to prove far from small, as day by day it shows up better. The trout remains the leading richest fish, both in the camp and Territory.

Another mill will be erected here the coming season by a Wheeling Co.

BLACKFOOT.—Deer Lodge *Independent*, March 30: Mining has been commenced in a few claims in Ophir gulch and on the Bar.

PHILIPSBURG.—Col. Lyon is crushing Speckled Trout ore with good results. Holland & Co., are taking out ore from the Emma, which will average about $80 to the ton, with an 8 ft. lode at the depth of 68 ft. H. Brown has hands at work on East Comanche, Cordova, and Dashaway lodes, taking out ore.

NEW MINES.—Winchell & Co., have commenced work on the new mines discovered last fall in the bar or hill east of Flint Valley.

The Cameron Mill at Cable will start up next week. It is expected that 300 tons of ore will be crushed before the mill is shut down. The ore being taken out is said to be very rich.

Oregon.

Portland *Oregonian*, March 2d: Mining prospects are first-rate. Seventeen companies of Chinaman are at work on "Maiden Gulch," Eagle District, Union county, and miners at work in Rye Valley.

BOHEMIAN MINES.—W. S. Burnham, Superintendent of Knott & Ladd's mill, in the Bohemian mines, informs us that on Monday next he expects to resume operations.

PIG OF COPPER.—At Ladd & Tilton's bank can be seen a pig of copper weighing seventy pounds, the result of eight hundred pounds of ore, taken from a ledge discovered some years since, a few miles from Baker City.

Utah.

BULLION.—Salt Lake *Tribune*, April 2: 2 bars were shipped to-day to N. Y. from the Pioneer mill, East Cañon, worth $1,-909 87.

A new body of ore has been struck in the Emma, 10 ft in width, chloride ore, the average assay of which goes $1,900 per ton.

From Butterfield Cañon, near Bingham, a car load of ore came in which is worth $10,000. A little over 10 tons assays over $900 per ton.

In the Sparrowhawk, recently sold to an English Co., they have a body of ore 12 ft wide, which assays from $125 to $129 per ton.

DESERET DIST.—The dist. is 125 miles SW of S L City on the edge of the desert.

The claims already located, of most importance, are the Sheet Anchor, Dudley, Shade Tree, Spring Branch, Douglas, and Dauntless, and of these the Sheet Anchor and Dudley, both on the same ledge, the first named running westerly 800 ft, and the second easterly the same distance from the discovery monument, constitute the great ledge of the dist. At the discovery monument the locators have unitedly run a tunnel about 50 ft into the hill, widening it out at the inner end from top to bottom to 17 or 18 ft, finding the true hanging and foot walls that distance apart, and pitching at an angle of 40 or 50 deg. into the hill. Both the tunnel and exterior indications show that this is a monster ledge. A number of excavations made upon it at different points around the hill, show the same ledge matter of unknown width, and large lumps of galena and carbonate ores, testify to the character and value of the treasures which lie beneath.

The Shade Tree has a prospect hole of 14 ft in depth, and shows a ledge of 5 to 7 ft with good walls pitching perpendicularly, and with a "strike" east and westerly.

The Dauntless has a shaft 25 ft deep, the ledge widening as it goes down, and has several tons of handsome ore on the dump.

The Hawkeye tunnel on Lion Hill is in 300 ft. They have already found some horn silver and an abundance of low grade ore in the tunnel.

OPHIR ITEMS.—The Aiken Furnace is said to be a complete success. Aiken it is said has the contract for erecting another furnace at Lewiston, Camp Floyd Dist.

The Co.'s having interests on Lion Hill are commencing operations again on a large scale.

The English Co. is beginning to operate extensively, and Col. Fawcett is expecting to complete his mill in the course of a few weeks.

The Brevoort mill is likewise to start next week. The arastras are all busy, turning out considerable bullion.

STOCKTON.—Cor. same: Jacobs intends erecting a three stack furnace at this point this spring, and several others are spoken of as about to construct small furnaces. A mill is also in contemplation.

In the Putuam mine the main inclined shaft is 185 feet deep. At the depth of 80 feet a side shaft is down 85 feet, with a level of 14 feet. Many hundred sacks of ore are stored near the dump.

NORTH TINTIC.—Cor. same: The district is in the mountains bordering the east side of the southern end of Skull Valley. The following mines have been located: Black Crook, Blue Jacket, Blue Eagle, Belle of the West, Cosmos and several others.

The Black Crook is down 15 feet, a cut lays the vein open to a width of ten feet, and yet the north wall has not been reached. This is a large vein, being traced on the surface for several thousand feet. The assays range from $26.50 to $713.17.

Several of the mines are being worked, and in the course of a week there will be over a dozen first-class mines in full operation.

SILVER CITY—Meader & Co. have a force of twenty hands at work on the Mammoth, a copper bearing mine. The same company is working the Swansea and Sunbeam.

S. L. CITY.—From a general letter we condense as follows: At Camp Floyd a 20-stamp mill is being erected by the Sparrow Hawk Co., and within a very few days a sale of the Silver Circle was effected for $30,000, on which the remaining $14,-000 was paid in this city to-day. A tramway or double track is to be constructed from the Sparrow Hawk mine to their mill, a distance of 4,000 feet. Many late strikes have been made in that camp. Pardee & Murphy have found very rich ore in their shaft. Barry & Butler have very fine horn silver in their shafts, all of which are near Colorado gulch. The depth of these shafts varies from 20 to 35 feet. There is much talk of a mill being built at that point early in the spring.

S. F. Stock Exchange Board.

SAN FRANCISCO, April 11, 1872.

The sales at the Board for the week ending Friday the 5th, aggregate, $4,308,000. The amount of dividends of three mining companies declared on the 6th, amounted to $718,000; of this the Belcher paid $208,000, the Crown Point, $300,000, and the Raymond & Ely, $210,000; being the largest dividends ever paid by the mines mentioned. During the past four months, the Belcher has paid in dividends, $624,000, and the Crown Point, $780,000; making a total from the two mines of $1,404,000. During the week ending on the 6th, 820 tons of ore were extracted from the Chollar-Potosi mine, assaying $34.62 per ton. On the 9th inst., the third remittance for the month was sent down from the Raymond & Ely, amounting to $93,700; and on the 5th, $9,100 was sent from the Bowery mine. The amount sent from the Murphy mine, since the mill started up last month, is $10,600.

There was no session of the Board on Wednesday morning, it having adjourned in respect to the memory of Wm. F. King, a member of the Board, who died the day before.

During the past week, 300,000 tons of ore were taken from the Crown Point, valued at $198,000. The meeting called for the 15th inst., by the Trustees of this mine, is for the purpose of taking into consideration a proposition to increase the number of shares, so as to make it available for small investors and more popular in the Board. The capital is now $3,000,000 in 12,000 shares. It is proposed to make the capital $10,000,000 in 100,000 shares.

The Stock market has been more active of late than ever before. A number of new stocks have been placed on the market and all of them sell readily. Prices for most all kinds are unusually high, and it is generally thought that a fall must shortly come. The excitement is great, and anything in the shape of mining stock sells quickly.

Some of the Nevada mines have increased wonderfully in value during the past few weeks—values that a year ago no one would have believed possible. The following table exhibits the current market values of some of the leading mines, as based on prices at which they were sold in the Board yesterday:

	Feet in Mine.	Price per foot.	Value of Mine.
Belcher	1,040	$ 8,250	$ 8,580,000
Chollar-Potosi	2,800	1,060	2,968,000
Crown Point	600	20,000	12,000,000
Gould & Curry	1,200	1,430	1,716,000
Hale & Norcross	400	10,000	4,000,000
Imperial	184	5,100	940,000
Kentuck	95	6,825	650,000
Savage	800	8,000	64,00,000
Yellow Jacket	1,200	2,720	3,264,000
Total			$40,518,000
Market value of same January 1, 1872			15,318,000
Increase for three months			$25,200,000

A year ago the market value of the above mines was about $8,000,000.

Comparative Prices—Extremes. Advance and Decline.—S. F. Stock and Ex. Board.

	April 4.	*Highest.*	*Lowest.*	April 11.	*Adv.*	*Dec.*
Alpha	$51½	71	45	71	18½	—
American Flag	15	15⅛	13⅜	15⅛	⅛	—
Belcher	670	850	850	850	80	—
Backeye	5⅞	6¼	4⅝	—	—	—
Chollar-Potosi	84	131	78	131	47	—
Caledonia	—	3⅜	2⅜	—	—	—
Cons. Virginia	68½	71	55	—	—	—
Crown Point	—	1,020	800	1,000	—	—
Dancy	4	4⅛	3⅛	—	—	—
Eureka Cons	28	28	26½	27½	—	½
Eureka	—	18	17½	17½	—	—
Excelsior	—	150	150	—	—	—
Gould & Curry	300	400	275	400	100	—
Golden Chariot	19	19	17½	18½	—	½
Hale & Norcross	375	515	350	515	140	—
Imperial	230	260	200	260	30	—
Ida Elmoro	—	18½	13	18½	—	—
Kentuck	305	350	275	350	45	—
Mammoth	80c	80c	70c	—	—	—
Meadow Valley	26	27½	24	25½	—	½
Mahogany	17	18	16½	18	1	—
Ophir	80	85	74	85	5	—
Orig. Hid. Treas.	12¾	13	12½	—	—	—
Overman	75	93⅜	72½	—	—	—
Pioche	17	18½	16⅜	17	—	—
Raymond & Ely	132	132	110	110	—	22
Savage	355	405	310	405	50	—
Sierra Nevada	34	45	31	—	—	—
Succor	5⅜	6	5¼	—	—	—
Wash. & Creole	6½	7¼	6	7¼	¾	—
Yellow Jacket	110	156	100	156	46	—
St. Patrick	—	125	125	—	—	—
Seg. Belcher	150	132½	90	—	—	—

Latest Prices—Bid and Asked.

	BID.	ASKED.		BID.	ASKED.
Alpha Cons	70	71	Ida Elmoro	18	18½
Amador	—	—	Imperial	240	245
Belcher	830	835	Kentuck	340	350
Chollar-Potosi	130	131	Meadow Valley	25	25½
Crown Point	995	1000	Ophir	80	81
Oansy	—	—	Orig. Hid. Treas	—	—
Eureka Cons	26⅞	27	Overman	—	—
Eureka	17½	17⅝	Savage	395	400
Gould & Curry	320	400	Raymond & Ely	108	110
Hale & Norcross	505	510	Sierra Nevada	—	—
			Yellow Jacket	150	152½

Leather Market Report.

[Corrected weekly by Bolliver & Bro., No. 109 Post st.]

SAN FRANCISCO, Thursday, April 11, 1872.

SOLE LEATHER.—The demand is still equal to the supply, and prices still continue firm.

City Tanned Leather, ₱ lb	26@29
Santa Cruz Leather, ₱ lb	26@29
Country Leather, ₱ lb	25@28
Stockton Leather, ₱ lb	26@29

French skins are firmer with an advance in some grades. Heavy California skins are firm, with an upward tendency.

Jodot, 5 Kil., per doz	$80 00@
Jodot, 10 to 15 Kil., per doz	76 00@ 90 00
Jodot, second choice, 11 to 15 Kil., ₱ doz	60 00@ 76 00
Lemoins, 16 to 18 Kil., ₱ doz	75 00@ 77 50
Levin, 12 and 13 Kil., per doz	63 00@ 70 00
Cornellian, 16 Kil., per doz	70 00@
Cornellian, 12 to 14 Kil., per doz	60 00@ 68 00
Ogeran Calf, ₱ doz	54 00@
Simon, 18 Kil., ₱ doz	65 00
Simon, 20 Kil. ₱ doz	68 00
Simon, 24 Kil. ₱ doz	72 00
Robert Calf, 7 and 8 Kil	35 00@ 40 00
French Kips, ₱ lb	1 10@ 1 30
California Kip, ₱ doz	60 00 to 80 00
French Sheep, all colors, ₱ doz	15 00@
Eastern Calf for Backs, ₱ lb	1 15@ 1 25
Sheep Roans for Topping, all colors, ₱ doz	9 00@ 13 00
Sheep Roans for Linings, ₱ doz	5 50@ 10 50
California Russett Sheep Linings	1 75@ 5 50
Best Jodot Calf Boot Legs, ₱ pair	5 25
Good French Calf Boot Legs, ₱ pair	4 50@ 5 00
French Calf Boot Legs, ₱ pair	4 00
Harness Leather, ₱ lb	30@ 37½
Fair Bridle Leather, ₱ doz	48 00@ 72 00
Skirting Leather, ₱ lb	34@ 37½
Welt Leather, ₱ doz	30 00@ 50 00
Buff Leather, ₱ foot	18@ 21
Wax Side Leather, ₱ foot	18@ 29

MINING SALES.—The Woodburn mine, 12 miles north of Shellburn, Schell Creek District, Nev., was recently sold to a party of military men residing in Washington, D. C., for $20,000.

The "Pride of the Mountain" mine, near Winnemucca, has been sold to a company in this city. The ore from the mine is good, but difficult to treat.

The El Dorado South has been purchased by H. Rutherford & Co. The mine is at Belmont, Nevada.

The California and Illinois claim, at Nevada City, a continuation of the old gold tunnel claim, has been sold to J. W. Gashwiler and others.

The sum of $30,000 has been paid on the purchase of the Davenport mine in Utah.

Trouble Among the Miners in Idaho.

For some time past there has beeu a growing dissatisfaction among the miners employed in the Mahogany Mine, concerning the foreman, Mr. John Jewell, who, it ia alleged, is lavish of ahuse to the miners under his charge, endeavoring to cut down their wages, etc. The disaffection gradually spread among the handa in the other mines, until last Wednesday morning it culminated in the following notice, which was found posted up in the varions boarding houses and other public places on the mountain:

Take Notice.

"War Eagle Mountain miners and laborers: Be it well understood hetween all partiea interested in earning their living iu these mines, we are oppreased with alavery and bad rules since Mr. Jewell, foreman of the Mahogany mine, has entered this camp, and we will all unite ourselves together for the sake of our heloved country and camp to send this nuisance hy atage to Winnemucca, and never to return no more to this camp under penalty of death—and all to meet armed on the divide hetween Fairview and Orevena, on Wedneaday evening, March 20th, at seven o'clock P. M. To all nations, kindred and tongnes."

The above is about a *verbatim* copy of the notice. A meeting, attended by some three hundred miners was accordingly held, and Mr. Jewell was notified to leave the Mahogany Mine by seven o'clock the next morning, or suffer the consequences. Sheriff Stevens, hearing of the affair, went up to the scene of the trouble. Between nine and ten o'clock at night news came to town that the moh had insulted and abused the Sheriff, and threatened to hang the obnoxious foreman. hurn the works. etc. Superintendent Minear being in San Franoiaco, acting Snperintendent George H. Coe, Esq., deeming it hia duty to protect Mr. Jewell and look after the interests of his company, immediately procured teams and sent up some forty men armed with shot guns, Henry and Spencer rifles. He also aent up two mountain howitzers—one a twelve and the other a six pounder—with solid shot and grape and cannister. It was expected that a battle would ensue the next morning (Thursday), hetween the miners and General Coe's force occupying Fort Mahogany. But, whatever their intentions might have been, the miners from the Mahogany, Minnesota, Golden Chariot, Ida Elmore, Oro Fino and other mines had a meeting, about eight o'clock in the morning, and instead of making any hostile demonstrations, resolved that they would not go to work in any of the mines as long as Jewell remained at the Mahogany. Thus matters atood till yesterday, when Mr. Jewell came to town, leaving Russ Carter ia temporary charge of the mine. General Coe has withdrawn his artillery and other forcea from the mine, and from present appearancea work will be going on as usual in all of them to-morrow or next day. When all the miners in camp, with scarcely a dissenting voice, express a univeraal dislike to a man, there must be something wrong, and we should not care to stand in Mr. Jewell's ahoes, if he persists in remaining.

On Thursday afternoon a Miners' Union League was formed at Fairview, and at last aocounts yesterday 186 persons had joined the organization. To-day the numher will probahly be angmented to 250. So long as such a comhination of meu doea not meddle with matters which do not concern them, and with which they have no legitimate right to interfere, then it is proper enongh; otherwise, they will go contrary to their own interests, as well as injure the camp.—*Owyhee Avalanche, Mar. 23d.*

THE LONGEAT BRIDGE IN THE WORLD.—The Tensas and Mohile bridge, or hridges, on the Mobile and Montgomery railroad, extends from Tensaa atation on the Mohile and Montgomery road, to the city of Mobile, a distance of fifteen miles, crossing both Mohile and Tensas rivers and including ten draws, one for each of the navigable channels into which the rivers are divided. The hridge itself is constructed of wood, but its piers or supports are iron oylindera, whioh rest on a solid surface of wooden piles driven down evenly with the bottom of the stream and the mud of the intervening morasses. It has heen three years in course of construction, at a cost of ahout $1,500,000, and now that it has been succesafully completed, it is perhaps the longest structure on the globe.

THE Custom House at Portland has cost $114,324.79.

The Manufactures of San Francisco.

We condense a review of the last year'a work of the numeroua manufacturiug establishments of this city, from the *Bulletin*, which will show more conclusively than anything else could the growth of San Francisco in a business point of view. The year 1871 has heen a favorable one for maunfactures. The majority of industrial occupations show a material increase in the value of productiou, the capital invested, the numhers of employees, and the number of factories. In some few cases, however, this is not so, and to the iron interests in particular the first 9 mouths of 1871 were trying indeed, but these, aa well as othera ao circumstanced, have for the remainder of 1871 taken a decided step in advance, and promise to hold it, if not improve on it, during the preaent year.

Increase of Business.

Unusual developments have taken place in several branches of maufacture, among which the cigar iuterest takes the lead, having, during 1871, doubled both in production aud value. Among the others which have extended busiuea are the manufactures of boots and shoes, leather, furniture, upholstery, saddlery, jewelry aud silverware, champagne, cigar boxes, biscuit and ship bread, and iu that of caska, barrels and kegs. The old establishments are continually adding to the capacity of their works, to the nnmber of men employed, aud increasing their capital. This city will soon become an important manufacturing center of carriage and railroad car work, and will supply China, Japan aud the eastern coast of Sontb America with that article. The woolen mills are constantly iucreasing their capacity and turning out superior products. The rolling mills have been busily occupied all the year, and we may expect this line of industry to become one of the foremost. Our printers and lithographers are now doing as good work as any onthe Continent, and as a consequence very little of this class of work is sent East. The smelting works and refineries have had a most prosperous career.

New Industries.

Among the new industries started within the past year are the manufacture of gas and water pipe, gas fittings, window shades, kid gloves, Eureka hair, smoking tobacco, paints and varnish, block pavement aud fuse, file-forging and wire-making, all of them importaut.

Among the industries that have received a new impetua are the manufactures of hedsprings, toy and baby carriages, silk thread, furs, vinegar, artifical stone and carriage-spriugs.

Exports.

The material for all of our most important manufactures snch as those of iron, hrass, cigars, carriages, furniture, clothing, upholstery, boats, etc, is ohtainahle from ahroad. This is of conrse the reverse of favorahle, and were it not that we were so distant from all competing centers, the greater part of our manufacturing iuterests would have no existence. This state of tbings, howe ver, promises to be only temporary. Our export trade is rapidly increasing and include exports to the East, Europe, all parts of the Pacific coast from Alaska to Chile, to China, Japan, Australia, and all the Islands of the Pacific. They comprise over 50 distinct kinds of mannfactures. The

Labor

Required in the manufactures of this city forms uo less thau an eighth of the population or 21,070 persons. Of this number 8,049, or about 40 per cent. is Chinese. About 10,671, or ahout oue-half are white men, and the halance consist of white women, girls and boys. The average wages per year of each individual is ahout $593, or $13,043,861 in the aggregate. Deducting from the total value of the city manufacturers the products of refined gold and smelted lead, we had $50,676,465, of which the corresponding value of labor forms about 26 per cent. The corresponding value of material making the aame deduction is $25,197,153, forms 50 per ccnt. The balance, 25 per cent., would with reut, etc., deducted, leave a large profit and would were it distributed amongst the workers, add two-thirds to their wages.

The rates of wages for mechanics varies from $2.50 to $5 aud even $6 per day; the average is $3. That for laborers or helpers varies from $1 to $2.50 per day, but averages $2. That for women and girls varies from $3 to $20 per week, but averages $8. That for boys varies from $3 to $12 per week, but averages $6. Chinese labor is paid at the same rates as is that of boys.

Production.

Deductiug the value of the gold refined which we did not add last year to the total of manufacture, and also deducting the product of the rolling mill, sugar refineries, and some other industries which we were not able to ohtain, the manufactures of 1871 will be $47,600,000, as compared with $41,000,000 in 1870. This shows an increase of 16 per cent. during the year. The increase in capital has been 40 per ceut., and in material 16 per cent. The increase of production in the cigar maunfacture has been 100 per cent., in works in lumher, 66⅔ per cent., in leather and manufacturea, 20 per cent., and in textile fahrics 7 per cent. The following tablea give a full exhibit of everything of interest in connection with our manufacturing iuterests in 1871:

Establishments, Production and Capital.

MANUFACTURES IN IRON AND STEEL.

Manufacture.	Factories.	Val. Material.	Total Prod.	Cap'l.
Foundries	15			
Boiler Shops	3			
Machine Shops	13			
Iron Doors, etc	3	$1,589,692	$3,013,000	$1,484,000
Safe	1			
Iron Pipe	1			
Miscl. Fo'dry, etc.	4			
Rolling Mill	1	135,000	360,000	900,000
Wire Rope	1	60,000	90,000	40,000
Saw	1	11,000	50,000	80,000
Bed Spring	3	36,000	55,200	11,700
Cutlery	5	8,416	48,000	14,200
Screw Bolt	1	25,000	38,000	20,000
Tool	0	9,610	37,000	9,850
Water Closet (pat.) and Pump	2	7,400	27,000	10,000
Gun and Rifle	4	12,110	26,680	7,200
Artesian Well Pipe	1	16,700	22,000	7,500
Wire Goods	3	11,000	22,000	14,000
Electrical Instmts	8	8,000	20,000	100,000
Water Lifter	1	5,000	15,000	12,000
File Cutting	2	1,000	13,000	12,000
Carriage Spring	1	10,000	22,000	20,000
Wire	1	4,150	10,375	25,000
Mathematical Inst	4	2,383	8,250	6,500
Rail (ornamental)	1	1,000	2,000	3,000
Totals	84	$1,951,261	$3,889,505	$2,776,950

LEAD SMELTING AND MANUFACTURES OF LEAD.

Manuf.	Factories.	Val. Matl.	Total Prod.	Capital.
Smelting Works	2	$720,000	$1,900,000	$1,000,000
Shot Works	1	251,160	130,000	200,000
Type	3	25,760	65,000	140,000
	6	$1,425,760	$2,195,000	$1,340,000

GOLD AND SILVER REFINERY.

Manuf.	Factories.	Val. Matl.	Total Prod.	Capital.
Refinery	1	$19,558,045	$19,658,045	$362,000

MANUFACTURES OF GOLD AND SILVER.

Manuf.	Factories.	Val. Matl.	Total Prod.	Capital.
Jewelry	17	$348,900	$571,400	$311,000
Silverware	3	72,000	243,000	70,000
Silver Plating	6	10,800	36,000	11,909
Gold Leaf	1	2,000	8,250	1,000
Watch Case	1	4,000	7,308	4,000
Gold Pen	2	1,000	4,000	750
	30	$438,700	$870,258	$398,650

WORKS IN BRASS AND MIXED METALS.

Manuf.	Factories.	Val. Mat'l.	Total Prod.	Capital.
Brass Founding. Bell Founding	6	$45,600	$324,000	$91,000
Gas Fittings	1	3,000	9,000	10,000
	7	$48,600	$333,000	$101,000

TINWARE MANUFACTURES.

Manuf.	Factories.	Val. Mat'l.	Total Prod.	Capital.
Tinware	70	$120,000	$450,000	$100,000
Lamp	1	500	2,000	500
	71	$120,600	$462,000	$100,500

WORKS IN LUMBER.

Manuf.	Factories.	Val. Mat'l.	Total Prod.	Capital.
Furniture	16	$346,260	$1,625,000	$900,000
Carriage,car,etc.	50	377,500	1,074,055	644,305
Doors, sashes, etc	9	365,120	1,049,400	421,300
Packing, etc., bx	3	115,480	275,000	160,000
Picture frame	18	50,000	208,000	160,000
Cooperage work	24	50,350	202,300	50,350
Matcb	4	14,398	156,600	60,000
Trunk	6	5 ,431	154,600	83,000
Bil'rd & Bag. t'bl	3	28,000	144,000	133,000
Wooden-ware	2	67,750	135,000	110,000
Cigar box	2	35 000	105,000	80,000
Barrel and keg	1	50,000	100,000	75,000
Stair making	6	12,300	63,700	10 000
Brush	2	26,800	56,000	30,000
Show pavement	1	7,200	55,958	500,000
Turned & c'd w'k	4	10,000	60,000	18,750
Windm'l & p'mp	3	8,000	30,334	8,000
Paper Box	2	16,000	30,000	85,000
Ship block	3	10,000	30,000	20,000
Last	2	12 500	25,000	13,000
Bellows	2	8,8 7	16,900	7,000
Wind roller, etc.	3	1,500	16,600	12,000
Boat	9	5,651	14,606	2,400
Piano	2	3,000	8,000	12,000
Jewelry box	2	2,666	8,000	4,000
Cane, bl.ball, etc.	2	1,500	7,500	2,300
Show-case	4	1,800	6,000	1,700
Baby & toy c'ge	1	200	1,000	2,500
	186	$1,685,813	$5,679,047	$3,395,605

LEATHER AND ITS MANUFACTURES.

Manuf.	Factories.	Val. Matl.	Total Prod.	Capital.
Boots and Shoes	26	$1,200,000	$3,300,000	$900,000
Slippers	15			
Saddle & Harness	38	350,000	911,800	750,000
Leather	26	300,000	713,640	400,000
Collar	5	25,000	70,000	25,000
Hose and Belting	2	22,000	36,000	23,000
	113	$1 897,700	$5,031,440	$2,098,000

TEXTILE FABRICS.

Manuf.	Factories.	Val. Matl.	Total Prod.	Capital.
Woolen Goods	2	$906.760	$1,487,165	$1,550,000
Fringes	2	11,777	28.600	8,500
Silk Tbread	1	13,000	27,000	50,000
Home Carpet	1	2,000	5,000	1,500
	6	$933,537	$1,547,665	$1,610,000

ARTICLES OF CLOTHING.

Manuf.	Factories.	Val. Mat'l.	Total Prod.	Capital.
Clothing	70	$1,100,000	$3,234,000	$700,000
Wbite goods	50	600,000	1,000,000	300,000
Hats	14	130,000	232,900	79,200
Furs	7	100,000	205,500	125,500
Shirts	16	97,560	210,300	48,200
Umbrella & par.	2	50,000	125,000	20,000
Paper col. & cuff.	1	60,000	80,000	10,000
Buckskin glove.	2	25,000	76,000	25,000
Cap	3	32,500	59,000	12,000
Straw goods & fs	3	14,665	58,500	16,000
Oil clotbing	2	6,000	16,000	2,000
Kid glove	1	4,000	12,000	5,000
Neck tie	2	600	10,000	3,000
Hoop skirt	3	2 000	6,000	2,300
	177	$2,132,692	$4,383,200	$1,347,200

MALT AND SPIRITUOUS LIQUORS, ETC.

Manuf.	Factories.	Val. Mat'l.	Total Prod.	Capital.
Beer, ale, porter	33	$604,763	$1,305,329	$434,000
Syrups, cor., bit.	8	216,500	362,700	192,500
Malt	4	180,000	268,854	25,000
Champagne	3	100,000	181,200	160 000
Distilleries	4	300 000	461,728	145,000
Spirit refining	3	64,875	128,750	80,000
Ginger beer	2	18,000	90,500	10,000
Soda	6	29,600	62,300	115,000
	62	$1,613,838	$2,865,851	$1,161,600

ARTICLES OF DOMESTIC ECONOMY.

Manuf.	Factories.	Val. Mat'l.	Total Prod.	Capital.
Sugar re'ng & pro.	2	$2,920,000	$4,550,000	$1,100,000
Flour	5	1,783,380	2,180,750	550,000
Pres. fruit & meat	6	800,000	1,675,000	1,100,000
Pork & beef p'kng.	22	755,542	1,067,768	257,600
Coffee and spice	8	545,750	825,550	262,000
Candy	28	335,910	568,178	105,180
Biscuit, sbip br'd.	7	216,000	400,000	75,000
Salt	4	215,000	370,000	185,000
Yeast Powder, etc.	3	73,000	189,000	66,000
Mustard	1	25,000	150,000	50,000
Vinegar	3	35,000	100,000	40.000
Maccaroni & ver.	8	50,500	87,500	47,000
Chocolate	1	30,000	60,000	20,000
Salmon	2	4,140	8,125	700
Herrings	1	500	10,000	1,500
	96	$7,790,672	$12,231,472	$3,859,960

PRINTING AND NEWSPAPER PUBLISHING.

Manuf. Establisbm'ts.	Val. Mat'l.	Total Prod.	Capital.
Newspaper pub. 32	$304,040	$967.000	$282,000
Printing 36	270,120	785,000	337,000
Lithograpbing 6	20,966	89,000	68,000
73	$595,126	$1,821,000	$687,000

MANUFACTURE OF ANIMAL PRODUCTS.

Manuf.	Factories.	Val. Mat'l.	Total Prod.	Capital.
Soap, wasb Pow.	13	$504,550	$717,299	$205,000
Candle	2	133,000	199,810	80,000
Glue	1	37,000	90,000	70,000
Axle grease and lubricating oil.	6	13,800	41,600	14,500
Animal charcoal.	1	6,000	23,000	20,000
	27	$798,860	$1,071,509	$389,700

MISCELLANEOUS MANUFACTURES.

Manuf.	Factories.	Val. Mat'l.	Total Prod.	Capital.
Cigar	104	$2,200,000	$5,260,000	$2,000,000
Mills (oat-meal)	6	507,840	648,000	173,000
Oil and lead	1	160,000	212,000	600,000
Upbolstery, etc.	28	254,780	636,980	358,800
Chemical	4	195,000	411,400	236,000
Bag	5	270,000	828,667	108,000
Dynamite & Hercules powder.	2	179,000	350,000	800,000
Marble	18	77,393	249,700	120,300
Drug's prep'tion.	17	73,725	184,770	55,800
Ink, mucilage, etc	5	112,000	167,000	41,000
Blank books	10	38,900	163,400	97,900
Glass	2	31,000	140,000	75,000
Eureka hair	1	90,000	125,000	50,000
Stone (artificial)	1	80,000	120,000	600,000
Broom	6	40,000	113,800	104,525
Sail	11	59,902	113,000	15,000
Photography	25	51,353	231,125	145,928
Cement pipe	2	46,000	103,630	15,000
Tobacco smok'g.	4	17,800	52,100	12,500
Paint & varnish.	4	20,588	33,483	151,000
Oil refining	2	13,000	33,000	50,000
Wood preserv'g.	1	20,000	45,000	65,000
Plaster Ornmts.	2	5 000	32,600	12,500
Borax refining	1	20,000	30,000	20,000
Fireworks	2	6,500	25,000	17,000
Mirror silvering	1	15,000	25,000	50,000
Glass cutting & staining	2	3,500	21,000	6,000
Brick	3	8,000	20,800	8 000
Bed comforter	1	10,800	15,000	1,000
Cement (giant)	1	8,000	8,000	3,000
Block pavem't.	1	5,000	10,800	40,000
Fuse	1	6,500	10,000	2,000
Truss	3	3,000	7,200	5,900
Willow-wsre	3	2,200	7,084	6,500
Artificial flowers	1	2,000	6,000	1,000
Regalia	2	1,500	6,000	3,600
Flag	2	1,300	4,000	600
Rubber type	1	500	1,000	200
	174	$4,524,780	$9,816,829	$6,060,983

Wine for London.

We uote this week a shipment of assorted wines to London. The geutleman who makes tbe ahipment has been a long time trying to persuade English people that California wines are fit to drink. The reply haa been, we have tasted them, and we pronounce dccidedly against them. This is the result of imperfectly cured wines bought at low prices; and often mixed—the mixture being sold as California wine.

At laat, people in Europe are being convinced, by samples of properly made wines forwarded to them, that California wines are worthy of attention. Consignors are daily expecting to receive favorable judgment, from a conaignment made to Hamburg; and, last week, our correapondent's samples hrought ordera from London for more California wines, of the same sort—7 varietiea.

It ia certain that our sunny climate produces wines of rich fruity bouquet, far aurpassing the wines of France and Germany; and it is also true that the uniformity of qnality, and the greater yield of our vines, year after year alike, and no such thing as failure, enables us to produce wine cheaper than in Europe. It is equally proved that our winea when stored above ground, instead of musty vaulta, attain hetter ripening in two yeara than European wines do in five years; besidea the great seasoning of the sea voyage hence to Europe. France wants land for the ataff of life; and we predict that ere 20 years have passed, it will be a national qnestion, if it would not be policy to turn uncertain vineyarda into wheat and to buy better and cheaper wines from California.

TRADE.—According to the most carefully prepared statistics the total value of the trade between the United States and Europe, for 1870, was $400,000,000, exclusive of bullion or specie, the imports of which from this conntry into England exceed $50,000,000 more. During 1871 England took from us products valued at $250,000,000, and exported in manufactures to the United States to the value of $156,000,000. The latter figures represent the products of Great Britain, Ireland and her numerons colonial possessions, the last mentioned, however, being less than $15,000,000 of the aggregate of merchandise shipped by us to Great Britain.

Useful Information.

The Latest Novelty.—Two weeks ago we called attention to a new use for electricity, in causing it to serve the purpose of an errand boy, etc. We have since observed still another novel application of this almost universal agent, in furnishing music for the various households of a town or city, from some central locality. The *modus operandi* is described as follows: "Let us visit the parlor. Our attention is first attracted by what appears to be a piano set in the wall. On opening it no key-board is visible; what is it? We smile and point to a printed programme of the 'Chicago Electro-Musical Society,' hanging on the wall, and then proceed to the explanation that at a central point pianos are played by celebrated performers, and how the keys of these instruments are connected with the works of our piano in the wall by electric wires. A look at the programme shows us that at 2 P. M. Signor So-and-so plays a grand fantasia, or 'Home, Sweet Home,' with his left hand, or performs some other musical feat. We glance at the clock, wait until the hands point to 2 o'clock, touch a knob, and in an instant away goes our piano, pouring out its flood of melody responsive to the touch of the Signor's nimble fingers; Are we tired of instrumental music, and do we prefer vocal? We break the connection and the Signor is silent. The telephone puts us in communication with the central office, so that we can hear every sound. Mlle Nilsson will perhaps favor us? Of course she will; no coughs or colds here; touch the knob, and strains of ravishing harmony entrance our senses."

Electricity. — We know to-day but little more of what electricity really is than did the ancient Romans, Grecians, or Egyptians. It is an agency or force which has never been seen, measured, or weighed, and in itself is as illusory, intangible, incomprehensible, as the "stuff that dreams are made of." All we know of it relates to its effects, and it is not probable that human knowledge will ever reach beyond this boundary.

It is a force that we have been able to put in harness, and by complying with the conditions under which it acts, we can compel it to serve important ends in benefitting the race. It is probable that at present we understand most of the laws or conditions which govern it, and that we have utilized the agency so far as it is capable of being utilized. Its relations to matter, and to the phenomena of life, are also quite well understood. This being conceded, it is evident that as yet we are utterly unacquainted with a sufficient number of forces to do the work of the universe. Every day the student and experimenter is brought face to face with phenomena which he is wholly incompetent to explain, and although electricity is a convenient agency to which to refer everything inexplicable, yet it is a very unsatisfactory packhorse upon which to crowd our difficulties.

There are many things yet to be learned, and proud as we are and have reason to be of our philosophy, as the ages roll on, what we know to-day will stand comparatively as the science and knowledge of the ancient Romans stand to the great light of the present age.

Household Electricity.—During the extraordinary clear cold weather which prevailed in February and March the electrical phenomena observed in some houses excited much interest In our own dwelling, for many days, no member in the family could walk across a room and come in contact with a metallic substance without receiving an electrical shock, accompanied with a spark and report. The door knobs, stop-cocks connected with steam radiators, gas-cocks, registers, etc., were so electrically spiteful that they were handled with caution. Our children amused themselves in the evening by lighting the gas with their fingers, and altogether the electrical condition of the atmosphere was quite unusual. In order that this exhibition of household electricity may be witnessed in perfection, it is necessary that the weather be clear and cold, and that the rooms be carpeted with heavy carpets, and these should be insulated by paper mattings beneath. Under these favorable conditions, a person shuffling or even walking across a room becomes so charged with electricity that he can ignite a gas-jet readily, by applying to it the tip of his finger. *Boston Journal of Chemistry.*

Simple Disinfectants.—As a simple method of employing carbolic acid, C. Homburgh, of Berlin, proposes to saturate sheets of coarse millboard with the disinfectant in question. The sheets may be hung up in the rooms requiring purification, or a small piece may be torn off when a small quantity only of carbolic acid is wanted. Sheets of millboard, having an area of about seven square feet, and containing about one fifth of a pound of carbolic acid, are sold in Berlin for a shilling apiece. Dr. Hagar gives the composition of a disinfecting paste for use as a washing powder. It consists of 100 parts of white clay, 1,000 parts of distilled water, and thirty-five parts of ordinary nitric acid. The mass thus obtained is allowed to stand for a few days, being stirred frequently. The supernatant fluid is then to be poured off, and the clayey mass thoroughly washed with distilled water. Five parts of permanganate of potash are now to be added, and the composition, when dried, is made up into tablets and wrapped in paper saturated with paraffin.

London, with a population of over four million, has only nine daily newspapers.

Catching a Cannon Ball.—Kett Holtum, the Prussian Hercules is astonishing the English by the truly novel feat of catching a ball fired from a cannon. The trick, though a clever one is said to be neither difficult nor dangerous. It is affected in this wise: About two ounces of powder are placed in the gun, then the ball is rammed home, after which the balance of the powder is put in. When the gun is fired, all the powder is ignited, and the flash, smoke, and report are orthodox, but the ball receives propulsion only from the small quantity of powder behind it, and is thrown but a few feet, and quickly picked up and exhibited to the admiring crowd.

Ancient and Modern Pavements.—Much has been said about the durability of the ancient Roman pavements, some of which have stood, with comparative little injury, for some 2,000 years. The great reason for this durability arises from the fact that the Romans had no occasion for disturbing their pavements for the laying of gas and water pipes, or for sewerage connections, as the inhabitants of modern cities have continually to do.

Mineral Caoutchouc.—A Parisian journal reports the finding, in Australia, of a mineral substance resembling caoutchouc in most of its characteristics. It contains 82 per cent. of an oily hydrocarbon. We shall be interested in any further particulars of this discovery, as they may lead, on future investigation, to the production, by synthesis, of one more organic substance.

Shaving With a File.—Some practical joker suggested through the *Scientific American* that rubbing the beard off with a pumice stone (a file would answer the same purpose) was a much better way than taking it off with a razor. Some fellow had the nerve to try it, and the result was that he got his beard off and skin too.

Mechanical Hints.

Fine Green Bronze.—First boil the work in a strong solution of potash to get off all the old lacquer and grease; next wash in clear water; after that let the work stand a day or two in a weak solution of nitric acid, then take out, wash, and dry; then coat the article with some good black lead. Polish until you have a good black, glossy surface; then put on yellow lacquer, which, upon a black surface, gives a green bronze.

Excellent Varnish for Harness.—Pulverize and put in a jug or bottle half a pound to a pound of gum-shellac, cover with good alcohol and cork tightly. Put the mixture in a warm place. In about two days, if shaken frequently the gum will be dissolved and ready for use. If the liquid appears as thick as thin molasses add more alcohol. To one quart of the varnish add one ounce of good lamp-black and an ounce of gum camphor. An occasional coat of this is also good for rendering boots waterproof.

The Industrial Monthly is the new title of the publication formerly known as the *Technologist*. It is a practical work, full of valuable information for the practical workingman—mechanic, manufacturer, builder or engineer—and sold at a price which the class for whom it is intended can afford to give. From it we take the following Mechanical Hints.

Dripping of Metallic and Slate Roofs.—Very often roofs which are perfectly tight, especially metallic and slate ones, are found to drip at certain times, generally when cold weather succeeds a few moist days. The explanation is obvious. During the damp weather the air in the building becomes saturated with moisture which, when the roof is chilled and the air in contact therewith reduced to a sufficiently low temperature, condenses on the roof and falls in drops on the floor. The remedy is to place a sheet of some non-conducting substance under the roof. Common heavy brown paper, or even newspapers, will answer and cost but a trifle. It should not be placed in contact with the roof, for it is the air enclosed between it and the roof which forms the protection. The paper itself is good for nothing; but when made to enclose an air-space, however small, it effects wonders.

Waterproof Glue.—We have recently met with a very useful form of cement for wooden or other similar articles which are employed for holding water or non-alcoholic liquids. Although the formula is not a very novel one, we know it to be useful and likely to suit the requirements of some of our readers. It stands as follows:—

Alcohol, (spirit of wine) 1 pint; sandarac, 1 ounce; mastic, 1 ounce; common white turpentine, 1 ounce; glue and isinglass, sufficient; water, sufficient. Dissolve the two resins—sandarac and mastic—in the spirit, and then add the turpentine to the solution. Make some very strong glue, and add to it a good pinch of isinglass. Now heat the alcoholic varnish until the liquid begins to boil, and then very slowly stir in the warm glue. The amount of the liquid glue to be added is determined by noting the point at which after thorough mixture, a magma or thin paste is formed capable of being easily strained through cloth. When required for use, the strained mixture is to be warmed and applied like ordinary glue to the articles to be united. A strong junction is effected, which is not destroyed by cold water, and only after a comparatively considerable time by hot water or ordinary saline solutions. *British Journal of Photography.*

Good Health.

The Color of Death.

Green, though so beautiful and healthful to the eye, has been most appropriately called "the color of death," for the reason that it invariably contains arsenic as one of its principle ingredients. Whenever we find this pleasing and popular color, it almost invariably contains this poisonous ingredient to a dangerous extent. It enters largely into nearly all the green upon our wall papers, lamp shades, paper boxes, toys, artificial flowers, confectionery, wearing apparel, etc. The popular color known as Scheele's green contains 55 per cent. (more than half) is composed of arsenite of copper—a most deadly poison. Scheele's green contains even a larger proportion of arsenic (58 per cent) in the form of aceto arsenite of copper. Both of the colors are more commonly known under the name of mineral or emerald green, and form the prettiest, most durable and cheapest shade of green which is made.

It recently came out, in the course of an investigation of the subject in Paris, that one manufacturer of wall paper in that city used up two tons of arsenic weekly! Paper hangings, perhaps, furnish the most prolific source of such danger. Chemical tests and post mortem examinations have fully proven, in great numbers of instances, that death from arsenic has been caused under conditions when the poison could not have been derived from any other source.

The manner in which the poison is communicated has also been made a subject of careful investigation. It has been found that a dust gathered up from rooms covered with green paper contains arsenic in quite noticeable quantities. In dry weather, especially, every jar of the wall, by the shutting of a door or otherwise, liberates from the paper a small portion of impalpably fine dust containing the poison. Every time the room, especially the wall, is dusted, large quantities are brushed off. This dust is inhaled while floating in the room, and hence the trouble.

Closet shelves are often painted green, the arsenic from which is readily absorbed when any warm or moist food, like bread, etc., is placed upon them. When we reflect upon the large amount of paint required to give a heavy, permanent color, and recollect the further fact that over half of that paint before being mixed with the oil is a deadly poison, there need be no wonder with regard to the danger to be apprehended from it. For even the common blocks of water colors, which come in little toy-boxes for children, the green color usually consists of about one-third its weight of arseniate of copper.

Dr. Draper of Boston, recently found that a sample of common *tarlatone*, procured from a shop in that city contained no less than 8¼ grains of this poison mineral to each square foot of the cloth. When we bear in mind the feeble manner in which mineral colors are held in cloth, some idea may be formed of the danger of handling or wearing such goods.

How to Test the Character of Green Paint.

It is within the power of every person to readily determine the character of green paint or color. Take a fragment of the paper or cloth and place it in a solution of ammonia. If arsenic is present the liquid will assume a bluish color. If a farther test is required take a little of the ammonia in which the paper or cloth has been allowed to remain for some hours and drop it upon some crystals of nitrate of silver. If arsenic is present, it will show itself by a yellow deposit on the crystals.

It is the cupidity, alone, of manufacturers, which induces them to use arsenic preparations in the production of their greens. A very good and durable green can be manufactured without the use of arsenic; but at the expense of rather more cost and skill, and perhaps some diminution in brilliancy. If the public would refuse to buy poisonous colors, they would soon be replaced by those from which no danger need be apprehended.

Buzzing in the Ears may be caused by organic disease of the auditory nerve or of the tympanum—by some *functional* disease of the nervous system, by congestion of the brain from any source, and especially by sexual debility or over excitement. Attention to general health should be practiced. Keep the circulation general and to the surface by proper bathing, rubbing, and exercise and ample clothing of the extremities. If it is persistent and troublesome notwithstanding the above precautions, consult a physician.

A majority of the idiots born are of intemperate parents; but this intemperance may be in the form of over work, or any thing that produces nervous exhaustion, as sensuality, the excessive use of tobacco, or disease of almost any kind. It is said that in the year 1865 there was a less number of idiots born in Norway than in 1855, and Dr. Dahl says it was because there was much less intemperance then than ten years before.

Raw beef, chopped up fine with onions, is now frequently to be seen on the counters in lager-beer saloons in New York. Germans are very fond of it, and they say it is the best cure or preventative of dyspepsia, as well as that of lung diseases.

To Dyspeptics.—If a man wishes to get rid of dyspepsia he must give his stomach and brain less to do. It will be of no service to him to follow any particular regimen—to live on chaff bread, or any such stuff—to weigh his food, etc., so long as the brain is in a constant state of excitement. Let that have proper rest, and the stomach will perform its functions. But if he pass fourteen or fifteen hours a day in his office or counting-room, and take no exercise, his stomach will inevitably become paralyzed, and if he puts nothing into it but a cracker a day it will not digest it. In many cases it is the brain that is the primary cause. Give that delicate organ some rest. Leave your business behind when you go home. Do not sit down to your dinner with your brows knit, and your mind absorbed in casting up interest accounts. Never abridge the usual hours of sleep. Take more or less exercise in the open air every day. Allow yourself some innocent recreation. Eat moderately, slowly, and of what you please—provided it be not the shovel and tongs. If any particular dish disagrees with you, however, never touch it, or look at it. Do not imagine that you must live on rye bread or oatmeal porridge; a reasonable quantity of nutritious food is essential to the mind as well as the body. Above all, banish all thoughts of the subject. If you have any treatises on dyspepsia, domestic medicine, etc., put them directly into the fire. If you are constantly talking and thinking about dyspepsia, you will surely have it. Endeavor to forget that you have a stomach. Keep a clear conscience; live temperately, regularly, cleanly; be industrious, too, but be temperate.—*Boston Journal of Chemistry.*

Sleeplessness—Diseased Bones. — I have heard it stated, and also read in medical journals, that if a person has taken very powerful medicine during a spell of sickness, it often destroys the nervous system to such an extent that the person never has sound sleep afterward. Do you think such is the case, or is there any way to recover so as to enjoy good, refreshing sleep again?

Ans. Loss of sleep depends generally on nervousness, the result of disease or of immoderate use of the various hypnotics, as morphine, hydrate of chloral, etc. But it would be quite impossible to give accurate advice without more intimate knowledge of the patient's temperament and physical condition.

Perhaps following a simple hygienic plan might assist. Let the patient exercise moderately, so as to be somewhat fatigued at bedtime; let the supper be light, if taken at all; let the bed be not feather, or the clothing too heavy; let the temperature of the bed-room be not higher than 58° or 60° F. Above all, give up all narcotics of every kind. A warm bath on retiring, with a hard rubbing or wiping dry, is often of service.

The diseased bone should be operated on *at once* by a competent surgeon, as the necrosis of the bone keeps up such an irritable state of the system that either medication or hygiene would be alike useless.—*Phrenological Journal.*

The Wear and Repair of the Brain.—The notion that those who work only with their brain need less food than those who labor with their hands is fallacious; mental labor causes greater waste of tissues than muscular. According to careful estimates, three hours of hard study wear out the body more than a whole day of hard physical exertion. "Without phosphorus, no thought," is a German saying; and the consumption of that essential ingredient of the brain increases in proportion to the amount of labor which the organ is required to perform. The wear and tear of the brain are easily measured by careful examination of the salts in the liquid excretions. The importance of the brain as a working organ is shown by the amount of blood it receives, which is proportionally greater than that of any other part of the body. One fifth of the blood goes to the brain, though its average weight is only one fortieth of the weight of the body. This fact alone would be sufficient to prove that brain-workers need more food, and better food, than mechanics and farm laborers. *Boston Journal of Chemistry.*

Poisonous Paper Collars.—A clergyman residing in Sussex county, Delaware, having been greatly troubled with numbness in his limbs, and other symptoms which led his physician to suspect lead poisoning, sent to us the ash resulting from the combustion of one of the paper collars worn by him, and we found upon analysis that it contained carbonate of lead in considerable quantity. This dangerous substance is used in the glazing of some cuffs and collars made of paper, and when the hands and neck perspire or any abrasion of the skin occurs, the lead is absorbed and poisoning results. The brand of collars containing the lead was represented to be what is known as the "Dickens" collars.

Vinegar Bitters.—Will you be kind enough to let me know whether you think that Dr. Walker's Vinegar Bitters are as good as he represents them to be in his advertisements, and greatly oblige.

Ans. We regard these bitters only less injurious than others because they contain no alcohol. But when the venders claim that they have any curative properties whatever, they claim that which is not true. It is, no doubt, one of the most—profitable to the makers—popular and harmless of the quack nostrums. Oh, the gullibility of ignorant, poor, sick humanity!—*Phrenological Journal.*

Scientific Press.

W. B. EWER.....SENIOR EDITOR.

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San Francisco:

Saturday Morning, April 13, 1872.

Gold and Legal Tender Rates.

SAN FRANCISCO, Wednesday, April 10, 1872.—Legal Tenders buying, 91¾; selling, 91¾. Gold in New York to-day, 110¼.

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THE BLACK HILLS REGION.—Secretary Delano, has written to Governor Burbank, of Dakotah, stating that he has been informed that a combination is being made to obtain lands in the Black Hill region for the purpose of getting possession of the mineral deposits and timber. The Black Hills are within the boundaries of an Indian reservation, and the Governor is requested to put a stop to any combination of the character mentioned, against the law. The Secretary has also addressed a letter to the Secretary of War with a view of securing the aid of the military in checking these expeditions. These proceedings will put a stop to a number of prospecting expeditions and will ultimately, no doubt, benefit parties who intended to go there, more than if they had gone. The reasons are that if large bodies of prospectors enter the country embraced in the reservation it will inevitably bring about an Indian War. Miners who have had any slight touches of "fever" and made up their minds to go there, will now have to give it up and remain where they are. When it becomes absolutely certain that the mineral resources of the country are of sufficient importance to warrant it, doubtless the Government will take proper measures to open the field for civilized labor and enterprise.

UTAH MINES.—Ten tons of ore from a mine in Butterfield Cañon, with a 7-foot vein, netted over $10,000 in silver and gold. A very heavy business was transacted last week in Salt Lake City, in the transfer and binding of mining property, the aggregate considerations in three days being over two millions. Several agents of English capitalists have lately come to Utah to examine the iron mines in Iron county. The ore is said to be abundant and of good quality. A Mining Stock Board is to be organized in Salt Lake City.

The Recent Earthquake.

The recent earthquake appears to have extended as far as the City of Mexico, for mail advices announce that a severe shock was felt in that city on the same day on which it occurred here. It was also quite severe at Camp Cady, Arizona, the vibrations being sufficient to move heavy government wagons several feet. Camp Cady is located upon the westerly side of the volcanic belt which extends from Inyo far into Mexico. The "tremblor" of the 26th ult. therefore extended as far north as the Oregon border and as far south as the City of Mexico, a distance of over 2,000 miles. How far it extended east and west we have no means of knowing, although we hear it was felt at Winnemucca, 462 miles east of San Francisco. A shock was felt the same day at Paducah, Ky., but no accounts have been received of any disturbances between Winnemucca and that place, and it is fair to assume that the Paducah shock was but a curious coincidence. The ocean was somewhat disturbed off San Pedro, but no vessels yet arrived have reported it as being noticed further out at sea.

The reports render it one of the most extended shocks of earthquakes recorded in history, and the pheuomena connected with it, near what is supposed to have been the central point of disturbance, are also remarkable, for we hear that the miners at Inyo, at work some 300 feet below the surface, at that point felt no shock. This fact, if it is a fact, coupled with the report of a similar absence of disturbance in the deep mines at Virginia City at the time of the severe earthquake which was experienced there some three years since, furnishes some new and interesting data with regard to the propagation of earthquake waves. The same law would seem to hold good in an earthquake disturbance that would attend a submarine explosion, the effects of which, would be propagated at a distance only by the concentric surface waves which would be origiuated directly over the point of disturbance.

The shock of the 26th ult. seems to have mainly followed the direction of the Sierra Nevada and Sierra Madre—southeastly and northwestly, although the volcano of Colima, in Mexico, on a westerly branch of the Sierra Madre, also burst forth in a state of eruption on the day of the shock, a fact which renders it extremely probable that there was some immediate connection with the activity of this volcano and the phenomenon observed in this State.

It is to be regretted that no steps have yet been taken, to have the data in connection with this remarkable terrestrial disturbance, collated by some persou of sufficient scientific attainment to make his report acceptable to scientific men.

LOW WATER.—The past year has been one of extreme drouth both on this continent and in Europe. So great has been the drouth that it has seriously affected manufacturing as well as agricultural interests. During the extremely low water in most of the streams, during last summer, numerous manufactnring establishments were entirely stopped. Much suffering was thereby caused to working men in many parts of Europe.

The low stage of water is given as one of the causes for the present extraordinary advance in iron—especially Sweed iron, which is largely employed in this country for the manufacture of steel. Paper has also been effected to some extent from the same cause.

CALIFORNIA STOCK EXCHANGE BOARD. The first annual meeting of the California Stock Board was held on the 8th inst., and the olection resulted as follows: President, T. J. L. Smiley; Caller, Joseph Tilden: Secretary, W. W. Lawton; Treasurer, E. J. Baldwin.

Sewage-Farming and Sewage-Purification.

Sewage-Farming Results.

We have previously spoken of the use of sewage in agriculture and of the results obtained in certain places. Although the question of how to deal with the refuse from sewers has attracted for a long time the attention of city officials in Europe, and although sewage farming has been practiced for some years, especially in England where several so-called "Sewage Farms" exist, yet sufficient data with regard to the results have not been obtainable.

J. Bailey Denton, in a paper read before the Society of Arts at London, has given some very interesting facts, and among them a table of the money realized by the sale of crops on sewage farms in certain localities. The figures show, at least, what is possible under proper management, and we condense the table, giving the average value of the crop per acre for several different crops. The farms, from which the crops were obtained, are all in England, but we give the values in American gold.

Crop.	Highest.	Lowest.	Average.
Italian Rye Grass.....$185.00		$ 63.50	$118.44
Mangolds..... 220 00		107.25	154.63
Swedes 131.25		71.66	98.89
Carrots..... 225.00		175.00	203.75
Parsnips..... 260.00		175.00	196.25
Cabbages..... 175.00		75.00	118.29
Potatoes 165.00		90.00	126.66
Onions 520.00		175.00	298.75

From these instances, as Mr. Denton remarks, sufficient proof is afforded that, with one crop per annum of a kind which will yield largely to the application of sewage and command a certain sale, the farmer can pay for the sewage a sum sufficient to make the sale of sewage remunerative and have still a handsome sum at his disposal. Although by good farming equally large crops have been produced without sewage, yet the united advantages of manure and water insure crops every year under every vicissitude of season and occasionally allow of two crops from the same land.

Purification of Sewage.

Intimately connected with the utilization of sewage and not to be separated from it, hy no means less important, and, indeed, sooner brought prominently before the public, is the purification of sewage. As soon as population concentrates in any locality, forming a town or city of any size, the question of dealing with the sewage from a sanitary point of view is forced upon the authorities, especially in inland towns. And as the country around becomes settled and industrial establishments spring up, the matter becomes one of paramount interest. The recent illness of the Prince of Wales, said to he traceable to impure water or sewer gases, has roused the anxiety of all the British nation, and presented the topic in a striking light. We cannot poison people or spoil streams hy letting the town refuse escape freely upon land or into running water. How then shall we deal with the refuse?

Of course the more thickly settled the country, the more important the subject. It is already becoming prominent in our land, and in Europe has long been a vexed problem.

England offers many attempted solutions of the prohlem. Of late years the A B C process—treating with alum, blood and clay principally—the phosphate process—using phosphate of alumina—and a few other chemical methods have heen loudly advocated; but no one has yet attained satisfactory results according to the hest information obtainahle. A new method, however, has lately been tried, and the results given are so favorable that we here publish a short account.

Denton's Intermittent Filtration Process.

This process has been tried in Wales. Twenty acres of land were divided into 4 equal parts, and the whole was drained to an average depth of 6 feet and deeply cultivated. The surface was laid out in the ridge and furrow form, to allow of the use of hoes and, while growing crops on the ridge, to permit the sewage to flow in the furrows and rise up to the ridge sides with a certainty of being ahsorbed and of feeding vegetation at the same time. The sewage was equivalent in amount to the discharge of about 30,000 persons. This sewage being let out upon the land, was filtered in its progress from the surface to the drains, depositing in the soil its material so heneficial to agriculture, and issuing from the drains so pure that the lahorers were said to quench their thirst with it, and chemical analyses showed it to he of a quality unobjectionahle in a sanitary point of view. The yield of the crop sown is also given as very good. We find the value of the crop of cabhages per acre given as $100.

Protection of Water Pipes in Mines.

Much complaint is made by miners on the Comstock lode in Nevada, and in many other mining localities on this coast of the manner in which iron water-pipes give out under the biting touoh of the vitriolic impurities of the moisture distilled from the crevices of the rock. Galvanizing or coating with zinc give practically no protection from corrosion, and indeed no available remedy is known.

The same difficulty is experienced in the mines in many parts of Europe; and in those of Siberia, where pyrites are common, the trouble is said to be now very effectually avoided by a novel method of enameling the internal surface of the pipes, which is described by the American *Artizan* as follows: "The process involves a preliminary exposure of three hours to a bath of oil of vitriol—sulphuric acid. After this they are washed with water, and are brushed with a composition composed of thirty-four parts silica, fifteen of borax, and two of soda, and are then placed in a retort at a dull-red heat for about ten minutes. This is the first coating. A second is laid on, composed of thirty-four parts of feldspar, uineteen of silica, twenty-four of borax, sixteen of tin oxyd, four of fluorspar, nine of soda, and three of niter. This is melted to a mass in a cruclble, then ground to a fine paste with water, and in this condition applied to the pipe, which done, the pipe is heated to a white heat, and maintained thereat for twenty minutes. This insures the perfect fixing of the enamel. Before the pipe has become wholly cool it receives an external application of coaltar, and is then ready for use. There seems no good reason why pipe treated in this manner should not prove well adapted for purposes for which, owing to its inability to corrosion ordinary iron pipe is inadmissible.

CALAVERAS COUNTY MINING MATTERS.—The mining prospects in Calaveras County are, like they are all over the Stato, in a flourishing condition. Quartz mining in particular, stimulated by successful results in Lower Rich Gulch, West Point, Railroad and Angels, has taken a new impetus. The Mokelumne Hill *Chronicle* is jubilant over this increased interest and says that "work is being resumed in mines long since abandoned, ledges are being prospected in every direction, and, better than all, capital has come to the assistance of energy and enterprise." In the West Point, Railroad Flat and Mosquito districts, in the northeastern portion of the county, favorable developments have been made this spring, though active operations have not yet commenced. From West Point, particularly, the intelligence received is very flattering. The developments on the Zacetara mine have established the permanency of the leads in that district. In Railroad Flat, first class quartz is coming from the Petticoat, Wolverine, Prussian Hill and Free & Easy mines. At Mosquito Gulch, the San Bruno, Good Hope and Grasshopper leads, though not large ledges, pay well. At Rich Gulch the well known Gwin Mine, one of the best appointed in the State is doing well and operations are being extended. At San Andreas the Thorn and Scifford mines are in operation, the former having been bonded for $80,000. At Angels the "Big Mine" and Stickle claim are paying handsomely. Gravel mining is flourishing, and the supply of water being pleutiful, it is expected that more gold will be turned out this year than during any previous one.

HONORS TO PROFESSOR MORSE.—The National Academy of Design have adopted resolutions of respect to the memory of the late Prof. Morse. The Aldermen, assistant Aldermen, and the City Councils of New York and Brooklyn and the Chamber of Commerce, of New York; and likewise, the Board of Directors of the Western Uuion Telegraph Company, have also adopted a series of resolutions of like character. Similar measures have been taken all over the country.

Loss of Quicksilver.

[Written for the Press by Guido Kustel.]

With reference to the article under the above heading in the Scientific Press of March 16, 1872, the way to ascertain the amount of quicksilver in the crude bullion or retorted amalgam should be added. There are cases where the bullion shows the appearance of a perfect retorting, where there is, nevertheless, a considerable amount of quicksilver; and again, sometimes much of the latter is supposed to be present where only a small percentage will be found. Occasionally it may be of importance to know the quantity of quicksilver in the bullion in order to decide whether it would be profitable to subject it to another retorting or not. The assay is done correctly in a few minutes by my method, requiring only a glass tube, an alcohol lamp, blowpipe, and a gold cornet. The latter may be procured from any assay office where gold bullion is received, and one cornet will serve for many years. To make this way of assaying easily understood, it might be better to explain it by an example:

First, take the cornet on a piece of charcoal and make it red-hot by means of the alcohol flame and blow-pipe, but carefully, for by applying a little too much heat it would melt. It is safer to take the cornet on a needle, and to hold it in the flame a few seconds till it gets red-hot. Weigh it out on a fine gold balance and notice the weight of the cornet, say 634.75 (equal to 6.3475 grains). The weight will always be found the same after use when calcined, provided no fragment has been broken off accidentally. If it should weigh a little more after being heated this must be repeated.

Next, take a small fragment out of the middle of the broken bullion, best in one single piece, not heavier than from 150 to 200, (1¼ to 2 grains,) weigh it correctly and note it, say 170. This bullion fragment of 170 insert into a glass tube, the one end of which you close by melting it in the alcohol flame. The fragment *a*, in the drawing (of natural size) is placed at the end of the tube, and then the gold cornet *b*, in a distance, is represented.

Take hold of the tube as shown with the fingers, and let the alcohol flame play over the part of the tube in which the bullion is placed. The quicksilver will soon be observed as a gray coating at *d*, which, by increased heat, moves slowly towards *b*, and is taken up by the gold cornet. After one or two minutes steady blowing, take the blowpipe and direct the flame on the bullion *a*, turning the tube slowly between the fingers. The glass tube will commence to melt by the increased heat and the rest of the mercury will be driven out. One minute blowing is generally sufficient. The tube is then allowed to cool down, keeping or placing it always horizontally, to prevent the sliding of the cornet. When cold, the cornet is rolled for a while in the tube, in order to take up some quicksilver globules that might be perceived in front or behind the cornet, and if, by means of a magnifying glass, it is observed that no quicksilver adheres to the sides of the tube, it is held inclined a little so that the cornet may slide out.

At one end the cornet appears gray from quicksilver, the other shows pure good color. With this end it is placed on the balance as shown in Fig. 2, so that the amalgamated part is turned up, and weighed out. For this purpose the cornet must be examined with a magnifying glass, to be sure of there being no quicksilver on one end, otherwise it would amalgamate the gilded cup of the scale, and cause much trouble in adjusting the balance afterwards. In such a case it is best to put a small piece of paper on the cup, weigh it and the cornet together and subtract the paper weight from the cornet. After weighing, notice the weight, say, 640.50; from this take off the weight of the pure cornet, 634.75. It gives a difference of 5.75, the amount of quicksilver obtained from the bullion fragment, weighing 170. The percentage of quicksilver in the bullion is then easily found.

$$170 : 5.75 = 100 : x$$

$$x = 575 - 170 = 3.38 \text{ per cent. of mercury.}$$

The gold cornet is annealed again in order to drive out the quicksilver. It must show its former weight. It should always be glowed and weighed before and after use.

This method of determining the amount of quicksilver in the bullion is also applicable to assaying quicksilver ores, with

Fig. III.

Fig. II.

proper modification. It gives a more reliable assay than the usual way of assaying by retorting small quantities, especially with poor ore, containing from 1 to 2 per cent. of quicksilver. The ore must be dry and finely pulverized. Of this 100 milligrammes are weighed out, or 50, if over 20 per cent. quicksilver is supposed to be in the ore, and by means of a capsule introduced into a glass tube, into which a paper tube, *a*, as represented in Fig. 3, has been inserted. A few slight taps are applied on the tube to clear the sides of the paper tube, and then about three times the volume of the ore of carbonate of soda, *c*, is introduced over the ore, *b*.

The paper tube is then drawn out and the sides of the tube appear clean and clear. It must be mentioned yet that it is very important to drive out the water from the soda before use, by heating it in a porcelain or platina cup to nearly a red heat. When so prepared, the gold cornet is introduced again as described before, in a horizontal position, and the end containing the ore cautiously heated. If suddenly held in the flame, the soda might be thrown against the cornet. After five or six minutes, the heat must be increased by help of the blow pipe, which will cause the soda to melt. When cold, the quicksilver globules adhering to the side of the tube are collected by the gold cornet as mentioned before. The weight above that of the cornet expresses the per centage of the quicksilver in the ore, provided 100 milligrammes have been weighed out.

If it should be observed that some water has precipitated inside the glass tube near the opening, it would not be safe to weigh the gold cornet directly, but it must be first dried in a wider glass tube, which is kept for a short time in boiling water

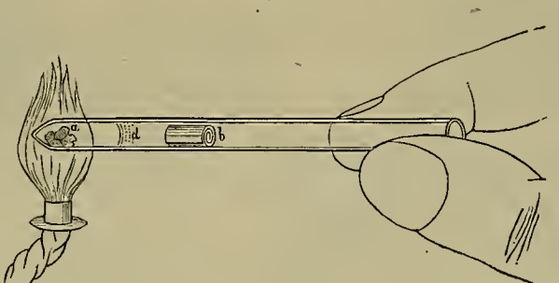
A Device for Preventing the Breakage of Lamp Chimneys.

The accompanying cut is a representation of a device for preventing lamp chimneys from breaking or cracking, by the contraction and expansion of the glass, under ordinary heat and usage. This device consists of a piece of metal which is made of the shape shown, and is suspended on the upper end of the chimney so as to hang down a short distance in it, which, the inventors claim, serves both to regulate the draft and equalize the heat.

The greatest disadvantage there is in using

lamps is the frequency with which the chimneys break, and numerous contrivances have been made to obviate it; this the inventors say will effectually prevent the breakage, as has been fully proven by numerous experiments. The

Fig. I.



piece of metal can of course be applied on any chimney, and it is claimed that by its use the flame may, even when first lighted, be turned up so as to come out at the top of the chimney without breaking the glass by sudden expansion. The cause is attributed to the division of the draft at the upper end of the chimney by the hanging plate whereby it is steadied and the heat regulated. This little invention has been patented through the Scientific Press Agency by C. M. Gruhy and T. I. Lichtig. The agent is O. V. Gerzabeck, No. 563, Market street,

Railroad Convention.—Circulars have been received by a number of persons in this city, calling their attention to the fact, that a Convention of Railroad men and engineers, interested in the narrow gauge system, will be held in St. Louis on the 10th of June. The following persons are requested to attend: Officers of narrow-gauge roads, constructed, in course of construction or projected; all dealers in, or manufacturers of narrow gauge rails or equipments; all railroad engineers. A committee of arrangements has been appointed, and an excursion to Denver City, where the Denver and Rio Grande narrow-gauge railroad is in operation, will be a feature of the Convention.

The work of pumping out the Bellingham Bay coal mine is progressing slowly but satisfactorily.

Patents & Inventions.

Full List of U. S. Patents Issued to Pacific Coast Inventors.

[From Official Reports to Dewey & Co., U. S. and Foreign Patent Agents, and Publishers of the Scientific Press.]

For the Week Ending January 3d, 1872.

Paper-File.—Jeremiah W. Foard, S. F., Cal.; antedated Dec. 20, 1871.
Buckle.—Nathaniel D. Fowler, Valley Ford, Cal.
Railway Switch.—William H. Masterman and Andrew Jackson, Stockton, Cal.
Device for Steading Wagon-Poles.—Reuben Austen Seaders, S. F., Cal.
Broadcast Sower.—Jacob price, San Leandro, Baptist Johnson, Irwin J. Truman and Robert M. Hamilton, S. F., assignors to Livingston L. Baker and Robert M. Hamilton, S. F., Cal.

For the Week Ending January 10th.

Carriage Wheel.—Charles Palmer, Hamilton, Nev.

For the Week Ending January 30th.

Rotary Pump.—Nathaniel P. Sheldon, S. F., Cal.
Curing Leaf Tobacco.—James D. Culp, Gilroy, Cal.
Artificial Teeth.—Charles H. Mack, Portland, Or.

For the Week Ending February 6th.

Grain-Separator.—Joseph Esse, Redwood City, Cal.
Horse-Power.—Samuel Pelton, Marysville, Cal.
Apparatus for Exhausting Air from Preserve-Cans.—David N. Phelps, San Leandro, Cal.
Bung.—Daniel B. Rickey, S. F., Cal.
Manufacture of Alcoholic Spirits.—Ianthia J. Rolfe and Josiah Rogers, Nevada City, Cal.
Dish-Washing Machine.—Catharine Woodruff, Antioch, Cal.

For the Week Ending February 13th.

Horse-Power.—Thomas C. Churchman, Sacramento, Cal.

For the Week Ending February 20th.

Gopher-Trap.—John Bowman, Santa Cruz, Cal.
Material for Filling Matresses, Making Paper, Etc.—Francis C. Cone, S. F., Cal.
Amalgamator.—George C. Langtry and George Emmett, Gold Hill, Nev.

For the Week Ending February 27th.

Wood Pavement.—Henry E. Perry, S. F., Cal.

For the Week Ending March 5th.

Grain-Separator.—James C. Bowden, Farmington, Cal.
Endless-Rope Way.—David R. Smith, S. F., Cal., assignor to Andrew S. Hallidie, same place.

For the Week Ending March 12th

Oang-Plow.—Samuel D. Bowen and Americus M. Abbott, Stockton, Cal.
Brick-Kiln.—Francis Felix Boudrye, S. F., Cal.
Permutation Lock.—William C. Busse, S. F., Cal.
Machine for Painting Wire-Cloth.—Samuel Graves, S. F., Cal.
Oang-Plow.—George W. Haines, Maino Prairie, Cal.; antedated March 7, 1872.
Friction Engine.—Wallace Hanscom, S. F. Cal.
Extension Shelf or Bracket.—Anthony Rosenfield, S. F., Cal.
Quartz-Mill.—William C. Stiles, Nevada City, Cal.

For the Week Ending March 19th.

Medical Compound or Rheumatic Liniment.—John M. Cantrell, Polk county, Or.
Wheel for Vehicles.—George R. Duval, Salem, Or.
Submarine and other Walls.—William H. Foye, S. F., Cal.
Harrow.—Oradon J. Leabo, Forest Grove, Or.
Apparatus for Lighting and Extinguishing Gas by Electricity.—John Vassant, S. F., Cal.
Animal-Trap.—James William Fishback How, Canyonville, Or.
Spice-Bottle.—Joseph L. Likins, Vallejo, Cal.; antedated March 14, 1872.

Note:—Copies of U. S. and Foreign Patents furnished by Dewey & Co., in the shortest time possible by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency

The "Lost Lead."—Recent advices from Arizona chronicle the discovery of what is supposed to be the long-sought-for "Lost Lead," within abont 10 miles from Mineral Park, Wallapai District. An old tunnel has been found containing the tools of workmen, and the ledge is said to be a fine large one showing considerable horn silver. The old dump covers an acre of ground. The "Lost Lead" has formed the foundation for air-castles for many a miner in the "lower country," and has been sought for by thousands. Its existence is attested to by the annals of several of the Old Missions as well as by the traditions of the Indians. It was generally supposed to be located somewhere in the San Gabriel range or the San Bernardino mountains, and it is said that the old bells of the church at San Gabriel were made of silver obtained from the mine by the Jesuit Priests. When the Burro mines were discovered, many people supposed that the lost lead was somewhere in that vicinity so that the range of country in which it was supposed to be situated, was rather inflammable for any systematic prospecting. Whether this newly-discovered tunnel is one of the old mines referred to or not, it is nevertheless valuable, and somewhat singular, that, with a dump "covering an acre of ground," it has not been found before. Doubtless the former owners were driven off by the hostile Indians.

Gold Yield.—The gold yield of Nevada county for the past two years has been $5,000,000 per annum, and it is estimated that, for the present year, it will reach $7,000,000.

Domestic Economy.

Cookery.

A celebrated *chef* in Paris, once composed a marvellous *entree* from two or three paire of soiled wbite kid gloves, and snceeded effectually in deceiving tbe palate of a connoisseur. Could tbe baeis of any *plat* be more economical? Tbe gonrmet who dines off truffled turkey, turtle, and ortolans, most certainly employs good cookery, but cannot claim to be cousidered an economist; while, on tbe otber haud, the mutton cbop of the epicure in bumbler life may he rendered a delicate and palatable repast, ae well as strengtheniug and refresbing to tbe eystem, by the agency of good cookery, whereas bad cookcry will destroy tbe nutritive properties of the meat, and renders the chop a lump of coucentrated indigestion. Brillat Savarin has said, in his admirable work on gastrouomy, that "a great cook is a greater man tban a great astronomer," and it is to be regretted that tbie work has never been translated into tbe English langnage for the benefit of those of his disciplee who practice the art, but who do not nnderstand the French language.

Give a real culinary artist fuel and materiale, and the science of cookery in such hands will prove a fathomless mine of inexhanstible variety, a boundless source from whicb will spring delicate dishes, mysterious and refined. It is sometimee said :—"There is nothiug new under tbe sun;" but the chemistry of cookery refutes the axiom; for wheu the *Almanach des Gourmands* was pnblished by De Perigord, people said that he had surely expended tbe sum of his knowledge on tbe dishes contained in tbe first year'e nnmber; hut another year, and yet another, saw issuing from that marvellons brain of that prince of cooks the endless coil of gastronomic delight, until evcn variety became monotonons, and the traducers of the art were eilenced.

The higher the state of civilization in any country, the greater is the perfectiou to which the art, or rather the scieuce, of cookery is brought; for cookery is more a scieuce tban an art, the result of study tban of natural talent. The untanght cook can never make a good eonp, and a lifelong experience, reflection, study, and practice, are necessary to prodnce a Careme, a Ude, or a Gouffé. There is very much to be said in favor of the simple and undisguised form of good cookery, and in adapting the art to the refinemente of civilizatiou, we contend that we are redncing, not increasing, the cbance of indigestion; while on the one hand we would avoid tbe meagre fare of a miser, on tbe other we would inveigh against the coarse gluttony of a gourmand. The leg of mntton in tbe hande of a Freuch woman forms a delicious tureen of palatable and nourishing soup, as well as a substantial joint, ae *bouilli* or *braise*; bnt our American woman's ideas rarely rise above the oven; and the result is too often an unpalatable, greasy dish, of which all that cau be said is, that it staye the cravings of hunger at the expense of the digestive organs. Our cookery in lodging honses ie detestable, and may be summed np in one word—grease. In our middle classee very little skill is shown in the preparation of food, and amongst the poor none whatever.

In caees of extreme debility, good cookcry is a *sine qua non* to recovery; tbe invalid cannot digest tbe greasy, nauseous beef-tea of ordinary life; aud tbe weak, washy stuff, too often imbibed, has led, if not to the utter prostration of many an already declining constitution, at least to a daugerous state of wild irritation in tbe digestive organs. Hence our medical men refer their patiente to the great inveution of the world-renowned Liebig; but speaking as a practical cook, I nnhesitatingly assert the superiority, both in flavor and nutritive properties of good beef-tea made scientifically from fresh beef, over any concentrated essence of beef yet invented.

The reasons for this are many and obvions, aa the process of strong concentration mnst destroy in some degree the delicate nature of the eesence of tbe meat. But we must leave, as we have before said, tbe subject of dietetic cbemistry iu the hands of ahler and more expert advocates—meu wbo bave given their time aud attention to it. Yet in the discussion of our subject we mnst trench a little upon it, as chemistry and cookery are twin eciences, if not branebes of the one and tbe same science; for tbe skilled cook, like the chemist, amalgamates hie materials with a due regard to their differeut natures, and at such periods in tbe process of cooking as careful consideration has taught him will render them most amenable to tbe chemical action of fire; any deviation from the proper quantities, time, or degree of heat, are fatal to snccess, and would prodnce a totally different result, in many instances, from that desired. Heuce the necessity for mnch care and study, ere the tyro ventures to essay his skill in tbe practice of the culinary art.

If we admit the primary expense of good cookery (which we do not), we say that it is most economical in the long run, for it will be found to reduce the doctor's hill; and no one is londer in praise of scientific cookery artistically administered than the medical man of the present day. We tbink that enough has been urged for the cauee of cookery, to persuade our readers tbat thie is a subject of vital importance to them all, and may claim ae mucb of their attention as any other phase of sanitary reform, or any qneetion of public safety.—*Food Journal*.

The Tea Hour.

Tbe tea hour, in tbousands of bappy homes, is tbe hour of tbe day looked forward to witb most intense deligbt, as it calle around the table the members of the household after the various cares and labors of tbe day are completed, and a season of rest and social interconrse is anticipated. The dining hour is with most people the time when the appetite ie craving, and the sense of hunger is apt to beget a considerable amonnt of impatience or perhaps fretfulness.

If tbere is any hour in the day when the man of business is nnamiable or testy under his own roof, it is just before dinner, when he is waiting for the signal wbich is to summon the family to the dining room. Children, guided hy tbeir qnick iustincts, seldom ask for favors at such unpropitions moments; and often family pete, the dogs and cats, learn to skulk away into some quiet corner, aud wait uutil the meal has fairly begun, before they venture to intrude themselves into chairs, or come within reacb of tbe paternal boots.

Dinner may be called tbe *business* meal; it is the one wbich regnires tbe most labor and expense to provide, and it is too apt to he partaken of when the mind is loaded with the business perplexities of the day. In the natnre of things it cannot he the season wben the family shut themselves iu from the outside world, and turn the current of their thoughts upon pleasant themes.

At hreakfast there is more or less hurry. The mind, refreshed with sleep, is elastic, confident, eager to enconnter tbe labors and duties wbich have come with tbe morning sunlight, and there is little incliuation to talk or think of other matters tban those wbich are connected with tbe work of the day. It mnst be conceded, tbat in this conntry the tea hour is the time, and the tea table the place for the introduction of topics of conversation which require a forgetfulness of everything tbat is personal or selfish. It is pecnliarly the time and place for social converse upou the wonderfnl and beantiful tbings iu Nature, whicb modern research has so clearly nnfolded, and which when nnderstood are so well calculated to make ns not only wiser hut better.—*Journal of Chemistry*.

In view of the above is it uot the duty of every parent to introduce at the table topics of conversation such as will interest and improve the minds of the youuger members of the family? Every number of the Press contains mauy articles which might he profitably introduced as tbe basis of such conversations. There is no family whicb may not be made wiser, happier and better by having its thoughts while at the table turned npon iuteresting facts in science aud art, as presented in the various useful aud instrnctive publicatious uow being constantiy thrown off from tbe weekly periodicale of tbe day.

Boulli.—This term is rather a misnomer; eince bonlli is understood nsually, like "consomme," to meau that portion of meat which is left from the soup and is served at the same time. However here is my boulli :

To eight pouuds of beef put three quarts of water, two onione, four carrots, three parsnips, three stalks (or celery leaves) of celery, qnarter of a head of cahbage, (wbich may be left ont,) three tomatoes, one pod of red pepper, parsley and allspice—beans and ochre are an improvement. Cover close and boil all togetber for four honrs—put in fonr potatoes and boil an hour longer—tben take out tbe vegetahles, mash them, add butter rolled in flour to tbickeu the gravy; return all to the pot and serve meat and gravy on the same dish. In all soups and stews, a common fault is too little water at first, and then adding to the qnantity, and fast boiling in an open pot, will spoil many a good dish. Of course in this as in most other things, some judgment mnst be nsed and different tastes consnlted, and many wonld donbtless prefer donble the number of vegetables. Tbe beef may be from tbe round, rump or brisket.—*Ex.*

Potato Salad.—Any one who has eaten potato salad at a Parisian hotel will be glad to try it after he gets home. The following is a good formula for the simple hut delicious preparatiou. Cnt ten (or twelve cold boiled potatee iuto slicee from a quarter to half au inch tbick; put into a salad bowl with four tablespoonfuls of tarragon or plaiu vinegar, six tablespoonfule of best salad oil, one teaspoonful of minced parsely, and pepper and salt to taste; stir well, tbat all he tboroughly mixed. It should be made two or three hours before needed on the the table. Aucbovies, olives, or auy pickles may be added to the salad, and also bits of cold beef, chicken or turkey if desired; but it is excellent without these.

Syrup of Coffee.—Tbis preparation is of great nse to tbose wbo have long journeys to make. Take half a pound of the best ground coffee; pnt it into a sancepan, coutaining tbree pints of water, and hoil it down to one pint. Cool the liquor, pnt it into another saucepan, well scoured, and hoil it again. As it hoils, add white sugar enough to give it the consistency of syrup. Take it from the fire, and when it is cold put it into a bottle aud seal. When traveling, if yon wish for a cup of good coffee, yon have only to put two teaspoonfuls of the syrup into an ordinary coffee-pot, and fill with boiling water. Add milk to taste, if you can get it.

How the Chinese Make Tea.

Among the newspaper articlee floating around the country and turuing up periodically ie one entitled "How different nations make tea." It commences thus: "The Chinese place tbe tea in a cup, pour boiling water npon it, and driuk the infusion off tbe leaves." Now this is wholly erroneous. The Cbiuese method is far snperior to that commonly followed in the United States and Enrope for "drawing tea." Tbey take uo sugar or milk iu their tea, and never hoil the leaves, thereby dissipating all the delicate aroma, as we do. They bave a small basket, lined with woolen felt, from an inch to two inches in thickness, and with a cover padded in the same manuer. Into this a tea-pot of common Chiua porcelain is fittcd tightly. When tea is to be drawn, they put the dry leaves into tbe porcelain tea-pot, pour boiliug water upou them, put on the lid, and close the felt-lined cover of tbe basket tightly down upon it. The felt retains the heat for from six to twelve hours, and at any time during tbe day you can pour a cup of tea, scalding bot, fresh, clear and deliciously aromatic, from tbe nose of the tea-kettle, which protrudes from a hole througb the side of the basket. Fuel is tbus economized, and the tea is infinitely better than can be produced from the same grade of leaves by auy otbcr process. Tbis tea-pot and basket can be procured at auy first-class Chinese store, and a single trial will satisfy the most eksptical that our housewives are far hebind tbe semi-barbarians of the Orient iu tbis branch of their husincss. We do a little better on coffee; bnt still, ae a rule, we are far behind the natives of coffee-producing countries in preparing it for tbe table; and chocolate, the most delicate and nourishing of all tbe bibnlons luxuries of tbe table, we ntterly ruin. —*Call.*

The Farmer's Own Pudding.—Three ponuds eifted coru meal, three-quarters of a pound finely minced beef suet, one pound dried currants, (well-washed and rubbed dry,) one-half teaspoonful of soda, (supercarhonate;) iucorporate the wbole, while dry, aud add one and a half pints of molasses, a sufficient quantity of boiling water, stirriug hard all the time nntil the mixture is of the cousistency of common mush: stand over night iu a moderately warm place; next morniug tie it in a wide-mouthed bag, leaving it full space to swell; boil incessantly four or five hours (a plate placed in the bottom of the pot;) served with boiled or hard sauce, according to taste, tbe same as with pnding. By many, this pudding is considered even better when heateu in tbe oven next day. The above recipe makes a quantity sufficient for tweuty people.

Prepared Corn-cobs.—A very couvenient kindliug wood is made in France from corncobs, by immersing them in a mixture of sixty parts of melted resin and forty parts of tar; after which tbey are takeu out and allowed to dry. Tbey are then subjected to a second operation, wbich consists in spreading tbem out ou a metallic plate heated to 212° F. They are finally assorted according to eize, and tied up in bnndles. Tbese are sold at the rate of tbree or four for a ceut. Tbe establiehmeut in Paris for manufacturing them employs tbirty workmen, and effects sales to the amount of $40,000 annually.

A Relish for Breakfast or Lunch.—Take a quarter of a ponnd of good, fresh cheese; cut it up into thin slices and pnt in a spider, turniug over it a large cupful of sweet milk; add a qnarter of a teaspoonful of dry mnstard, a dash of pepper, a little salt, and a piece of butter as large as a hutternut; stir the mixture all the time. Have at hand tbree Boston crackers finely powdered or rolled, and sprinkle tbem in gradually; as soon as tbey are stirred iu, turn qbe contents into a warm dish and serve.

Sweet Potato Balls.—First boil tbe potatoes, then carefully mash the farinaceous part. Boil in the mean time a pint of milk, pnt in some lemon peel, a couple of small lumps of sugar, and a little salt. When the milk boils, take it off of the fire and add the potatoes, so as to form a paste, or ratber a tolerably thick mush. Wben cool, make it into balle; cover these with crumbs of hread and yolk of egg. Fry to a nice brown color, and serve up with eugar strewed over them.

Influence of Wives.—It was not all a dream which made the wife of Julius Cæsar so anxious that he should not go to the State Chamber on the fatal Ides of March; had he complied with her entreaties, he might have escaped the dagger of Brutus. Disaster seemed to follow disaster in the career of Napoleon from the time he ceased to feel the balance wheel of Josephine's influence on his impetuous spirit. General Washington, when important questions were submitted to him, often has said that he shonld like to carry the subject to his bed-chamber before he formed his decisions; and those who knew the clear judgment and elevated purpose of Mrs. Washington thought all the better of him for wishing to make her his confidential counsellor. Indeed, the great majority of men who have acquired for themselves a great and good name, were not only married men, but happily married—both paired and matched.

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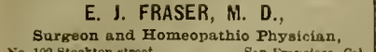
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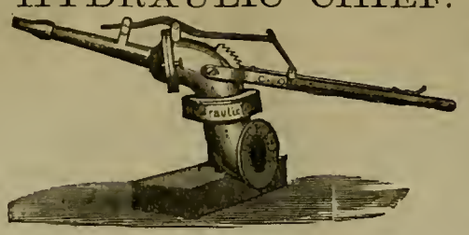
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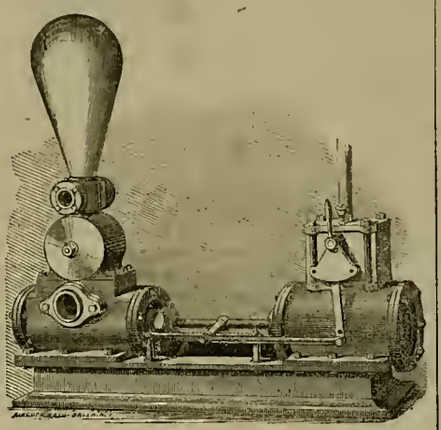
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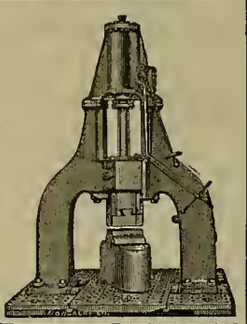
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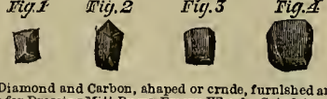
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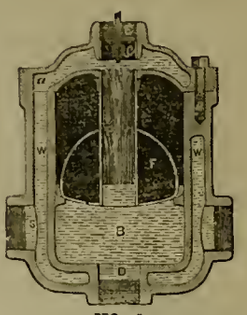
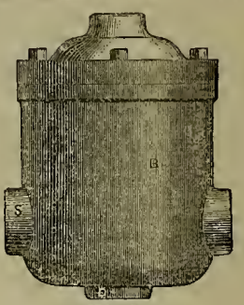

NO. 1.
The annexed engravings represent a Condenser intended to be attached to the ordinary steam pump, thereby bringing it within the class of low pressure, or more properly speaking, of condensing engines; the steam, when it has done its work in the cylinder, instead of being exhausted into the atmosphere, is conducted to the condenser, on its entry into which, it meets the water drawn by the pump, and is immediately condensed.
The Cut No. 1 represents a vertical section of the Condenser, and No. 2 an elevation.
The flange D is bolted to the suction orifice of the pump, and the flange S to the pipe leading to the well, or whatever source of supply the pump may have; W is a water jacket surrounding the main chamber of the condenser, B, and with which the suction pipe, S, communicates, permitting a free circulation of water within the jacket and into the hollow cover or top through the series of openings, one of which is shown at A, and from thence into the body of Condenser, B, through pipe P, carried by float F, the pipe P also acts automatically as a valve to enlarge or contract the space through which the water enters it, by which means the possibility of the condenser being at any time flooded is avoided. The pipe P, it will be observed, also acts as guide to float F.
The valve, O, (shown in Cut No. 1), which is raised or lowered by means of screwed stem—shown coming through elbow in Cut No. 2—is for the purpose of increasing or decreasing the flow of water according to the capacity of the pump to which it is attached.

NO. 2.
The exhaust pipe from steam cylinder is screwed into cover at E; the exhaust steam is thus thrown directly into contact with the water entering the condenser on its way to water cylinder of pump through D. A vacuum being of course immediately formed, acts on the exhaust side of the steam piston, aiding it in its work. If at any time it is desirable to run the pump without the condenser, it is only necessary to turn the three-way cock, which is placed in the exhaust pipe, into such a position as to cause the steam cylinder to exhaust into the atmosphere; when this is done the pump is perfectly free from the condenser, and acts as if it were not attached. This condenser is specially useful for pumps running in mines, or any other position where trouble is experienced in getting rid of the exhaust steam. Address H. L. BREVOORT,
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13v24-3m

Starlight G. & S. M. Co.

Among the numerous enterprises that have taken new life within the past few months, we are assured that none desire the confidence of the public more than the "Starlight Gold and Silver Mining Co., situated in Humboldt Mining District, Humboldt county, Nevada. The Company's property consists of three mines, located in 1862, and they have lately acquired a fourth by purchase. The company was organized in March, 1863, and work commenced immediately, but in the former way of going below the mine and starting a tunnel before the mine was reached, the funds were exhausted; assessments were levied and not paid, and the property reverted to the few who located the mines, and knew their value. In February of this year, the company reorganized, and became a live company. On the first of March work was commenced on the

Starlight Mine

By sinkiug on the lode. The shaft is now down 60 feet; they have a well-defined vein four feet in width, running north and south, nearly vertical, dipping slightly into the hill; the quartz is of a pink or rose color, and interspersed with mineral. Professor Silliman examined this mine in October, 1864; he reports the following:

On its out-crop, this vein is seen cutting the quartzite iu which it is found—with a course in the main, northwest and dipping southeast about eight degrees from the vertical. It has been opened at this place by a shaft sunk in the adjacent rock, 27 ft. deep. From the bottom of this shaft a cross cut has been run east—to cut the lode—which is here found to be five feet wide, the wall rock is feldsite. The associate minerals in the lode are free gold in small particles, with iron pyrites; also galena which is auriferous and argentiferous and a little copper pyrites and zinc blende. A sample for assay and working test whioh was made up from the vein stuff collected from this location, gave the following result: Gold $47.75; silver $10.53; total, $58.29 to the ton of 2,000 lbs. A tunnel is also started, calculated to strike the vein 411 ft. below the surface, and is now in 460 ft. The rock through which the tunnel was driven, is a hard bluish quartzose feldsite carrying some blende, galena, yellow copper, and veins of calcareous spar.

The mine is situated within three miles of Humboldt station, on the Central Pacific Railroad, with a good wagou road to it; the cañon abounds in springs, a portion of the water of which is carried to the station for the use of the railroad and irrigation. All trains stop at the station, and make the distance from San Francisco in 24 hours.

The Madre Lode,

Recently purchased by the Starlight Company, lies in Florida Cañon, one mile from Humboldt station, and about the same distance from the Starlight lode. Professor Silliman who examined this lode in 1864, says: "This gigantic gold quartz lode, lying in the western slope of the main Humboldt range, is situated in the Cañon next south of Humboldt Cañon, and at an estimated hight of 600 ft. from the river. The lode runs north and south, and is at least 80 ft. wide on the croppings. These croppings are on a scale of magnitude seldom seen anywhere. The quartz is variegated in color, and shows cavities from decomposition of sulphurets. It does not show free gold to the naked eye, hut a careful examination detects minute particles. The amount of quartz available hy simply quarrying on this long extended out crop is something surprising, and is at least adcquate to the supply of a 20-stamp mill for years without deep mining.

A sample of this quartz made up by breakiug fragments promiscuously from various parts of the surface in a working test in a mill, gave to the ton of 2,000 lbs, gold, $41.37; silver, $4.18; total, $44.55. By fire assay the same sample gave $57.78. No metallic particles conld be seen in the samples selected. The lode is peculiarly situated for economical working. It is approached by a gentle grade dowu which the quartz can be taken to the mill by a natural roadway, no grading being necessary. The total cost of treatiug the rock may be stated as follows: Assuming that the quartz is quarried off the surface for which there is an abundant supply.

Breaking out and loading qnartz per ton.	$2 50
Hauling to mill	1 00
Machinery including mercury	1 00
Labor, say 3 men per day and 30 tons crushed	2 50
Total	$7 00

In view of the history of other gold-bearing out-crops in Nevada, the "Madre" may prove a silver-bearing vein in depth. In point of strength of out-crop, it is more like the Gold Hill mines than anything I have seen elsewhere in Nevada. I am able to add to these statements that I saw nothing in the Humboldt rauge, which appeared to hold out such good promise of early return for capital and labor expended as the Madre Lode. Its advantages are:

1st. Its great magnitude and consequent abundance of ore.

2d. Its accessihility and easy approach.

2d. Its comparative richness in gold, and the simplicity of the process of amalgamation, all the metals existing as free metals.

It is thorefore quite plain that if the "Madre" continues to hold its superficial promise, it can be made a rich paying mine.

Mining Accidents.

Gen. A. L. Page, superintendent of the Ingomar mine was severely bruised on the 21st ult. by being precipitated down a shaft, through the disarrangement of the hoisting gear. The brake strap was defective and gave way, letting him down at fearful speed. The lower part of his body was bruised very badly.

At the Eureka mine in Grass Valley a short time since William Rowe sustained injuries in his right eye by being struck with a picce of rock.

A miner was severely hurt in Marcellu's diggings on the 3d inst. according to the Nevada *Gazette*, by a defective blast.

The Missoula *Pioneer*, says that a miner, name unknown was killed by a cave in Deep Gulch, M. T., recently.

A man named Schroeder was killed by a cave on the 1st inst., in a claim near Folsom.

Two miners, named James Sullivan and Jeremiah Blood were killed by a cave in the Mount Diablo coal mines on the 4th inst.

THE GUADALUPE GOLD, SILVER & COPPER M. Co.—This Company filed their certificate of incorporation, March 30th, 1872, the object being to mine for the precious metals in the district Comondu, Lower California.

They have a capital stock of $2,000,000, (instead of $200,000, as has been stated in the papers of this city), divided into 20,000 shares of $100 each, and have placed 5,000 shares in the Treasury to be sold as a working capital, with the expectation of avoiding the necessity of ever levying an assessment on the stock. The mine has been opened to the depth of 115 ft. by a main shaft sunk on the course of the ledge and by two other shafts 50 and 30 ft. deep, 500 ft. apart from north to south, each shaft yielding copper of 90 per cent. Gold assayiug $60 per ton of 2,000 lbs, and silver, $58. We are assured that this is uo stock gambling institutiou, but that the company intend to proceed immediately to develop the mine. We understand that Capt. Wm. Williams, well-known as a mining superintendent on this coast, is to have full charge of the miue, the best guarantee that the mine will he worked legitimately, and in the interests of the stockholders. A. G. Wood, No. 210 Battery street, is the Secretary of the Company, to whom application can be made, for full particulars.

ORES SAMPLED.—J. W. Thurman, 413 and 415 Mission street, crushed and sampled the following lots of ores for the month of March.

294 sks. Antimony, Mill City, Nevada.
1,054 sks Copper ore, Salt Lake, U. T.
2,200 sks. Copper ore, Battle Mountain, Nevada.
142 sks. Silver ore, Prescott Dist., Arizona.
302 sks. Silver ore, Arizona Mill, Nevada.
741 sks. Lead and Silver ore, White Mine, Battle Mt.
38 sks. Silver ore. Eureka Dist., Nevada.
66 sks. Silver ore, Clark Dist., Arizona.

4,837 sks.

The above copper ore from Salt Lake was sold in this market for Bluestoue; the 2,200 from Battle Mountain, copper, was shipped to Liverpool on owners' account. All the above lots of silver ore were purchased by shippers and shipped to Liverpool. Copper ores are very scarce at this time and there is a good demand both for shipment and manufacturing into Bluestone.

New Incorporations.

The following have filed certificates with the County Clerk, San Francisco:

CORONA CONSOLIDATED M. Co.—April 4. Location: Eureka District, Nevada. Capital stock, $5,000,000, in 50,000 shares. Trustees—George D. Roberts, H. P. Coon, D. H. Hall, L. S. Adams and Henry Dutton.

AUBURN G. M. Co.—April 4. Location: Placer county, California. Capital stock, $800,000, in 8,000 shares. Trustees—Geo. D. Roberts, Henry Baker, Stephen W. Lee, T. G. Wright and J. R. Nickerson.

HOWLAND TUNNEL Co.—April 4. Location: Utah. Capital stock, $10,000,000, in 100,000 shares. Trustees—S. Hydenfeldt, Joseph Aaron, Michael Castle, J. Steinhart, and W. H. Howland.

ELIZA M. AND M. Co.—April 5. Location: California. Capital stock, $600,000. Trustees—Geo. W. Marshall, Archibald C. Peachy, Thomas J. Poulterer, Mortiz Mayblum and I. P. Couch.

YUBA GRAVEL M. Co.—April 6. Location: North Bloomfield or Virgin Valley District, Nevada county. Capital stock, $300,000, in 30,000 shares. Trustees—Thos. R. Hayes, John Skinker, C. W. Kellogg, Charles Hosmer and D. R. McKillecan.

UTAH S. M. Co.—April 8. Location: Virginia District, Nevada. Capital stock, 2,000,000, in 20,000 shares. Trustees—A. K. P. Harmon, Chauncy B. Land and John Skae.

OTHELLO S. M. Co.—April 9. Location: Ely District, Nevada. Capital stock, $2,000,000, in 20,000 shares. Trustees—George D. Roberts, J. D. Fry, M. D. Townsend, Wm. H. Sears and J. B. E. Cavallier.

JOLLY TRAVELER M. Co.—April 9. Location: Ely District, Liucoln county, Nevada. Capital stock, $3,000,000, in 30,000 shares. Trustees—J. A. Pritchard, A. P. Cox, Geo. A. Treadwell, C. H. Rumsell and C. W. Rand.

WEBFOOT M. Co.—April 9. Location: Railroad District, Elko county, Nevada. Capital stock, $1,200,000, in 12,000 shares. Trustees—A. J. Roulstone, Hiram H. Colley and A. M. Hough.

EL DORADO SOUTH CONSOLIDATED M. Co.—April 9. Location: Philadelphia M. District, Nye Co. Nevada. Capital stock, $4,000,000. Trustees—A. Hayward, W. F. Leon, J. S. Slauson, H. Epstein, J. Steinhart, W. S. McCormick and A. H. Rutherford.

DESERT CONSOLIDATED M. Co.—April 9. Location: Camp Floyd District, Tooele county, Utah. Capital stock, $3,000,000, in 30,000 shares. Trustees—E. C. Catherwood, E. B. Rail, A. J. Bryant, John Harding and Harvey S. Brown.

EMERALD G. AND S. M. Co.—April 10. Location: El Dorado county, Cal. Capital stock, $250,000, in 2,500 shares. Trustees—Richard O'Neill, H. P. Wakelee, Phillip Cadue, H. W. Seale and Chas. E. McLane.

ORIENT S. M. Co.—Filed an amended certificate of incorporation, April 10. Location: Ely Mining District. Capital stock, $2,000,000, in 20,000 shares. Trustees—S. A. Raymond, Jame A. Pritchard, James Dods, Andrew Kohler and Wm. Hazlehurst.

An amended certificate of incorporation of the Maxim Gas Company was filed, Mar. 10, which increases the capital stock from $600,000 to $1,200,000.

Elections.

At the meeting of the Arizona & Utah mining Co. held on the 8th inst., the following Trustees were elected: Jas. A. Pritchard, M. D. Townsend, W. F. Meyers, W. H. Sears and N. T. Smith; Jos. Maguire was continued as Secretary.

The Murphy Mining Co. elected the following Trustees on the 10 inst. Hill Beachy (Pres.), Thos. Bell, J. H. Boalt, J. W. Gashwiler and J. D. Hague. P. S. Buckminster was continued as Superintendent and J. L. King Secretary.

W. J. Lee, J. E. de la Montanya, Delos Lake, M. Mayblum, and C. O'Connor were elected Trustees of the South Emma mining Co. to-day.

The Hercules Silver mining Co. have elected as follows: Henry Raymond (President), W. H. Sears, C. P. Hall, Geo A. Treadwell and J. T. Milliken (Secretary).

DISCOVERIES.—Placer diggings are reported to have been struck about 13 miles from San Bernardino, in that county. Water being scarce, however, they can only be worked in winter.

A ledge of high grade smelting ore has heen discovered in the Ruhy range, north of the Buckeye aud Champion mines, in Nevada.

Quartz coutaiuing free gold is reported to have been found within a mile and a half of San Diego City.

Another quicksilver lead has been discovered 7 or 8 miles from Cloverdale, between Sulphur aud Squaw Creeks, in Napa County.

A dispatch from Los Angelos dated 10th iust. says that there is a reported discovery of tin and silver in the hills south of Cucomongo, near the Rubidoux rancho. Thirty men are now prospecting the hills. A ledge was found on Monday last. The locality bas been traditionally reported to be rich in mineral wealth.

PACIFIC SAW MANUFACTURING Co.—We have received from the Pacific Saw Manufacturing Co. and N. W. Spaulding, their new price list and circular. This circnlar gives a plain and succiut description of the saw manufacturing business on this coast. Although intended as a price list of the goods made by the company, it nevertheless contains matters of especial interest to every sawyer and millman, or those in any way connected with the business. The trade of this firm has become wide and extensive, and their enterprise and superior workmauship, we are pleased to learn, have driven foreign goods from the market. The circular contains tables for the measurement of logs up to 96 inches in diameter, which must prove valuable to millmen. The circular is illustrated with numerous cuts, showing the rooms of the factory, the process of making saws, sawteeth, saw-machinery, and it presents the neatest and best typographical appearance of any similar publication we have ever seen. It was printed by Spaulding & Barto. A large portion of the edition will be furnished for Eastern circulation through the branch establishment of the house here.

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

ASSESSMENTS.

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	DAY DELINQUENT.	DAY OF SALE.
Alps S. M. Co. Nev., March 1, 75c	April 9	April 30
Bloomfield Gravel M. Co. Cal., Feb. 23, $3. Mar. 27	Apr. 13	
Buckeye M. Co., Nev., Mar. 23, $1.25	April 26	May 15
Cons. Virginia M. Co., Nev., Mar. 19, $3. Apr. 24	May 18	
Daney M. Co., Lyon Co., April 3, $1.50	May 9	May 27
Francis M. Co., Cal., April 6, $1	May 14	June 4*
Gould & Curry, Nev., Jan. 30, $15	Mar. 4	April 26
Grand Duke M. Co., U. T., Mar. 5, 25c	April 15	May 15
Ida Elmore, Idaho, March 6, $3	April 11	May 10
Ingomar S. M. Co., Ely, April 2, 25c	May 8	May 31*
Hanh & Hunt S. M. Co., Nev., Mar. 20, 25c.	Apr. 29	May 27
Jackson M. Co., Nev., April 3, 25c	May 6	May 25
Knickerbocker M. Co. Nev., Mar. 23, 50c.	Apr. 27	May 17
Lemon M. and M. Co., Eureka, Apr 1, $1.	May 7	Jun 12
Louisi M. Co., Nevada, April 6, 10c	May 14	June 10
Lyons & Wheeler Co., A. T., April 6, 10c.	May 15	June 3*
Mahogany M. Co., I. T., April 3, $1.50	May 11	June 3
Marcelina S. M. Co. Mar. 8, 10c	April 15	May 7*
Mt. Jefferson M. Co., Cal., Apr. 3, 30c	May 6	May 22*
Nevada L. & M. Co., Nev., March 28, 4c.	May 2,	May 24*
Nuestra Senora de Guadelupe, May 12, $2. Ap 15		May 8*
Ophir S. & G. M. Co. Cal. Mar. 18, 20c.	April 20	May 7
Overman S. M. Co, Gold Hill, Mar. 18, $4. Apr. 13		May 13
Pacific Borax Co., Nev. Feb. 23, 15c.	March 28	April 16
Peter Walter M. Co. Placer Co. Mar. 11, $1. Apr. 18		May 6
Phœnix S. M., Nev., Mar. 19, 75c	April 24	May 15
Pocahontas G. M. Co., Cal., Feb. 25, $5.	April 6	May 6*
Quail Hill M. & W. Co., Cal. Feb. 15, $5, Mar. 26	April 16	May 6*
San Buenaventura Co. Cal., Jan. 19, $1.	Feb. 29	Mar. 29
Siempre Viva Co., Mex., Mar. 25, 30c	May 2	May 20*
South Eureka, Nev., Mar. 2, 15c	April 4	April 23
S. Gold Hill M. Co., Nev., Apr 1, $2.50	May 6	May 27
Spring Mt. Tunnel Co., March 12, 15c.	April 22	May 12*
Succor M. & M. Co., Nev., Mar. 20, $2.	April 23	May 15
Tallulah M. Co., Nev., April 5, $1.50	May 7	June 4
Tecumseh G. S & C. M. Co. Cal. Mar. 20, $3. Apr. 23		May 14*
Union G. M. Co., Cal., April 11, $1	May 13	June 3*

MEETINGS TO BE HELD.

Best & Belcher M. Co	Meeting May 13
Eureka M. Co	Annual Meeting May 7
Hale and Norcross	Special Meeting April 13
Huhn & Hunt S. M. Co	Annual Meeting, April 22
Independent G. M. Co	Meeting May 8
Kinston M. Co	Annual Meeting April 20
Spring Mountain Tunnel Co	Annual Meeting May 9
Nevada Land and M. Co	Special Meeting April 25
Red ngton Quicksilver M. Co.	Annual Meeting April 18

LATEST DIVIDENDS—(Within Three Months).

Belcher, $20	Payable April 10
Chollar Potosi, $1	Payable Feb. 10
Crown Point, $25	Payable April 12
Eastport, Coose Bay, Coal M. Co. 1 perct.	Payable Feb. 12
Eureka Gold M. Co., $1	Payable March 11
Keystone M. Co., $7.50	Payable April 10.
Meadow Valley M. Co., $1.50	Payable April 13
North Star G. M. Co., $7	Payable April 9
Raymond & Ely, $5	Payable March 8
Raymond & Ely M. Co., $7	Payable April 9
Yule Gravel M. Co., 50c	Payable April 10

—*Advertisecl in this journal.

San Francisco Metal Market.

Corrected weekly by Hooker & Co., 117 and 119 Cal. street

PRICES FOR INVOICES

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

THURSDAY, April 11, 1872

IRON.—			
Scotch and English Pig Iron, ₱ ton	$55 00	@	60 00
White Pig, ₱ ton	52 00	@	—
Refined Bar, bad assortment, ₱ lb	— 05½	@	— 06
Refined Bar, good assortment, ₱ lb	— 06	@	— 07
Boiler, No. 1 to 4	— 05	@	— 06
Plate, No. 5 to 8	— 08	@	— 09
Sheet, No. 10 to 13	— 06½	@	— 07
Sheet, No. 14 to 26	— 07	@	— 09
Sheet, No. 24 to 27	— 06	@	— —
Horse Shoes	8 00	@	
Nail Rod	11		
Norway Iron	9		
Rolled Iron	6		
Other Irons for Blacksmiths, Miners, etc.	6	@	7
COPPER.—			
Sheathing, ₱ lb	— 24	@	— 28
Sheathing, Yellow	— 24	@	— 26
Sheathing, Old Yellow	— 11	@	— 11½
Composition Nails	— 24		—
Composition Bolts	— 24		—
TIN PLATES.—			
Plates, Charcoal, IX ₱ box	12 00		— —
Plates, I C Charcoal	10 00		10 50
Roofing Plates	11 00		— —
Banca Tin, Slabs, ₱ lb	— —		— 45
STEEL.—English Cast, ₱ lb	— 16		— 17
Drill	16		17
Flat Bar	17		20
Plough Points	3 75		
Russia (for mould boards)	12½		
QUICKSILVER.—₱ lb	— —		— 85
LEAD.—Pig, ₱ lb	— 06		— 06½
Sheet	— 08		— 8½
Pipe	— 9		— 10
Bar	— 08		— 09
ZINC.—Sheets, ₱ lb	— 10		— 10½
BORAX.—Refined	— 25		— 30
Borax, crude	— 5		— —

50 CENTS A COPY

Will be paid at this office for a few copies of the SCIENTIFIC PRESS of January 14, 1871. Subscribers having broken files on hand will please examine and see if they cannot accommodate.

WM. H. LAMB is requested to communicate with this office.

State University.—The next term of the Preparatory Department will begin April 20th, 1872.

The course of study embraces the Ancient and the Modern Languages and the higher Mathematics, and is specially adapted to the University curriculum.

Terms, $12 a term. GEORGE TAIT, Oakland.
13v3hp-tf

RICHARD H. BUEL, Consulting Mechanical Engineer, 7 Warren Street, New York. Advice and assistance given to those who desire to invest funds in meritorious and valuable Patent Rights. Machinery of all kinds bought and sold. Unusual facilities for testing engines, boilers and other machinery. I refer particularly to Professor R. H. Thurston, of the Stevens Institute of Technology, who has consented to associate himself with me in consultation on matters of special importance.
10v24-13t

$5 TO $20 PER DAY AND NO RISK.—Do you want a situation as salesman at or near home to introduce our new 7-strand White Wire Clothes Lines, to last forever. Don't miss this chance. Sample Free. Address Hudson River Wire Works, 75 William street, N. Y., or 1 Dearborn street, Chicago, Ill. 23v1-12mbp

LADIES DESIRING TO PROCURE A FIRST-CLASS SEWING Machine against easy monthly installments may apply to No. 294 Bowery, 157 E. 26th, 477 9th Ave., New York Good work at high prices if desired. 21v1-12mbp

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the Scientific Press, we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

Francis Mining Company--Location of works, Mariposa County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 6th day of April, 1872, an assessment of one dollar per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary of the company, 409 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 14th day of May, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 4th day of June, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale.
By order of the Board of Trustees.
T. J. CRONISE, Secretary.
Office, 409 California street, San Francisco, Cal.

Ingomar Silver Mining Company—Location of works, Ely Mining District, Lincoln County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 2d day of April, 1872, an assessment of 25 cents per share was levied upon the capital stock of said company, payable immediately, in U. S. gold coin, to the Secretary, at the office of the company, Room 21, Hayward's Building, 419 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Wednesday, the 8th day of May, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Friday, the 31st day of May, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale.
By order of the Board of Trustees.
CHAS. S. NEAL, Secretary.
Office, Room 21, Hayward's Building, No. 419 California street, San Francisco, California. ap6-4t

Lyons & Wheeler Mining Company—Location of works, Maynard Mining District, Mohave County, Arizona Territory.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 6th day of April, 1872, an assessment of Ten Cents per share was levied upon the capital stock of said Company, payable immediately, in United States coin, to the Secretary, at the office of the company, Room 3, No. 419 California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on Wednesday, the 15th day of May, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 3d day of June, 1872, to pay the delinquent assessment, together with the costs of advertising and expenses of sale. By order of the Board of Trustees.
T. W. COLBURN, Secretary.
Office, Room 3, No. 419 California street, San Francisco, California. ap13

Mount Jefferson Milling and Mining Company—Location of works, First Garote, Tuolumne County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 3d day of April, A. D. 1872, an assessment of Thirty Cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company. Any stock upon which said assessment shall remain unpaid on Monday, the 6th day of May, A. D. 1872, shall be deemed delinquent, and will be duly advertised for sale, at public auction, and unless payment shall be made before, will be sold on Wednesday, the 22d day of May, A. D., 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. J.W. CLARK, Sec'y.
Office, 418 California St., San Francisco. ap13-3w.

Marcelina Silver Mining Company.—Location of Works: Eureka District, Lander County, Nevada.

Notice is hereby given that at a meeting of the Board of Trustees of said company held on the eighth day of March, 1872, an assessment of ten cents per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company, Room 21, Haywsrd's Building, 419 California street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the fifteenth day of April, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the seventh day of May, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.
CHAS. E. ELLIOTT, Secretary.
Office, Room 21, Hayward's Building, 419 California street, San Francisco, California. mar19-3w

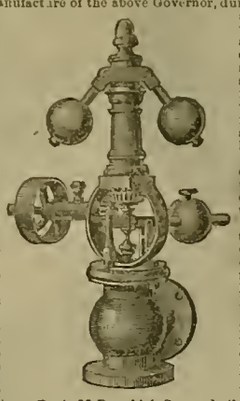
Nevada Land and Mining Company---Location; Spruce Mountain, Antelope and Clifton Mining Districts, Elko County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 28th day of March, 1872, an assessment of four cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the Co.'s office, room 5, No. 302 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Thursday the 2d day of May, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Friday the 24th day of May, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.
WM. H. WATSON, Secretary.
Office—Room 5, No. 302 Montgomery st., San Francisco, California. mar30-td

THE GARDNER AUTOMATIC SAFETY-STOP GOVERNOR.

These Governors have now been sold in this market for several years, and wherever once introduced and made known, are invariably sought after. They are in the Eastern States fast displacing all other Steam Governors, and are regarded as *the perfect regulator*. They are manufactured by Messrs. Gorchur & Roberts n, practical engineers, who have given many years time exclusively to their manufacture and perfection. The manufacturers say: After an experience of eleven years in the manufac ure of the above Governor, during which time several important improvements have been made and two additional patents obtained, we feel justified in recommending it to all parties using Steam power, and warranting it to be the most perfect regulator in the market.



The Gardner Governor is so well known that we think it unnecessary to enter into a detailed explanation of the principles involved, or details in its construction, merely giving the leading objects realized by this important invention. The Gov-nor combines with the greatest simplicity of construction, accurate regulation of speed, POSITIVE INSURANCE AGAINST ALL ACCIDENTS LIABLE TO OCCUR FROM SLIPPING OR PARTING THE GOVERNOR OR DRIVING BELTS, and a convenient arrangement for ADJUSTING THE SPEED OF THE ENGINE WHILE IN MOTION, without change of pullies.

The construction of the Governor is extremely simple, having no springs, fusible joints, swivels, or parts liable to disarrangement, all the several parts are duplicates of each other in the same series; the most skillful workmen are employed, the best material used and the machinery employed especially adapted to their manufacture. The valve is most PERFECTLY BALANCED, and the Governor is built with a view of securing the quickest and most sensitive action possibly attainable in a steam regulator. Thus with accurate machinery, and skilled labor, and devoting our WHOLE ATTENTION to the manufacture of THIS ONE ARTICLE, we are able to produce a perfect and reliable Governor at a low price.

We do not publish any letters of recommendations, but can give references to upwards of 5,000 PARTIES THROUGHOUT THE UNITED STATES, who are using the Gardner Governor.

We would especially invite the attention of Steam Engine Builders to this Governor, feeling assured that they can purchase for less than they can make an inferior article, and thereby increase the value and sales of their Engines.

We respectfully refer to the following parties using the GARDNER GOVERNON, and can speak understandingly of its merits: Oakland Cotton Mills, the Selby Lead and Silver Smelting Works, L. & E. Emsnuel, Vulcan Iron Works, Fulton Foundry, Levison Bros., Cal. Jewelry Co., Pioneer Woolen Factory, D. A. McDonald & Co., and others in San Francisco; Ophir Co., Lady Bryan, and Sacramento and Meredith Mills, John McCone, Virginia, Nev.; Globe Iron Works, Stockton; A. F. Chury, Albany, Oregon, and many others.

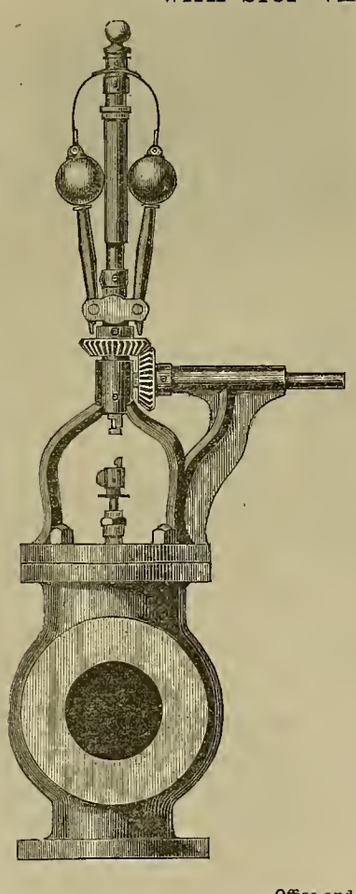
☞WE WARRANT these Governors to give perfect regulation of speed under all circumstances; and if there is one within one thousand miles of San Francisco, that is not giving perfect satisfaction, it may be returned to us at our expense, and we will exchange it for any other Governor in the country, or refund its price.

☞When ordering please state whether THROTTLE-VALVE is wanted or not; and whether BLOCK or FINISHED Governor is desired. ***THE RATE OF SPEED FOR GOVERNOR IS FULLY STAMPED ON THE REVOLVING HEAD OF EVERY GOVERNOR. Send for circular and price list to

TREADWELL & CO.,
Agents for Pacific States, San Francisco.

☞At Treadwell & Co.'s (late BERRY & PLACE'S) Machinery and Supply Depot may be found in stock the above Governors, together with all sizes of HOADLEY'S PORTABLE ENGINES, BLAKE'S STEAM PUMPS, STURTEVANT BLOWERS, PORTABLE DRILLS, TAPS AND DIES, DREYFUS'S CYLINDER LUBRICATORS, Etc. Also a heavy stock of HARDWARE AND MINING TOOLS, LEATHER BELTING, LINEN HOSE, BOILER FELT (saves 25 per cent. of fuel), SELF OILERS, LACE LEATHER, STEAM PACKING (all kinds), BELT STUDS, Etc., Etc., embracing every description of Engineers' and Machinists' supplies and Millmen's findings. 7v24-tf

HENDY'S
Improved Lamont Steam Engine Regulator,
WITH STOP VALVE ATTACHED.



PERFECTLY RELIABLE.

Rapidly Superceding all other

GOVERNORS

Wherever introdnced.

We Invite the Attention of those

INTERESTED IN OR USING

STEAM ENGINES,

TO OUR

IMPROVED REGULATOR AND CUT-OFF,

FOR EITHER

Stationary or Portable

ENGINES.

An Examination Will

BE SUFFICIENT TO SATISFY THE

MOST SKEPTICAL

OF ITS UTILITY AND

SIMPLICITY,

And the many References in Our Possession

FROM ENGINEERS WHO ARE

Using them, attest their

PRACTICAL SUPERIORITY

Over all others.

We refer to Union Iron Works; Pacific Iron Works; Fulton Iron Works; M. Taylor, Grass Valley; Phœnix Quicksilver Mining Co., Napa Co.; Samuel McCurdy, Nevada Co., and others.

JOSHUA HENDY,
Office and Works, 32 Fremont Street, San Francisco.
Hendy's Ore Concentrators and Circular Saw Mills. 4v24-1am-tf

Spring Mountain Tunnel Company, Ely Mining District, Pioche, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 12th day of March, 1872, an assessment of fifteen cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, Room 37, Merchants' Exchange, California street, city and county of San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the 22d day of April, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 13th day of May, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. M. BUFFINGTON, Secretary.
Office, Room 37, New Merchant's Exchange, California street, San Francisco, California. mar16-td
San Francisco, March 16, 1872

Tecumseh Gold, Silver and Copper Mining Company.—Location of works, Gopher District, Calaveras County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 20th day of March, 1872, an assessment of Three ($3.00) dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, F. J Herrmann, at the office of the company, No. 634 Washington street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 23d day of April, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 14th day of May, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

F. J. HERRMANN, Secretary.
Office 634 Washington street, Room No. 2, up stairs, San Francisco, Cal. Office hours from 11 A.M. to 2 P.M. m23-4t

Union Gold Mining Company.---Location of works, Howland Flat, Sierra county, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 11th day of April, 1872, an assessment of one dollar ($1.00) per share was levied upon the capital stock of said Company, payable immediately in United States gold coin, to the Secretary, at the office of the Company, Room No. 22, Merchants' Exchange Building, California street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the 13th day of May, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 3d day of June, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. ALFRED K. DENHOW, Secretary.
Office—Room No. 22, Merchants' Exchange Building, California street, San Francisco, California. sp13-td

Nuestra Senora de Guadelupe Silver Mining Company.—Location of Works: Tayoltits, San Dimas District, Durango, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twelfth day of May, 1869, an assessment of two dollars per share was levied upon the assessable capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, E. J. Pfeiffer, No. 210 Post street, or to the Treasurer, A. Himmelmann, No. 637 Washington street, San Francisco, to settle the indebtedness of the said Company.

And whereas there has been an error in the course of proceedings for the collection of said Assessment, by reason of which, as provided by law, all previous proceedings, except the levying of the Assessment, are void, and publication required to be begun anew, NOW, therefore, by order of the Board of Trustees of said Company, at a meeting of said Trustees, held on the eighth day of March, 1872, said Assessment is hereby re-published, and notice thereof given as follows, to wit:

Nuestra Senora de Guadelupe Silver Mining Company.—Location of Works: Tayoltits, San Dimas District, Durango, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twelfth day of May, 1869, an assessment of two dollars per share was levied upon the assessable capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, E. J. Pfeiffer, No. 210 Post street, or to the Treasurer, A. Himmelmann, No. 637 Washington street, San Francisco, to settle the indebtedness of the said Company.

Any stock upon which said assessment shall remain unpaid on the fifteenth day of April, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the eighth day of May, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.
E. J. PFEIFFER, Secretary.
Office, No. 210 Post street, San Francisco, California.

Ophir Copper, Silver and Gold M. Company—Location of Works, Ophir, Placer County, Cal.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 18th day of March, 1872, an assessment of twenty (20) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, N. E. Cor. Sansome and Halleck Sts., entrance on Halleck street, San Francisco. Any stock upon which said assessment shall remain unpaid on the 20th day of April, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 17th day of May, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. R. G. BRUSH, Secretary.
Office, N. E. Corner Sansome and Halleck Streets, S. F.

Quail Hill Mining and Water Company---
Location of works: Calsverss County, California.

NOTICE.—There are delinquent upon the following described stock, on amount of assessment levied ou the 15th day of February, 1872, the several amounts set opposite the nsmes of the respective sharcholder ss follows.

Names.	No. Certificate.	No. Shares.	Am't.
F. S. Spring, Trusteo....	44	120	600
E. F. Dennison.....	42	1	5
A. E. Hill, Trustee.....	40	7	35
A. E. Hill, Trustee.....	39	120	600
A. E. Hill, Trustee.....	37	110	595
A. E. Richardson, Trustee	36	60	300
A. E. Hill, Trustee.....	31	50	250

And in accordance with law, snd sn order of the Board of Trustees, made on the 15th day of February, 1872, so msny shares of esch parcel of said stock as may be necessary, will be sold st public suction, at the office of the Company, No. 409 California street, San Frsncisco, California, on the 16th day of April, 1872, at the hour of 12 o'clock M., of said dsy, to pay said delinquent assessment thereon, together with costs of advertising snd expenses of sale. T. F. CRONISE, Secretary.
Office, 409 Csliforuis street, San Francisco, Cal.
mar30-3t

Siempre Viva Silver Mining Co.—Location of works, District of Zaragoza, Sinsloa, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 25th day of March, 1872, an assessment of 25 cents per share was levied upon the capital stock of said company, payable immediately, in U. S. gold coin, to the Secretary, at the office of the company, No. 314 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Thursday, the 2d day of May, 1872, shall be deemed delinquent, and will be duly advertised for sale st public auction, and unless payment shall be made before, will be sold on Monday, the 20th day of May, 1872, to pay the delinquent assessment together with costs of advertising and expenses of sale. By order of the Board of Trustees.
JOHN F. LOHSE, Secretary.
Office, No. 314 California street, San Francisco, Cal.

LIGHTNING CAN OPENERS,

For Sale, Wholesale and Retail, by

WIESTER & CO., General Agents.

No. 17 New Montgomery street, San Francisco.

☞ Samples sent by mail, post paid, for 75 cts.

For Steam Pipes & Boilers **Hair Felting**

SAVES 25 PER CENT. OF FUEL—An item worth looking after. Also, Steam Governors, Tube Scrapers, Steam Pumps, Self-Oilers, Cylinder Cups, Belting, Lacing, Hose, Fuse, Packing, etc., including all kinds Miners', Engineers' and Millmen's Supplies, at the Machinery and Supply Depot of TREADWELL & CO.; old stand, Market street, head of Front, San Francisco.
13v24eow

$1,000 REWARD! For any case of Blind, Bleeding, Itching, or Ulcerated Piles that **De Bing's Pile Remedy** fails to cure. It is prepared expressly to cure the Piles and nothing else. Sold by all Druggists. Price $1.00.
C. F. RICHARDS & Co., Agents, corner Clay and Sansome streets, San Francisco, Cal. 8v24-1y

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Machinists and Foundries.

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO

IRA P. RANKIN, A. P. BRAYTON,
GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS

Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

☞ Particular attention paid to Jobbing Work and Repairs.

N. B.—Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR.

18v20-3m GODDARD & CO.

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Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

E. corner of Tehama and Fremont streets, above Howe street, San Francisco. 3-qy

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GEORGE T. PRACY,
MACHINE WORKS,

109 and 111 Mission Street,

SAN FRANCISCO.

These Works have lately been increased, by additional Tools, and we are now able to turn out any kind of work, equal to and cheaper than any establishment in the State; that is to say:—

STEAM ENGINES,

Flour and Saw Mills,

QUARTZ MACHINERY

Printing Presses,

AND MACHINERY MADE OF EVERY DESCRIPTION.

Improved Safety Store Hoists,

Fitted with Cutting's Patent Cams, unequaled for safety, convenience and cheapness. This Hoist can be built for about half the price of any other in use. To be seen at HAWLEY & CO.'S.

ALSO, MANUFACTURER AND SOLE AGENT FOR

Pracy's Celebrated Governor.

TURNING LATHES, Etc., constently on hand.

4v23tf

UNION IRON WORKS,

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MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR

WILCOX'S PATENT WATER LIFTERS,

Dunbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,

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PACIFIC
Rolling Mill Company,

SAN FRANCISCO, CAL.

Established for the Manufacture of

RAILROAD AND OTHER IRON

—AND—

Every Variety of Shafting,

Embracing ALL SIZES of

Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames

—ALSO—

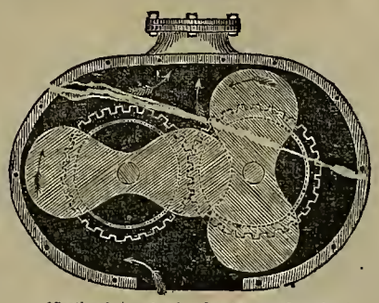
HAMMERED IRON

Of every description and size.

☞ Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention

☞ The highest price paid for Scrap Iron 9v14m

ROOT'S PATENT FORCE BLAST ROTARY BLOWER,



[Sectional view showing the pistons and gearing.]

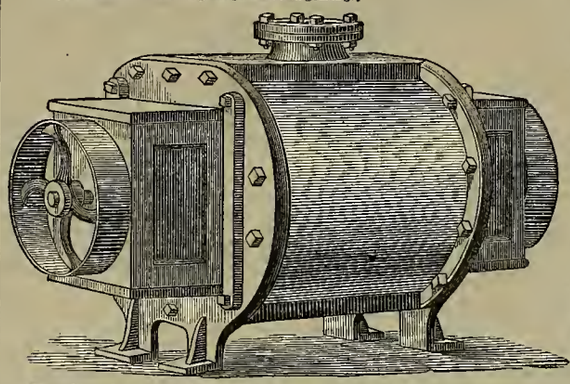
MANUFACTURED AT THE

GLOBE IRON WORKS,

Stockton, Cal.

Awarded the First Premium at the Paris Exposition.—Patented November 1, 1864; July 24, 1866; and October 9, 1866.

Adapted for Smelting, Foundry, Mining and Steamships. Requires 50 Per Cent. less power than any Blower now in use.



One of these Blowers may be seen at W. T. Garrett & Co.'s Brass Foundry, San Francisco; Gould & Curry and Savage S. M. Co.'s, Nevada; and at C. P. R. R. Co.'s Works, Sacramento; and other places on this coast.

CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article. Quartz, Saw and Grist Mill, Iron, Stationary and Steamboat Engines, Horse-Power and Pumps, of all Sizes.

For Circulars and further information, Address

4v24tf GLOBE IRON WORKS, STOCKTON, CAL.

CAMERON'S

STEAM PUMPS.

PICKERING'S

Engine Regulators.

GIFFARD'S

INJECTORS.

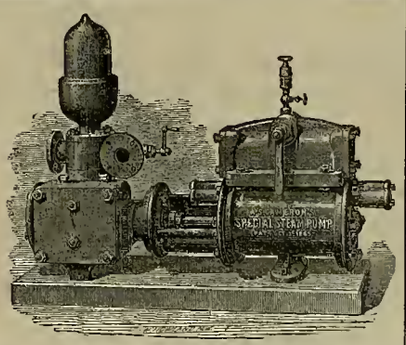
BARTOL'S

STEAM TRAP.

Surface Condensers.

DAVID STODDART,

114 BEALE STREET, S. F.



San Francisco Boiler Works, 123 and 125 Beale Street, San Francisco.

F. I. CURRY (late Foreman of the Vulcan Iron Works), Proprietor.

High and Low Pressure

BOILERS

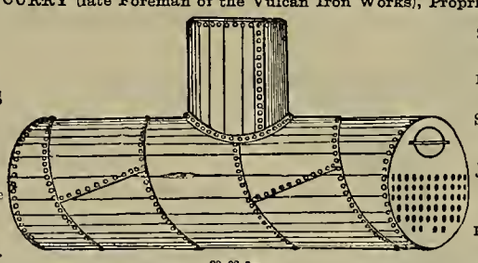
of all descriptions.

SOLE

Manufacturers of the

CELEBRATED

SPIRAL BOILER.



Sheet Iron Work of every DESCRIPTION done at the Shortest Notice.

All kinds of

JOBBING

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Promptly Attended to.

22v22-3m

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Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1868.
CAPITAL.....$1,000,000.

LOCATION OF WORKS:
Corner of Beale and Howard Streets,
SAN FRANCISCO.

Manufacturers of Steam Engines, Quartz and Flour Mill Mechinery, Steam Boilers (Merine, Locomotive and Stationary), Marine Engines (High and Low Pressure). All kinds of light and heavy Castings at lowest prices. Cems and Tappets, with chilled faces, guaranteed 40 per cent. more durable than ordinary iron.

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Wm. Norris, Wm. H. Taylor, Lloyd Tevis,
James D. Walker.

WM. H. TAYLOR.....President.
C. E. McLANE.....Vice President.
JOSEPH MOORE.....Superintendent.
LEWIS R. MEAD.....Secretary.

24v17-qy

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137 and 139 First st., near the Gas Works, San Francisco.

STEIGER & BOLAND,

IRON FOUNDERS.

IRON CASTINGS of all descriptions st short notice.

NOTICE.—Particular attentfon paid to the making of Superior Shoes and Dies. 3v24-3m

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Miners' Foundry and Machine Works,

CO-OPERATIVE,

First Street, bet. Howard and Folsom, SAN FRANCISCO.

Machinery and Castings of all kinds.

COPARTNERSHIP NOTICE.

We have this dsy admitted Mr. William R. Eckert as a member of our firm, the business of which will be hereafter conducted under the firm name of Prescott, Scheidel & Co. PRESCOTT & SCHEIDEL.

Marysville, Jan. 8, 1872.

MARYSVILLE FOUNDRY.

Referring to the above, we respectfully solicit the patronage which has for the past twenty years been enjoyed by our predecessors, pledging our best attention to the wants of all who may so favor us.

Quartz and Amalgamating Machinery,

SAW AND GRIST MILLS,
STEAM ENGINES,
HYDRAULIC MACHINES,
HOUSE FRONTS, ETC.

Repairs upon all kinds of machinery promptly made and at moderate charges. Having unrivalled facilities, we are prepared to make to order, at short notice, everything required in our line.

Specimens of our work may be seen in all the mining regions on this coast.

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CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,

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ALL KINDS of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch

☞ PRICES MODERATE. ☜

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H. J. BOOTH & CO.,
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(The Oldest and most Extensive Foundry on the Pacific Coast).

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Marine, Locomotive and Stationary Engines, Quartz Crushing and Amalgamating Machines, Mill Irons and Brass and Iron Castings, of every description, made to order.

Steamboat Repairing, Boiler Making, Turning and Finishing,

EXECUTED WITH DISPATCH.

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A complete set of Machinery of our own design and patent for extracting oil from Castor Bean, dispensing with Heir Cloth. Also Machinery for Flax Seed Oil, Mustard Seed Oil, and Sun Flower Seed Oil.

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Irrigating Pumps. Steam Pumps.

Plans, Estimates, and Advice promptly supplied.

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SCREW BOLT WORKS,

PHELPS BROTHERS, Proprietors,

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FERRACUTE MACHINE WORKS,

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PRESSES, DIES and all FRUIT CANNERS TOOLS a specialty.

Improved 3-lb. Can Press for $65; Rotary Solder Cutter, $15, etc. 13v24-13t

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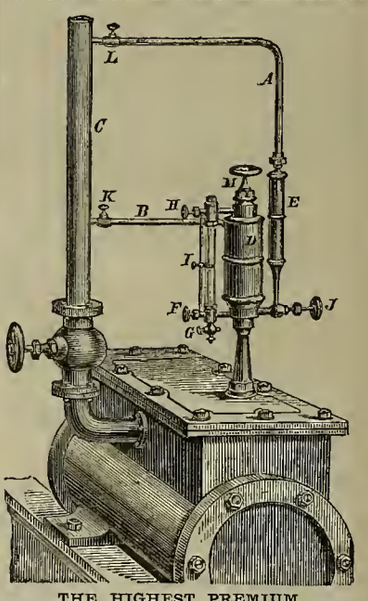
Machinery.

N. Seibert's Eureka Lubricators.



THE HIGHEST PREMIUM

Awarded by the Mechanics' Institute Fair, San Francisco, and State Fair, Sacramento, 1871.

These Lubricators are acknowledged by all engineers to be superior to any they have ever used; feed constantly by pressure of condensed water supplied by pipe A, regulated under the oil by valve J, and forced out through check valve and pipe B into the steam pipe C; it then becomes greasy steam, passes to all the valves and cylinder at every stroke of the engine; glass tube I indicates amount used per hour. Packing on rods and stems lasts longer, and the rings on the piston will not corrode. One pint of oil will last from three to six days, according to speed and size of engine; I, sliding gauge; K, valve to shut off when engine stopps; H, F, valves to shut off in case of frost; steam does not enter the cup; it is always cool; warranted to give satisfaction. Patented February 14, 1871. Manufactured by California Brass Works, 125 First street, S. F. 24v23tf

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McAFEE, SPIERS & CO.,

BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco.

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Potrero, Solano street, bet. Tennessee and Minnesota streets, SAN FRANCISCO.

Manufacturers of New Files.

Old Files re-cut and warranted equal to new.

REAPER AND MOWER SECTIONS, BARS AND KNIVES COMPLETE,

at a saving of 50 per cent. Orders from the country promptly attended to. 9v19-by

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Notice is hereby given, that the copartnership heretofore existing between A. J. Severance, Charles W. Randall and J. Gus. Burt, under the firm name of "Severance, Holt & Co.," is this day dissolved by mutual consent. A. J. Severance, having purchased all the interest of his late partners, will continue the business of manufacturing and selling Diamond Drills, as before, under the style of A. J. Severance & Co.

Dated San Francisco, Nov. 24, 1871.
Office, 315 California street. A. J. SEVERANCE,
CHAS. H. RANDALL.
22-v23-tf J. GUS. BURT.

THEODORE KALLENBERG,

MACHINIST,

and Maker of Models for Inventors. All kinds of Dies, Stamps and Punches made. Also, all kinds of Small Gears Cut.

Repairing done on very reasonable Terms and in the best manner. No. 32 Fremont street, S. F. 19v23-3m

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CARRIAGE SPRING WORKS,

218 Fremont street, bet. Howard and Folsom, SAN FRANCISCO.

LOCOMOTIVE, CAR,

And all kinds of Carriage and Wagon Springs made to Order and Warranted.
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CALDWELL'S

Improved Stop Governor,

Manufactured at the CYCLOPS MACHINE WORKS, 113 an 115 Beale street, San Francisco.
3v24-3m WM. CALDWELL.

The Hesse Grinder and Amalgamator.

BEST IN USE!

Especially well adapted for the **Reduction of Sulphuret Ores.**

LORD & PETERS, Agents,
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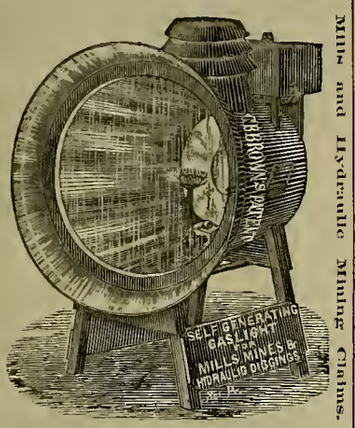

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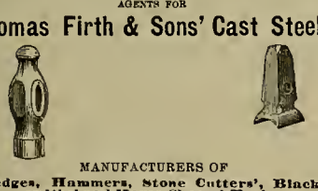

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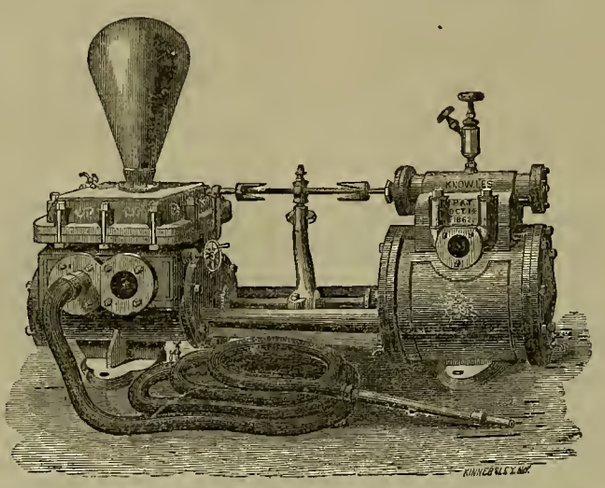

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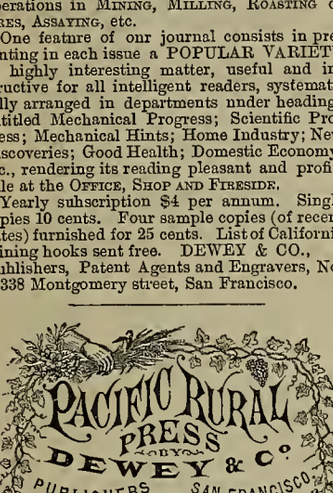

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4.00 P. M.* Sacramento Steamer (from Broadway Wharf). Connecting at Vallejo with trains of California Pacific Railroad.

2.00 P. M.* Steamer Antelope, from Broadway Wharf, connecting at Donahue with Trains of S. F. and North Pacific Railroad.

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Progress in the Telegraphic Art.

Telegraphing Both Ways, Simultaneously, on a Single Wire.

Some considerable interest has been attracted during the past few weeks, to the new improvement in telegraphing recently introduced upon this coast by the Western Union Telegraph Co., which consists in the feat of sending messages, in opposite directions, simultaneously, upon a single wire! The attempt has frequently been made to perform a simular feat with railroad traine upon a single track, but hitherto without success; but in telegraphy the thing is now actually accomplished, as may be seen every day at the Western Union Telegraph office, on California street.

When the electric telegraph was first brought into practical operation by the late Prof. Morse, it required two wires to completo the circuit and convey a signal from one point to another. Subsequently, however, it was discovered that by carrying a wire down into the earth at each end of the line, one wire could be dispensed with—the earth and two ground wires taking the place of the return wire. This was considered at the time the *ne plus ultra* of telegraphing. But science knows no limit to progress, and scarce ten years had passed ere the single line gave promise of becoming double, by an ingenous device—the germ of the double transmission system above referred to. For several years after the first inception of this invention by Frischer, of the then Kingdom of Hanover, improvements were made from time to time until Mr. Joseph Stearns of Boston, Mass., finally produced the device herewith shown, by which the system has now become one of great practical value.

How it is Done.

In the ordinary manner of transmitting signals from one station to another, as from K to K', as shown in the accompanying illustration, when the key at K is depressed and contact made at a with the *positive* pole of the battery, E, a signal is made to pass on through b 1, and the relay M to 3, over the line A B, through 7 and the relay M' to 5, to b' and the *negative* pole, a', of the battery, E'. The ground wires c G and c' G' being adjusted to take the place of the return wire, which was employed, as above said, on the earliest telegraphs. On a main wire, so adjusted, a signal could be sent only one way at the same time. The modification of the device by which it is made possible to transmit signals both ways at the same time is as follows:—

In the ordinary device the relays M and M' were wound with *single* wires in *one* direction; but in the double transmission system, which we will now describe, they are wound with *two* wires in *opposite* directions. The second wire passes from 1 through 2 around relay M to 4, thence through a "resistance coil," X, to the ground wire, c G.

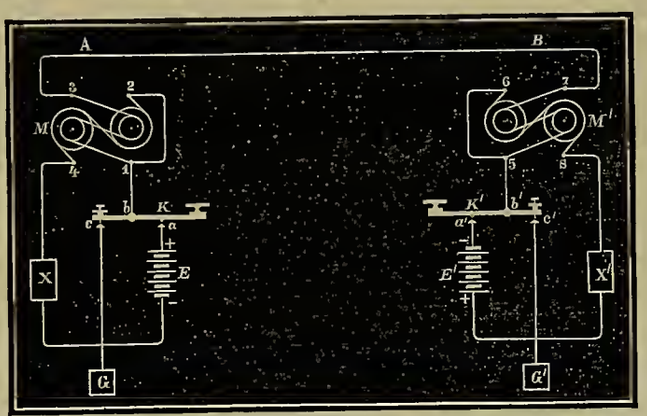
A similar arrangement is connected with the opposite station at B, as shown, where, however, the positive pole of the battery is connected with the ground.

The result of this arrangement is that when a current is sent from the battery, E, it is divided at 1, one-half passing through the relay, M, by the wire wound, say from left to right, and *via* 1 and 3 to the main line of wire, A, and station at B; while the other half passes through the relay by the wire wound from right to left and *via* 2 and 4 through X to the ground wire c, G. The same connection and division of currents will be noticed by the corresponding lettering of the station at B—the half current passing thence to the station at A.

It is by this *division* of the electric current—one-half going to the ground and the other over the wire—that it is found possible to send messages both ways at the same time, without any interference of the one with the other.

It must not be understood, however, that any portion of the signals are conveyed by the *ground current*, as some of our Eastern scientific cotemporaries have stated. All the signals pass and repass over the one main wire. The philosophy of the thing is well understood by such electricians as have made the subject a matter of study; but it is rather too abstruse to be clearly defined to the ordinary reader.

In the practical working of the system two instruments are placed upon a table, at each end of the line, one of which receives, while the other simultaneously sends messages—a low partition being placed across the centre of the table, between the receiver and sender, to



DEVICE FOR TELEGRAPHING BOTH WAYS, SIMULTANEOUSLY, ON A SINGLE WIRE.

prevent the sound of the instruments from interfering with each other.

Only one condition is requisite to the perfect working of the system, and that is that the current must be equally divided at 1 and 5. This result is secured by an ingenious adjustable arrangement at the two points of resistance, X and X'. It would be difficulty to explain this principle, or the adjustable nature of this resistance, or "rheostat" as it is technically called; but the devise is perfectly familiar to every electrician. If a wire, say 100 miles in length between two stations, is in perfect working order, the "rheostat" (X) must be equivalent in its resistance to the resistance encountered by a perfectly insulated wire of that length. But if by reason of unfavorable weather, or imperfect insulation, a greater resistance is encountered on the main wire, making it equivalent to say 150 miles in length, the extra 50 miles can be instantly applied to X, and the balance be thus kept constant and equal.

There are some unimportant details connected with this system, which present greater or less difficulties, and which to that extent interfere with the perfect working thereof; but there is reason to believe that research and experience will eventually remove all obstacles to perfect success, in which event the *working capacity of every telegraph line will be doubled*—a result the value of which can scarcely be estimated in dollars and cents. The Western Union Telegraph Company have recently acquired the exclusive ownership for the United States of the patents secured by Mr. Stearns, for his duplex instruments, which cover the most valuable and practicable devices for utilizing this latest marvel in telegraphic progress.

The duplex instruments have been in practical service for some time in New York, and their operation here is said to be so satisfactory that the company proposes to introduce them into all their offices on this coast, where the press of business may require them. The first experiments made in this city with this system were conducted by Mr. S. D. Field, the well known electrician of the Western Union Company of this city.

HONORS TO PROFESSOR MORSE.—Not content with showering honors upon the head of the illustrious discoverer of the telegraph, when alive, the whole world has combined in passing resolutions in respect to his memory. An immense audience assembled in the hall of the House of Representatives in Washington on the 16th inst., to attend the memorial services in his honor. The hall was filled with the Executive and Legislative dignitaries including the President and Cabinet, Supreme Judges, Senators, Representatives and Territorial and Municipal authorities of the District of Columbia. In the diplomatic gallery were the representatives of every foreign country accredited to the government.

Telegraphic instruments in the room were incessantly in motion with messages from every part of the globe. Speeches were made and messages read by Cyrus W. Field, from the Anglo-American Telegraph Co., of London; from the Submarine Telegraph Association; from the Telegraph Association of Egypt; and from the telegraph companies of Japan, China and Australia, all of the same date and all unanimous in sentiments of condolence to the United States for the loss sustained to science and the world at large, in the death of Professor Morse. Dispatches were read from the Chambers of Commerce of Hongkong, Singapore and Bombay, and the principal cities of the United States, through their municipal authorities, also sent suitable dispatches, San Francisco among the number.

ORDER and system render all things easy.

Gold on the Northern Coast.

The sands of the sea beach for some distance along the upper part of this coast and the coast of Oregon, contain a small proportion of gold, and have been worked with some profit for a number of years. Little is heard from these mines, and the following information concerning them from Mr. A. Bronson of Randolph, Coos Co., Oregon, will be found of interest: This coast from Coos Bay south for 200 miles or more, may be termed the gold coast of the United States. It has been laid off in districts, and claims located and worked under local mining regulations. The flood tides bring up the auriferous black sand, which, when sufficiently rich, is gathered and removed when the tide is out, and washed at leisure.

Gold has also recently been found back from the coast, at various distances, and at several localities. From two to twelve miles north of the Coquille, and from one to two miles from the present beach, and 180 feet by measurement above tide water, is an auriferous deposit of black sand extending for several miles in length, which carries from $2.50 to $40 per ton, the latter figure said to have been attained by experimental working in this city.

This deposit is known as the Pioneer lead, and is ascertained to be from 300 to 500 feet broad and 10 to 12 feet thick on its western or sea margin. It gathers to an edge on its upper or northers side, contains logs of lignite and often tasteless gum resin. It is covered with from 40 to 60 feet of drift sand, much of which is like soft rock, and this again is covered with a heavy forest, many trees being from 4 to 6 feet in diameter, and 50 to 200 feet high. This timber is heavier further back and lighter as you reach the sea, with unmistakable evidence that similar forests have preceded the present.

The more elevated deposits of auriferous sands were evidently thrown up by the waves of early geological ages, since which time the coast there, as throughout the entire western coast of the continent, has been gradually elevated, until the sea has been driven back in some places many miles from its former shore line.

A SIGNAL SERVICE STATION IN ALASKA. Chas. P. Fish, of the Signal Service, has been sent on to establish a station at St. Panls' Island in Alaska. He is to take observations on the tides, phenomena of storms, temperature of the sea, icebergs in Behring Straits, etc. He is also to obtain information concerning ice obstructions in Behring Straits, auroral displays, electric discharges and proportion of foggy and clear weather. He will endeavor to ascertain the precise direction of the great current of the northern Pacific, which runs along the coast. The results of these observations will no doubt be of great interest not only in a scientific point of view, but also as they effect the general questions of commerce, climate, etc.

CORRESPONDENCE.

Notes of Travel in Placer County—Continued.

[By our Traveling Correspondent.]

Colfax.

This beautifully located village, which was named in honor of our Vice-President, contains about 500 inhabitants, and is situated on the line of the C. P. R. R., distant from San Francisco by rail, 192 miles, and 18 miles a little north of east of Auburn, the county seat of Placer county. Its elevation is 2,421 feet. The town is accommodated with a large number of merchants, but have no manufactures of any importance. It contains three hotels, the principal of which are the Exchange Hotel, A. D. Bullard, proprietor; and the Pioneer House, R. T. Bowley & Co., proprietors. This is the point on the railroad where passengers take stage for Grass Valley and Nevada City, the latter of which is 12 miles distant in a westerly direction. The Telegraph Stage Co. which runs between these two points and extends its route as far to the westard as San Juan North, is owned by Messrs Hamilton & Gordon. They use 4 and 6-horse coaches, and make daily trips.

The Rising Sun Quartz Mine,

Located about one mile southwest of Colfax, is incorporated with a capital of $800,000 in 3,000 shares. The length of the claim is 3,000 fest, running nearly east and west; W. B. Hayford is President, and W. A. Hines, Secretary—office in this place (Colfax). They have a fine set of hoisting works run by a 25-horse power steam engine; also a 5-stamp mill run by an engine of 40-horse power, which has a capacity of crushing 12 tons per day of 12 hours, and which has at present as much as it can do. The main shaft on the ledge is down 365 feet, nearly perpendicular. The vein in the bottom of the shaft varies from one to two feet in thickness; the pay running from $20 to $50 per ton, and averaging about $35 per ton. The gold taken from this rock is of unusual fineness, running from 900 to 932 fine; 30 men are regularly employed.

Montana Quartz Mine.

This is an incorporation with a capital of $30,000 in 24,000 shares, the stock of which is principally held here. R. T. Bowley is President and W. B. Storey Secretary. The mine is ¾ of a mile west of Colfax and in sight of the "Rising Sun." The company claim 2,500 feet on the ledge which runs on a parallel with the above-mentioned mine. Their improvements consist of steam hoisting-works, run by an engine of 40-horse power, and a 10-stamp mill which has just been erected, all complete except adding the stamps, which, by the time this is in type, will be in and the mill in operation. Their main shaft is down 140 feet and contractors now sinking will complete the distance to the 170-ft. level. This ledge is a very wide one, so much so that with a 12-ft. shaft the hanging wall has not been found. The rock carries considerable sulphurets and has paid an average of $6 per ton in free gold. The sulphurets, of which the rock contains about 50 per cent., it is presumed will pay well. They are at present using Giant powder for blasting, having lately given up the use of black powder, and are well satisfied with the change, progressing nearly 50 per cent. faster.

Auburn,

The county seat of this county, is located one mile to the northward of Auburn station and distant from your city by rail 174 miles; its elevation is 1,363 feet, and it contains between 800 and 1,000 inhabitants. There is one good hotel, the American Exchange, presided over by G. H. Stephens. In a business way the town is quite dull. There are two excellent weekly papers published here—the *Stars and Stripes* and *Placer Herald*. The principal dealer in groceries, hardware, etc., is Robert Gordon, who is also the agent of the Giant Powder Company. While the quartz interest surrounding the town is quite considerable, the auriferous gravel deposits are also worked, and farming and horticultural pursuits are followed by many. Taking the mines in rotation, passing to the westward, the first is the

Greene Mine,

Distant from Auburn 2½ miles. The mine is incorporated with $600,000 capital in 10,000 shares, the stock of which is principally owned here. A. C. Peachy is President, and C. M. Greene Secretary, both of your city. Principal office of the company 413 California street, San Francisco. Wm. G. Greene, is Supt. This mine has a length of 1,132 feet, the ledge running east and west and dipping to the southward. The walls both carry a large amount of base metal containing some free gold, silver, copper and arsenic. Their improvements consist of fine hoisting-works run by a 30-horse power engine; the pumps (Cornish) are run by a 40-horse power engine. The company also own a 4-stamp mill, which is run by water-power, and which is used principally for reducing specimen ore. The mill contains two Hepburn pans. The company will soon erect a 15-stamp mill on the premises. Their main shaft is down 220 feet, at an incline of 15 degrees. The ledge at this point is a little over two feet thick and from the top down averages 30 inches. They are still sinking on the mine and have not stoped any as yet, nor will they until they get down 250 feet. Blasting agent used is Giant powder, giving general satisfaction. Employing regularly 14 men, working 8-hour shifts, night and day. The rock of this mine thus far has averaged over $100 per ton. At this writing they are taking out rock that assays over $200 per ton. Since writing the above rock has been struck in the mine, in the process of sinking the shaft, that is fabulously rich and which runs up into the hundreds per ton. This mine has never levied an assessment, and one of the few that has paid its way from the croppings down.

Peter Walter Mining Co.,

An incorporation of $800,000 capital in 8,000 shares, is located about 3 miles west of Auburn. This company claim a ledge of 900 feet in length, which runs east and west and dips to the south. Their improvements consist of steam hoisting works which are run by an engine of 25-horse power. The main shaft is down 125 feet, at an angle of 40°, at this point the ledge is about 15 inches wide. They are still sinking, and drifting at the depth of 116 feet where a level has been run 70 feet to the eastward, from which they are taking out about five tons per week. Working regularly 14 men in all departments. When they stop sinking and all its men are drifting they will take out about 18 tons per week. Two tons of this rock has been tested and pays $33 per ton. The company has really just got into working order. The rock contains a good deal of sulphurets and looks well. Their west level is in 50 feet. Gen. D. D. Colton of your city is President, and T. J. Owens, Secretary; principal office room No. 1, N. E. corner of California and Montgomery streets, San Francisco.

Bellevue G. M. Co.

This company own 8 different ledges. It is an incorporation of $800,000 capital in 8,000 shares; the stock of which is principally held in San Francisco. The location is 4 miles west of Auburn and 3 miles north of Newcastle. W. P. C. Stebbins is President, and T. F. Cronise, Secretary; principal office 409 California St., in your city. These ledges (8 in number) are 2,500 feet each in length and average in width 15 inches each. The most of the ledges have been worked for from 30 to 50 feet in depth and 2,200 feet in length. The improvements are, good hoisting-works run by water-power, the water being taken from the Bear River ditch. Their main shaft is down 150 feet and they are now running in on the 136-ft. level, which they have pierced 340 feet. These ledges, which lay parallel with each other run nearly east and west, and dip to the south; are in slate formation. The number of men engaged in all departments is about 20; taking out, on an average, about 40 tons of rock per week, which they crush at the St. Patrick Co.'s 15-stamp mill, located within ½ a mile of this mine. The rock costs 75 cents per ton for hauling and $5 per ton to crush; it pays regularly about $40 per ton. The specimen ore for which this mine is somewhat noted, however, will run into the thousands. One lot of 60 tons taken out some time ago, netted $50 per ton. The mine has been charged with "salting" its rock, but the experience of your correspondent is, on visiting the same, that it furnishes its own salt. The company is engaged at present in running a tunnel on one of the ledges parallel to the one on which the hoisting-works are situated, from Doty's Ravine on the west end, following the ledge right in. At present writing the tunnel is in 237 feet. The ledge at this point is small but widening out, and they are taking out some of as fine specimen ore as I ever looked at. Blasting agent used is Giant No. 2 and Hercules powder. Mr. Fred Jones is Superintendent, and I think this company owes its present position to the energy and successful experience of this gentleman.

St. Patrick M. & M. Co.

The mill and mine belonging to this company is located 3 miles west of Auburn and 2½ north of Newcastle. It is an incorporation with $500,000 capital in 5,000 shares. Gen. D. D. Colton is President, T. F. Cronise, Secretary; D. T. Davis, Superintendent and I. Thomas, Foreman. Principal office 409 California St., S. F. This company own 14 ledges, varying in length from 1,200 to 2,000 feet each, working only two of them. Their main shaft on one of these ledges is down 300 feet, over which hoisting-works are erected, run by a donkey engine of 8-horse power. The others are worked by windlass. Number of men engaged in the mine is 16, at present drifting and not taking out much rock. They also have a 15-stamp mill run by a 40-horse power engine. It has a capacity of crushing 24 tons per day of 24 hours; working regularly 9 men. The company are also running a tunnel 300 fsst long on one of their ledges, which is nearly completed. The tunnel is 5½ feet high and 4 feet wide; using both Giant and black powder for blasting.

St. Lawrence Quartz Mine.

This mine is located ¼ of a mile south of the St. Patrick, and near Ophir. It is owned by Bogart & Co. of your city; H. B. Purdy is Supt. The company claim a ledge of 1,200 feet in length. Their improvements consist of a 6-stamp mill, run by free water, which has a capacity of 12 tons per day of 24 hours. They have sunk two incline shafts upon this mine, at an angle of 30°, to the depth of 50 feet each. The ledge at that point is about 2 feet wide, and by working 7 men they take out 3 tons per day, 60 tons of which just milled paid an average of $22.30 per ton; rock believed to be worth 4 or 5 times that value is now being extracted. A tunnel has just been started in upon this mine, which will be when completed, 80 feet in length; at present writing is in 45 feet.

Julian Gold M. Co.

This company have a capital stock of $1,000,000 in 10,000 shares. The mine of the company is located near Newcastle on the C. P. R. R. They claim 2,500 feet on the ledge, which runs north and south and dips to the eastward. The ledge is from 3 to 8 feet thick; several shafts have been sunk upon this mine from 150 to 230 feet deep. This company have one of the largest ledges in this section of country, but up to the present time has not proved to be anything but low grade ore. The rock will average about $8 per ton, and as it costs $6 per ton to mill and mine the same, its owners can and do make a profit of $2 per ton.

L. P. Mc.

GRAPE-GROWING IN A ROOM.—Last year, a member of the Stuttgart Flower Club was successful in raising grapes in his sitting room. He takes a cutting, 3 or 4 feet long, with two fruit buds at its upper end, wraps it in moss, leaving the two buds exposed, and coils it in a flower pot which is then filled with rich loam. The plant is watered with lukewarm, never with cold, water, and a little dung may be added, but not much. The flower pot is placed in a sunny position. When the grapes are formed the shoot is pruned above the bunch, leaving however two leaves to maintain the circulation of sap.

THE WOLLASTON MEDAL.—The geological society of London at a recent meeting awarded the Wollaston medal for the present year to Prof. James D. Dana, of Yale College. This medal was founded by Wollaston himself in 1828, and is given as a mark of honor for distinguished learning and ability in the departments of geology and mineralogy.

A MACHINE for washing floors has been invented by Mr. A. Irion. It appears to be essentially a sweeping machine of ordinary construction, provided with an apparatus which causes the brush to sprinkle water, or soap suds, on the floor.

Mining Matters in Utah.

A correspondent of the *Alta*, writing from Little Cottonwood, U. T., says: The confidence of San Francisco capitalists in the mines of this Territory is steadily increasing, and notwithstanding the Monitor and Magnet and one or two other fiascos, I know personally that San Francisco operators in the mines here have in the aggregate of their investments made a large amount of money. The proportion of their losses to profits is less than in any other mining region on the coast, and as a natural result they have commenced active mining operations on several claims in this district, stocking their mines in San Francisco. Among these companies incorporated in California, and who are now vigorously developing their properties, are the

South Emma and the Wellington.

The mine of the South Emma Company lies in the line and on the level of the Emma lode, near the Emma mine, and in the same relation to it by locality as the Gould & Curry mine is to the Hale & Norcross on the Comstock. The mine is opened by an incline dipping at an angle of about 40° for a depth of 100 feet, from which a horizontal drift runs into the hill in the direction of the lode for sixty fest further, following continually improving indications and approaching the exact line and level of the Emma. This drift is being run day and night, with three shifts of hands, and in the extreme face of it, within a few days, the character of the rock is exactly similar to that which causes the solid ore lodes of all of the great mines of the belt, showing in mass a small amount of lead and silver, with occasional rich fragments of ore imbedded in the body of the rock. The farthest point of the drift is about 150 feet perpendicular below the surface, and the present level will be continued until a body of ore is struck, when longitudinal drifts will be run. It has been found necessary, because of the collection of water in the incline from the infiltration of the melting snow upon the surface, to employ an extra force of hands—a necessity that will disappear with the disappearance of the snow, as all the mines on the lower levels are perfectly dry except from the cause stated. The title to the mine is, I understand, perfect, and the prospect of its becoming very valuable, I consider, for the reasons stated, as certainly assured as anything in the nature of mining operations can be.

The Wellington mine is opened by an incline of 180 feet in depth, with five levels run on its length. Of these levels, two of them are on large and rich ore lodes as far as run, the one at the bottom of the incline being on a lode of solid ore from two to fifteen feet in width, and of an average value of $150 per ton. The smelting furnaces of the Company have suspended operations for a few days, but only on account of the bad condition of the roads, and the utter impossibility of obtaining fuel except at an enormous cost.

The Question of Fuel.

Has been the most serious hindrance to the rapid development of the mines. The immense quantity of smelting ore here would have soon exhausted in its reduction all of the charcoal available, except at a price for the article that would have embargoed the reduction of low and middling grade ores. It was assumed upon very imperfect experiment that the Rocky Mountain coal would not coke. Mr. Stowe, a San Franciscan, who has a lease of the Hinton mine at Evanston, a few weeks ago employed some cokers and essayed the experiment of converting coal to coke upon a large scale with almost perfect success. This success settles the question of fuel. Coke can be furnished at the mines in any quantity and at a price that will reduce the fuel cost of smelting one-half, and this makes available mines that else could not have been worked, and greatly increase the profits of those that yield ore rich enough to be worked at a profit, even under the present expensive system of smelting.

A number of important sales of mines in Camp Floyd District have taken place within the past week. The purchasers are Chicagoese, and are probably trying to play even on the big fire—may these ventures restore their financial equilibrium.

AS AN EXAMPLE of what the farmer would suffer without the aid of his friends, the birds, whom he too often regards as his enemies, it may be mentioned that the descendants of the fifth generation of our plant louse would, if it were not for their enemies, number 60,000 millions. But for the birds, there would be in a short time a complete destruction of vegetation.

MECHANICAL PROGRESS.

Utilization of Tin-plate Clippings (Tinners' Waste).

Tin-plate consists of iron covered with puro tin, or an alloy of tin and lead. The iron is of very superior quality. Tho test to which it is submitted is that it must bear bending at a sharp angle without cracking, and when hent under the hammer light must not shino through any crevices along tho line of flexion. The proportion of tin in tin-plate varies according to quality from 3 to 7 per cent. The valuo of tin in tho waste is about eqnal to that of the iron. Several methods for treating tinners' wasto have already heen dovised. In 1848, Schunk proposed three processes, of which the firet was to boil the clippings in sulphide of sodium, tho second to boil in soda-lye, in which litharge was suspended, and tho third to heat in a lye of chromato of potash and caustic-potash. In 1854, Jas. Higgin patented a mixture of hydrochloric acid, and solution of nitre, hy which means it was expected that the tin would bo dissolved with less action npon the iron than in hydrochloric acid alone. In 1857, Parkes proposed to put tho clippings into mercury in a revolving sheet-iron drum, and thus collect the tin in an amalgam. In 1863, Paterson patented a process for mixing the clippings with fused lead so as to form solder. By heating the mass again, the alloy is fused off. Standevant and Harman proposed to melt off the tin in a current of steam and hot air into an iron cylinder below; but all these methods seemed to present some radical objection.

A perfect method for treating tin cuttings should fulfil four conditions. 1. The iron must bo free from tin. 2. The tin must be obtained in a marketahle form, and preferably in the metallic state. 3. Large quantities must be capable of treatment at once without much labor. 4. Tho process must be cheap. Iron containing 0-5 per cent. of tin, thongh it can be forged and welded is very cold-short. It has a fine-grained steel texture, a clear ring and great hardness, but can be useful for very few purposes. None of the old processes, except that of Higgin, thoroughly remove the iron. Schnnk obtains the tin in an nnsaleable form, and his process can be used on a small scale only. Mr. Ott has recently devised a method which has been applied to 300 tons of clippings in three months. The tin waste is put into a drum of thick copper, provided with holes ⅜-inch in diameter, and two inches apart. It contains 1,000 lbs. of clippings. It is then made to revolve in a bath of acid in which the tin is dissolved off. Then the drum is lifted out by a crane, and made to revolve in a water-tank, then in an alkaline bath and then in water again. In the acid bath it revolves according to the amount of free acid, from 5 to 50 minutes, and in the others 5 minutes each, making with the time spent in lifting the drum a total of 70 minntes. So, as the drum contains 1,000 lbs. of clipping, it is possible in a day of 10 hours to treat 90 cwt.

In the acid, the tin, the lead, and ahout 5 per cent. of iron are taken up. This solution is let off into suitable tanks. The lead is separated first, and then the tin is obtained in a state of pnrity, by putting in plates of zinc, when it is thrown down either in a crystalline or a spongy form. It is well washed, fused and sold as block tin. The zinc remains in solution, one part of zinc being required to precipitate two of tin. The mixed solution of zinc and iron may be used for preserving wood, or for making coarse colors for house-painting. The iron plates are sold to the iron works.

Dorn proposes to pilo up tin clippings in chambers of a suitable material, and to dissolve off the tin by means of a gaseous mixture. On this process, it may be remarked, that though the bichloride of tin is extensively used by color-makers, dycra and calico-printers, it is necessary that it should be perfectly free from iron.

The Production of Bright or Lustrous Colors on Metals.

The active chemist, C. Puscher, of Nuremburg, proposes a new method of coloring metals which can be executed quickly and cheaply. He produces on those surfaces a coating of metallic sulphides analogous to those found in nature, as for example, sulphide of lead. These very stable snlphur combinations, as is well known, are not affected by ordinary agents. According to Puscher's method, in five minutes there may he imparted to thousands of brass articles a color varying from a beautiful gold to a copper red, then carmine red, then dark, then analine blue, to a blue white, like sulphide of lead, and at last a reddish white, according to the length of time they remain in the solution used. The colors possess the most beautiful lustre, and, if the articles to be colored have been previonsly thoronghly cleaned by means of acids and alkalies, they adhere so firmly that they may be operated upon by the polishing steel. To prepare the solution, dissolve 1½ ounces of hyposulphite of soda in one pound of water, and add 1½ ounces acetate of lead disaolved in half a pound of water. When this clear solution ia heated to 190° to 210° F., it decomposes slowly and precipitates sulphide of lead in brown flocks. If metal is now present, a part of the sulphide of lead is deposited thereon, and according to the thickness of the deposited sulphide of lead tho above mentioned beautiful lustro colors aro produced. To produce an even coloring, the articles to he colored must be evenly heated. Iron treated with this solution takes a steel blne color; zinc, a brown color; in the case of copper objecte, the first gold color does not appear; lead and zinc are entirely indifferent. If, instead of the acetate of lead, an equal woight of snlphuric acid is added to the hyposulphite of soda and the process carried on as before, the brass is covered with a very beautiful rod, which is followed by a green, which is not in the first mentioned scale of colors, and changes finally to a splendid brown with green and red iris glitter; this last is a very durable coating, and may find special attention in manufactures. Very beautiful marhleized designe can he produced by nsing a lead solution thickened with gum-tragacanth on brass which hae been heated to 210° F., and is afterward treated by the usual eolution of sulphide of lead. The solution may be used several times, and is not liable to spontaneous change.—*Technologist.*

Glass Bearings.

The uso of glass bearings for the wearing surfaces of cross-beads, pistons, and other working parts of machinery which has recently hoon introduced into some parts of the Eastern States is steadily extending and gaining favor. These bearings consist of pieces of glass inserted into the hearing surfaces as hereinafter described. In the slides of the cross-head they are simply imbedded ia holes drilled or cast to receive them, and in piston rings they are inserted in grooves turned in the rings. The following directions are given by the manufacturer for pntting in such bearings:

"Drill the holes full one-fourth of an inch larger in diameter than the glass is, and at least one-sixteenth deeper thau the glass is thick. The holes should be chipped nnder with a center chisel in soveral places in order to hold the babbit well. Then take a parallel piece of iron largo enough to cover the hole, and perfectly smooth on one surface, place a little oil on the smooth surface and press the piece of glass to it. By this means you exclude the air, and the glass and iron will stick together firmly; this is done in order to hold the glass up from the bottom of the hole, and thus allow the babbit to run under as well as around it, forming a perfect bed for the glass to rest on. Place the piece of iron with the glass fast to it over the holelin such a manner as to keep the glass in the centor, and also leave a small space uncovered through which to pour the babbit. The glass should be above the surface of the working part, in order to take the full bearing. Place at least one thickness of writing paper between the parallel piece and the other surface; clamp the parallel piece to the gibb or other part, for if not clamped the glass is likely to rise too high above the surface while the habbit is being poured. Caulk the babbit in several places with a blunt center-punch between the glass and iron, theu scrape it down to tho surface. Bearings put iu locomotive cross-heads should not be more than flush with the surface.

To insert tho bearings in cylinder packing-rings, eccentrics, etc., a groove should be cast or turned in the center of sufficient depth and width to allow the babbit to run under and around the glass; the groove should be turned nnder and also chipped rough on the sides. Then bend a strip of sheet-iron to the exact radius, and make the proper surface smooth, then stick five or six pieces of glass to the smooth surface by means of putty or any other substance that will stick well. Then clamp the sheet iron with the glass fast to it to the ring or other part; close up one end with putty, and pour the babbit in the other end. When the glass is all inserted, take oil and emery with a file and grind the glass down to the surface, making sure that not one of the glasses are above the surface when the ring is finished.

In parts where there is not sufficient thickness of material to allow the babbitt metal to he run under the glass, one thickness of muslin may be used as a bed for the glass to rest upon."

These bearings are now very exteusively used in locomotives and stationary engines, and the manufactnrer is furnishing them to all parts of the country and for all kinds of steam-machinery. Most persons, we believe, would be surprised to find how much rough nsage a piece of glass will bear if properly embedded in a soft metal. If they are well fitted they will stand a considerable number of quite severe blows from a hammer without being fractured.

THE manager of a furnace in Prussia, finding himself without fuel, resolved to keep the furnace alive as hest he might. He hegan at once to reduce the charge of iron ore to one-half, keeping all the while the nsual charge of coke, and after the furnace was thus filled, the blast was cut off, and all apertures were closed as air-tight as possible, and watched carefully so for more than ninety days anxiety. A regular supply of fuel being once more secured, after that time, the tuyers, heartb, and top were reopened, the hot blast let on, and twelve hours later the first clean cinder made its appearance, flowing over the wall-stone, to the great delight of all concerned.

A PRUSSIAN engineer has, it is said, invented a machine which will manufacture ice without chemicals, merely by compression and explosion of air.

SCIENTIFIC PROGRESS.

THE SPECTROSCOPE ON THE NEBULAR HYPOTHESIS.—Tho existence of immense nebulous masses, from which Laplace snpposed the solar system to have been derived, was thought to have been proved basclees by the increased power of modern telescopes, which havo resolved into clusters of stars many objects supposed to have been nebulæ. But since the spectroscope has been so improved as to he practically employed for determining the character of such distant bodies, the nebulous thoory is again coming into favor, if indeed it may not now he considered as fully established on a stronger foundation than ever hefore.

Prof. Kirkwood has made extended observations in this direction, in which the evidence in favor of the hypothosis is decidedly cumulative. Even progressive changes in the physical condition of eome of the aebulæ have been quite clearly indicated. In some parts of certain nebulæ nuclei have been established—the mass of gaseons matter evidently passing from ite attenuated form into a semi-solid state. The spectra obtained prove this fact beyond the possibility of doubt. This clasa of spectra reveals a constitution similar to that recently observed in certain comets belonging to onr own system.

VELOCITY OF METEORIC STONES.—It has been quite satisfactorily proven that meteors, before they meet with the retarding influence of the earth's atmosphere, often move with a velocity several thonsand times that of a cannon ball at the instant of its discharge. If a cannon ball could be made to move with such velocity it would almost instantly be destroyed, and disappear in a streak of flame. It is probable, however, that the impetus necessary to impart such a velocity would at once reduce to powder any brittle substanco like cast iron or stone. Meteors which enter tbe atmosphere at any considerable angle from a direct line toward its center are deflected from their course and soon move from its influence. Such is no doubt the caso with many which are seen to flit across the sky; while many, if not most of those which enter in a direct line, are dissipated into impalpable gasses before they have passed half the distance from the solar bounds of the atmosphere to the earth, or reach the earth in a state of impalpable dust.

ERUPTION OF METEORITES FROM THE SUN.—The theory of a solar origin for meteorites, however strange and startling it may at first sight be, cau by no means be condemned as altogether illusory. Advocated by Mr. Proctor in *Fraser's Magazine*, for April, 1871, much evidence in its favor has heen supplied by the recent solar researches of Secchi, Young and others. In brief, it is, that the solar prominences result from the shooting forth of liquid or solid masses or streams of matter, and that metcoric masses, or at least some meteorites, may have originated in this manner, being propelled from beneath the surface of the sun.

Mr. Runyard, in a recent communication to the Royal Astronomical Society, discussing the nature and origin of the upheaval of eruption prominences, states as his conclusion that the observed phenomena, and all other considerations, go far to render it probable that meteors are formed from the metallic vapors hurled from the sun or other stars, or that solid masses may be so hurled, in eruption prominences.

Mr. F. A. Fleming also remarks of this theory, that, offering as it does a possible account of the genesis of prominences and meteorites, it appears also to contain the germ of another hypothesis, which he develops, respecting the cause of the connection between solar eruption and terrestrial magnetism.

THE TRANSIT OF VENUS.—Professor Henry and other scientific men connected with the Smithsonian Institute and the Naval Observatory have nnited in an interesting memorial to Congress urging the appropriation of $150,000 to make extensive and thorougb preparation for observing the transit of Venus across the sun, which will take place in 1874, which is looked upon as the most important astronomical event that has occurred for many years. The last transit was in 1792, and excited so much interest in the scientific world that several European Governments made liberal appropriations to enable their astronomers to take observations. The transit of 1874 will not be visible in this country, and will be best seen from the islands of the South Pacific and Indian oceans. It is proposed to send naval expeditions to those points, accompanied by scientific parties. The Governmeuts of many of ,the conntries of Europe have already taken steps to this end, and there is little doubt that Congress will enable the astronomers of this country to have the same advantages as their foreign brethren.

THE proposed tunnel nnder Mt. St. Gothard will be ahout twice as long as the Mt. Cenis tunnel, and it will pass under peaks varying in hight from 8,750 feet to 10,000. The principal advantage anticipated from the work is an increase in the facilities for trade and travel between Europe and Asia, by way of Italy.

PASSIVITY OF IRON, CADMIUM, AND TIN.—Many years ago Faraday pointed out that when iron was plunged into nitric acid sufficiently concentrated, it became possessed of a surface condition which rendered it indifferent to the strongest acid; and which enahled it to form a voltaic circuit with ordinary iron. That such iron has really heen decidedly altered in character is also evinced hy the fact that it refuses to reduce copper from solution of its salts. Dr. Schön has observed that if cadmium is wrapped round with some platinum wire, it may be placed in strong nitric acid without being in the least degree acted upou; but if tho wire is removed the cadmium is instantly attacked, thus showing that the passivity of the cadmium is entirely due to its contact with the platinum. The author also states that when tin is treated in a similar manner it exhibits like pheuomena.

DANGEROUS GAS PIPES.—The *Journal de l'Eclairage* notices an accident which gives new proof of the danger attending the uso of copper gas pipes. In April last, a workman having with a triangular file cnt almost half through a gas-pipe of red copper ¾ inch interior diameter, which supplied the Liege station, was removing the tool, when an explosion took place, with a noise like the report of a rifle, and the workman wae much burnt. A similar accident happened subsequently, hut with less intensity, and the workman, who was not injured, did not report the circumstance. Some gas-pipes having heen taken down, they were found covered with a blackish coating, and they showed evident signs of corrosion from ammoniacal condensation. The hlack matter was analyzed, and was found to consist of acetylide of copper, which explodes between 203 deg. and 248 deg., producing water, copper, carbon, carbonic acid, and traces of carhonic oxide.

THE ESPY RAIN THEORY.—It is stated that notwithstanding the continued and wide-spread fires which prevailed for four or five weeks in Northern Illinois, last summer, devastating forests over a large area, not a drop of rain fell, as might have been expected, if the Espy rain theory is correct. The rain only came with a change of wind to northward, and several days after the worst burnings were over with.

On the contrary, heavy rains followed immediately after the great firo in Chicago. Possibly the occurrence of rain in the latter instance was due to the greater intensity and concentration of heat.

UNEXTINGUISHABLE SIGNAL LAMP.—Some experiments have been made in Tamise, with the unextinguishable self-lighting signal lamp of Holmes, and they promise a great snccess. The lamp is a cylinder of tin, with a conical top; the cylinder is filled with phosphuret of calcium, prepared by the inventor. When the lamp is plunged in water, this liquid, entering the cylinder, effects the decomposition of the phosphuret; phosphuretted hydrogen is disengaged in large quantity with vapor of phosphorus, takes fire spotaneously, and burns with a brilliant flame.—*Les Mondes.*

CLEANSING WOOL FROM BURRS.—The wool is soaked in a bath containing 2 lbs. alum to every 10 lbs. of wool and to this sulphuric acid added until the bath marks 6 deg. B. In this bath the wool shonld remain until its appearance shows that the bath has had its effect, when it must be taken out and thoroughly drained. It is then subjected to the action of a brushing machine which removes all the burrs.

THE GREENLAND METEORITES. — Professor Nordenskiold states that the masses of meteoric iron brought from Greenland by the recent Sweedish expedition soem to have formed the principle masses of enormous meteoric fall of miocene date, extending over an area of some two hundred square miles. The iron appears to be free from silicates. Professor Ramsey thinks the masses may be of telluric origin.

AN ACOUSTIC EXPERIMENT.—Let a wide glass tube, open at both ends, he taken, and in this a piece of fine wire gauze be pusbed up some little distance. If the gauze is now heated to redness over an ordinary Bunsen burner, and then removed, it will shortly emit a shrill note, lasting from 5—10 seconds. The experiment we believe will be new to most of our readers, and has the merit of always going off.

AN EXPERIMENTAL GAS WORKS.—The Germau Society of Gas and Water Experts have under consideration a plan for establishing an experimeutal gas works, for the purpose of deciding various questions which may arise in the details of their profession, by actual experiment. The proposed plau, if adopted, will be upon a large scale, so as to reproduce, as far as possible, all the conditions met with in practice.

LARGE SUN SPOT.—Professor S. P. Langley of the Alleghany Observatory, has computed the area of one of the spots lately visible near the center of the sun's disc, from careful measurement, and found it exceeded 2,300,000 square miles, which is more than ten times the entire area of the earth.

REMOVAL of spots made by sugar, from goods with delicate colors and much sizing. The spot should be rubbed with a damp cloth, and then with a piece of fresh bread, which will remove the saccharine matter without affecting the color.

THE principal supply of bismuth is derived from Bolivia, but it has recently been discovered in Australia.

MINING SUMMARY.

THE following is mostly condensed from journals published in the interior,in proximity to the mines mentioned

California.

AMADOR COUNTY.

BARLOW MINE.—Jackson *Ledger*, April 15: The workmen have etruck some exceedingly rich rock on the lower level, and there is every indication of a fine heavy lead being opened up soou.

QUARTZ.—Mr. McCauley, of the mine bearing his name, located below the Kennedy, is having about 80 tons of rock hauled to the Kearsing mill.

FINE ROCK.—Several pounds of quartz rock from the State of Maine mine were left at our office a few days ago, literally eparkling with gold. The rock was taken from the main ledge and is said to be not over the general average at present depth. Since reaching water level in sinking, the ledge has rapidly increesed in richness. The quartz heing taken out ie the regular ribbon rock. That in the office would mill at least $75 per ton.

BUTTE COUNTY.

INSKIP QUARTZ MILL.—Oroville *Record*, April 13: The mill, running 4 stamps, hes recently commenced work. A tunnel has been run some 300 ft., striking the ledge at a depth of ahout 70 ft. from the eurface, producing quartz which looks well and exhibits free gold. The mill is running upon thie rock, and those in cherge are feeling confident and happy.

RATTLESNAKE CREEK MINES.—Chico *Enterprise*, April 13: Charles Slocum, Richard Shepley, and Edward Fulton have "struck it big" in their claim on Rattleenake Creek, near Magalia (Dogtown). Last week they found a nugget of pure gold weighing 15 ozs., and another valued at $105, besides several emaller piecee. These large specimene are in addition to the ordinary yield, which is quite rich.

CALAVERAS COUNTY.

TUNNEL PROGRESSING.—Celaveras *Chronilce*, April 13: Champion, Colby & Co., who contracted to run a hedrock tunnel 800 ft. in connection with Clark's great hydraulic cleim at Railroad Flat, are making rapid progress. They have already accomplished 250 ft. of the distance through the hardest rock expected to he encountered. The ohject in running the tunnel is to facilitate the working of the hydraulic by ohtaining greater fall for the water ueed in weshing.

MAOHINERY.—The proprietors of the Prussian Hill et Railroad Flat are removing the French mill, in Rich Gulch, which they recently purchased, to the former place. A portion of the machinery hae already been freighted to railroed and the rest of it will be moved as fast as possible. A large amount of good rock is in readiness to be put through the hattery as eoon ae it is placed in position.

CRUSHING.—Clark'e mill at Reilroed Flat is cruehing a lot of rock from the old Frank Barney mine at Moequito. We are informed the yield will be large.

HUDSON MINE.—The ehaft on the Hudson at Central Hill has reached a depth of 120 ft. The ledge continues to develop most favorably.

COMANCHE.—Cor. same: Since water hae become plentiful mining has been resumed with energy. Tne Poverty Ber claims are all in operation. Mr. Story has 2 hydraulic claime in full blast, just helow that place on the Mokelumne river. At present he is busy running off surfece dirt. In most of these claime along the river the gravel is huried heneath a layer of sand some 30 feet or more in depth, which hee to be removed in order to reach the pay dirt. The Lipkeman claim, adjoining Storey'e is rushing things and I undereteud ie proving remunerative to the owner.

EL DORADO COUNTY.

AGAIN WORKED.—Placerville *Democrat*, April 10: The eoap etone ledge or quarry formerly owned and worked to some extent by Patterson, near Darlington's, is again being worked. Hollihan & Co. are now the proprietors, and ere opening the querry or ledge with a view to permanent operation.

FRESNO COUNTY.

WORK RESUMED.—Millerton *Expositor*, April 10: Work has heen reeumed on the Baltimore copper mine at Buchanan. The pumps were started np last week and the mine cleared of water.

NAPA COUNTY.

OAKVILLE MINES.—Napa *Reporter*, April 13: The Sup. of the Oakville mine eays that the prospect ie excellent. The mine is now rather being prospected than worked, and yet they are reducing from 8 to 10 tons per day of ore es it comes, ranging from 1 to 5 per cent. The monthly yield ie about 10,000 lbe., or 150 flasks. It is eetimated that there are at leest 10,000 tone of ore in eight.

NEVADA COUNTY.

BRICKS.—Grass Valley *Union*, April 9: We saw yesterday 2 gold hricks at Findley & Co'e. Bank, the clean up of the hlanket-ete for 2 weeks' run at the Idaho mine; the amount of which was 724½ ozs. of pure gold of the value of $12,675.

STARTED UP.—The Hope Gravel Co., which has been standing idle for several months, on account of the great body of water which had to he contended with, etarted up its engine yesterdey to pump out the mine.

GREENHORN.—Thie mine is improving with gratifying rapidity. The shaft is down 230 ft., and the ledge is from 18 inchee to 3 ft. in thickness. The ore is improving in quality with the size of the ledge.

SHIPMENT.—Friday, Findley & Co. shipped to S. F. gold to the value of $23,700.

TOWN TALK.—The last clean-up of this mine, for 2 weeks' run, from the hattery platee alone was 60 ozs., worth $1,320.

DAIEY HILL.—The ehaft at the mine is down 230 ft. to a new station. A drift of 15 ft. has been run, and preparations are heing made for taking out rock.

REESE & DEPEW'S CLAIM.—The celebrated Reese & Depew ground, on Randolph Hill, continues to pay. The ehaft has heen eunk 21 ft. in depth and the dirt taken out yielded $120. The amount of dirt waehed was less than a ton. The ledge has increased in eize and ehows iteelf to be more truly quartz than it did on the croppinge.

ITEMS.—The Gold Hill mill has heen kept quite husy eince favorable weather set in, in cruehing for different proepecting Co's. and the crushings have heen quite favorahle.

HUNT & Talhot have had 20 loads crushed from the Erie mine, which yielded in the aggregate $1,200 or $60 to the load.

DONAHUE & Ryan, from their cleim on Woodpecker ravine, have had a cruehing of 20 loads, which returned $784.75, or ahout $65.50 per load.

THE last crushing at the mill was from the Blue Lead Co's. claim, (being on the seme lead as the Ione and Union Jack) and the clean-up gave a reeult for 16 loads of 32.50 per ton. Work on the claim has been resumed lately (being suspended during the winter.) Last fall the pay chnte was from 18 to 20 ft. on the ledge; but at the present time, and from where the recent crushing was taken, the pay chute has widened from 45 to 50 ft., and is increasing in width ae work is continued downward on the ledge.

WILLOW VALLEY.—*Nevada Transcript*, April 11th: The prospects in Willow Valley are better this eeason than ever before. The Murchie mine, the Bnckeye, Buchannan and Bradley & Co.'s ledge are all yielding handsomely, and a number of othere are being prospected, At leaet 150 men will be at work before the Fall. Several other ledges have recently heen located, and the old Lecompton will he soon worked again.

RICH STRIKE. — The Buckeye Company, are working the Buckeye ledge at the heed of Willow Valley. They are down 200 ft., and on Tueeday they etruck very rick rock. It is filled with fine gold, and the ledge is about 3 ft. thick. On Tuesday Mr. Kitts brought in a specimen weighing 1½ or 2 lbs., worth about $20. The Buckeye hae hoisting works up, and they have out nearly 100 tons of rock.

BRADLEY LEDGE.—The ledge of Bradley & Roes, a quarter of a mile from the Buckeye, is heing worked. They are down as deep es they can go on account of water, and are preparing to put up machinery. The ledge is about 1⅛ ft. thick, and the pays from $40 to $60 per ton.

NEW MILL.—The Providence Co. has purchased the 10-stamp mill which etood upon the Green Mt. mine et Quaker Hill. The machinery hae all heen removed to the mine on Deer Creek, and the mill will be put up at that place to crush the rock from the Providence mine.

ENTERPRISE.—Mnrchie Co. are taking out lots of rock from their mine near Deer Creek, and the 8-stamp mill is kept in constant operation. They cleaned up lately from 100 tons of rock about 35 lbs of gold, and they have a ledge 2⅛ ft. thick, with plenty of new rock of the same kind.

MINING.—A numher of new mines are heing worked with good prospect. Out near the elaughter house on Mud Flat some excellent quartz has heen taken out. The Providence, Gold Tunnel, Rieing Star, Pennsylvania, Quartz and Gravel mine, the Pittsburg, Banner, Buckeye, Buchanan, Mono, Auburn and a number of othere are heing worked, and there is a prospect of the starting up of the California and Illinois. On Gold Flat, Deer Creek, Willow Valley, Rock Creek and in other localities a good deal of quartz prospecting ie going on, and the prospectors are meeting everywhere with good encouragement.

PLUMAS COUNTY.

STRUCK IT.—Quincy *National*, April 6th: Dr. Murtery & Co., who took up an extension claim on the Betterton ledge eome time since, have prospected the eeme and found it to be equally as good as thet of Betterton.

INDIAN VALLEY MINES.—John D. Compton is crushing constantly on high grade rock. His ledge is 4 ft. wide, and increaeing in width. Applegarth & Drake, at the Indian Valley mine, have their 32-etamp mill running on good rock from the east chute, which opens up splendidly. They have developed a large amount of rock which is first-claes. The Greenville, which is on the eame vein, is doing a good husiness, running their 12-stamp steem mill on rock which pays $20 per ton. Their new level, 450 ft. from the eurface, is nearly completed, which will give three yeare rock for a 24-stamp mill, which ie to be commenced at once. With thie addition they will he able to handle 60 tons of quartz per day. The Genesee Valley mine has a first-class vein of high-grade ore in sight.

SAN DIECO COUNTY.

BRICKS.—San Diego *Bulletin*, April 6th: During the week 2 hricks have been received at the bank from the Stonewall mine, weighing respectively 40 and 39 ozs.

SHIPPED.—Bullion to the amount of $1,275 wae shipped by steamer on the 4th inet.

BULLION.—Forty ounces of gold were received at the bank Wednesday, the product of the Ready Relief.

TRINITY COUNTY.

Weaverville, *Journal*, April 13: BIG THING.—The claim of H. Lorenz & Co., at North Fork, is paying well. A new and very rich channel hae been fonnd.

DISCOVERY OF RICH GRAVEL.—Whitmore & Co., in working the old Simonds claim on the southwest side of Trinity river, ahove Junction City, on a plateau 400 ft. above the river bed, tailed through a large flat—the water from the claim naturally cut its way through the red cement and gravel to the bed-rock, in its rapid descent to the river, exposing one of the richeet blue gravel leade ever seen in this county. The lead is 200 ft wide with an average depth of 20 ft. The lead as exposed runs diagonally through a level plain of some 200 acres that has been prospected in many places without striking pay-gravel.

CANON CREEK.—Cor. same: Wilt & Wolff Bros. made a partial clean-up in their Mogul Hill (hig blaet) claim last week, merely to prospectit, which resulted very well.

Nevada.

EUREKA DISTRICT.

PROSPECTORS.—Eureka *Sentinel*, April 10: A party of 4 prospectors left yeeterday for the Colorado gold mines. Another hatch leavee to-day.

MAGNOLIA.—Work is being vigorously prosecuted on the Newport series of the Magnolia Co.'e minee. The main shaft is down something over 130 ft. and the ledge ie continually widening and improving. The ore is said to be ae fine as any found in thet part of the dietrict.

LEMON Co.—The mill will eoon be ready for active operations, the White furnace being rapidly approaching completion.

CORONA CONS.—There are 8 claims consolidated under this organization, comprising eome of the most promising mines in the diet. The General Supt. will be here the first of next week with an ample working capital to put the mines in a thorough etate of development.

MORAY DIST.—We were honored with a call from Mr. Ogden, who represente a Co. of New York capitaliste whose property is located in Moray dist. 75 miles south from this point. The Co. are about erecting a large mill in that diet.

PINTO.—The various mines of the Co. are looking splendidly. There are large quantitiee of ore on the several dumpe. The mill will probably start up about the firet of May for a eteady run through thie summer.

ELY DISTRICT.

BULLION.—Ely *Record*, April 7: W. F. & Co. shipped to-day bullion valued at $14,937.23.

PIOCHE.—White Pine *News*, April 6: The shaft on the Bowery is down 200 ft. A level will etert to cut the chimney of ore found above in the 80-ft. level. Hoieting from the 100-ft. level from the weet side of the ehaft, and ehipping to mill. There is about 300 tone of ore on the dumpe. Material for hoisting works is on the way from S. F.

PAGE & PANAOA.—The ehaft, down 152 ft.. ie one of the finest timbered shafte in the district. The ledge was cnt at the bottom of the shaft. Have drifted 66 ft. eact and 20 ft. west. The vein ie from 4 to 5 ft. wide, ehowing hunches of fine mineral. The ledge was tapped on top of the chimney. The Supt. will sink the ehaft 200 ft. deeper in orderto tap the main ore-body. Hoieting works and reserving engine will be pnt up soon.

INGOMAR.—The Sup't ie pntting down a ehaft. It is said there is a fine body of ore in eight, assaying ae high as $450 per ton.

LEHIGH.—Sinking a vertical shaft to cut the ledge at a depth of 200 ft. The eheft is down 60 ft.

THE Bowery Mill, at Bullionville, commenced working on the 21st of March, and turns out bullion to the amount of $1,500 per day from the Bowery mine.

BULLION.—Reno *Crescent*, April 6: During the first 6 daye of thie month, there hae paseed through W., F. & Co.'s office, in Reno, 16,222 lbs. of hullion. The value of this will not fall ehort of half a million dollare.

WASHOE.

HALE & NORCROSS.—Virginia *Enterprise*, April 11: In the mine drifts to the southward are being run on hoth the 9th and 10th levels; the 10th corresponds to the 1,500-ft level of ths Savage. Theee drifte ere heing run in the rock lying weet of the vein, and are ahout 200 ft in length. In driving through the west country rock occasional etreaks of ore have been met with, which makee the Co. quite confident of finding good hodiee of ore when they come to cross-cut. When they are ae far eouth as they intend going, they will etart several cross-cuts on the drifte on the 2 levels named.

BIG WORK.—The new Eureka Mill, Careon river, iedaily prodncing 160 tone of ore, and all the machinery ie not yet rnnning. Soon the whole of the etampe will he started up, when 180 tone of ore will be put through the mill.

SAVAGE.—In the drift on the 1,500-ft level eome water was struck, and aleo some quartz which promises well for ore. The ore body on the 1,400-ft level, near the winze, is improving in appearance.

GOOD ORE.—A body of excellent ore, ahout 4 ft in width, was etruck in the incline from the upper tunnel of the Globe, day before yesterday. The ore was found at the bottom of the incline, ahout 60 ft helow the level of the tnnnel. An aceay of what wae selected as average rock went $42 40. Some very good ore has also been found in the raiee from the tunnel of the Arizona and Utah, a mine adjoining the Globe on the north and on the eame lead.

SUTRO TUNNEL.—The Tunnel wae in on the 7th inst. 2,821 ft—ground hard. Shaft No. 1 is down 145 ft; No. 2 ie down 327 ft; No. 4 ie down 172 ft; No. 4 ie down 145 ft. In the last mentioned ehaft the ground is very hard and a considerahle quantity of water is coming in.

NEW MILL.—A new and first class mill will ehortly be erected on the eite of the old Rock Point mill at Dayton.

MARCH YIELD.—During March there was worked of Crown Point ore 10,753 tons, which yielded $630,848 01—heing at the rate of $58 67 per ton.

CON. VIRGINIA.—Thie Co. are actively engaged in opening out and re-timbering varione drifts and tnnnele on the 500-ft level. They are getting things into ehape for active operations.

BIG YIELD.—The yield of ore of the Crown Point for the week ending April 5, wae 3,003 tons. The eetimated value of that eent to the mille was $197,793 56.

BULLION.—We yeeterday eaw npon the connter of the Bank of Cal. eilver bricks to the amount of $100,000.

THE new Overman sheft ie down 690 ft and the Caledonia shaft is down abont 600.

THE Yellow Jacket Co. are taking out ahont 100 tone of ore per day, and at the same time are doing a considerable amount of deep prospecting.

OPHIR.—The drift eonth on the 1,100-ft level is in 138 ft eouth of where the main drift from the ehaft cuts the lead. It ie heing rnn in the east conntry, and during its progress numeroue streaks of qnartz have been cut. Though these streake contain no ore, the rock ehowe by aesay a emall per cent. in gold and eilver. When the crose-cute are made 4 or 5 will be etarted at once. The drift north on the

same level is in 108 ft. The indications in that direction are not so favorable as to the sonthward. On the 1,300-ft level the drift west, toward the lead, is in 30 ft.

THE LOWER LEVELS.—The indications in the 1,100-ft level of tho Ophir are quite flattering and the grounnd at tho bottom of the Imporial Empire shaft is presenting a more lively appearanco than has yet been observed in any deep workings in that vicinity. In fact, throughout the whole length of tho Comstock tho "situation" is most flattering.

JUSTICE.—The wator is lowerod in the main shaft to a point 36 ft below tho third station. The shaft will bo drained in about 4 days, when the Co. will bo ready to resume work on their east drift. This drift is in 80 ft, and it is expected that the load will be cut in goiug a furthor distance of 25 or 30 ft.

CROWN POINT.—Gold Hill *News*, April 6: By means of doublo cagos and the best hoistiug machinory on the Comstock ledge, about 500 tons per day is the yield of this mine. Tho working levels in the rich deposit are yielding well and regularly, and the assays of ore from the 1,200-ft levol average nearly $100 per ton. The extent of this great ore body is undefined and simply immense. The product of the mine during tho prosent month will prohable bo $1,000,000.

IMPERIAL EMPIRE.—Tho great shaft of the Imperial and Empire Co. is 1,300 ft deep, and the bottom being in the hard, west country rock, an incline was started from the 1,300-ft level, followiug tho west wall of the lodge at an angle of 42 deg. When it reached the 1,500-ft level of the mine a station was opened for a developing drift at that point, and the incline continuod down 175 ft further in length, attainiug a perpendicular depth of 1,600 ft. Another station will soon be opened, when the ledge can he prospected at two vital points. The inoline is still boing continued. The rock is very hard, but blasts well, and good progress is made. No water is encountered at that depth. The old mines of the Co. are not being worked at present, but both combine in this great shaft.

WHITE PINE.

BULLION.—W., F. & Co. shipped from this city, to-day, to London, for Eberhardt & Aurora M. Co. (limited), 3 bars, weighing 207 lbs., valued at $3,882.04.

TREASURE HILL MINES—NORTH AURORA. Since last review the Eberhardt & Aurora Co. have leased the right of way through the Sonth Aurora tnnnel. A contract is let to rnn throngh to the Risdale shaft. There is a strip of unprospected ground between the south line of the North Aurora and the Risdale shaft, and the probability is that another chamber of ore will be fonnd before connection is made with the Risdale chamber. The tunnel will tap the ore body at a greater depth than any of the present workings. The ore in the Risdale chamber has increased in body since last mentioned in our report, and the grade has not changed. Hoistiug day and night through the Risdale shaft. Seventy-five tons of ore are raised every 24 hours, that mills over $100 to the ton.

SOUTH SHEBOYOAN.—A tunnel is being run in from the O'Neil Grade to cnt the ore deposit. The formation is shale. Only one shaft at work. It goes ahead at the rate of 3 ft. per day. Should the rock remain as favorable as at present, the ore-body will be reached inside of 2 months. The tunnel is in 60 ft. It is calculated that 90 ft. more will cut the ore.

EBERHARDT.—Breasting out south of the Keystone shaft. The ore is piled back at present. As soon as the weather moderates it will be shipped by tramway to mill.

SECOND SOUTH EX. OF HIDDEN TREASURE. Since onr last visit a drift has been started to run south from the bottom of the Anchor incline. There is a fair quality of milling ore in sight. The grade has improved since last examined. The drifts running to connect the North shaft with the Auchor are making good headway.

WARD BEECHER.—The east drift from the Lady's chamber is under tho winze of the Lady's chamber. As soon as winter subsides, a force of men will be put on in the open cut. It is estimated that there are 5,000 tons of fair milling ore in sight in the different openings.

BEECHER CON.—The east drift is going ahead in good ore. It is rumored that the mine will start up with a full force of men, when the Supt. arrives.

SAN JUAN DEL RIO.—Work on this mine goes ahead as usual.

EAST SHEBOYOAN.—The ore in the ore-chamber and west cross-cut holds up to the nsual grade.

SOUTH AURORA.—A force of 6 men is employed sinking the shaft in the east drift. Work is snspended for a time in the other workings of the mine.

NOONDAY.—A force of 5 men is at work hreasting out.

SILVER WAVE.—Supt. Fleming has let a contract to sink the Perkins shaft 50 ft. deeper. A fair quality of ore is extracted from the Boswell shaft.

COPPER GLANCE.—Ore of a fair grade has been found. A drift has been pushed ahead for the purpose of finding the extent of the ore-body.

SCHELL CREEK MINES.—Tho El Capitan and Woodburn mines havo been purchased. Tho undorstanding is that mills will bo erected at an early day. The miues at Ruby Hill, whore openings havo beou mado, show rich ore. The great want is custom-mills to work the ore.

Colorado.

ITEMS.—*Colorado Miner*, April 6th: G. W. Hall crnshed, sacked and shipped, since last roport, 45,474 lbs.

Campbell & Clark shipped, for March, ou account of owners, 31,348 lbs.

Baily & Nott shipped, siuce last week's report, 20¾ tons. On hand and sacked for shipment, 250 tons.

Palmor & Nichols have resnmed shipmonts of bullion. Bar No. — weight, 654 90-100 ozs., silver; fineness, .736; value, $623.20 coin.

Thoro were crushed, sampled and sacked, during March, at the Snowdrift Co.'s mill, Silver Plume, 164,911 lbs of ore, varying in value from 60 to 1,300 ozs. of silver per ton of 2,000 lbs. Nearly all the ore was shipped to England.

Idaho.

MINING AFFAIRS.—Idaho *World*, April 4: On Buena Vista Bar, Headen & Co., Peak & Co., and one or two others this side of Warm Springs, are working night and day, and above them 4 or 5 Chinese Co's, employing about 130 men, have heen runuing for 2 or 3 weeks past. Above town, on North Elk, Silsby, Barrows & Co., who leased Baldwin's ditch, are at work uear the mouth of Cuddy's Gulch, and in that immediate vicinity Rush & Co., J. Collins and P. Donohoe are also at work, Rush & Co. running day and night with a good head of free water, having already run off a large extent of ground. On Deer Creek, above that point, Tanner & Co., Preuss & Co., Webster & Cowan, Swain & Co., and Bell are making the best use of their time and water; while in Spanish Gulch, Stirmau and 4 or 5 other Co's are prosecuting work in a lively manner. On Bear Run, Keller & Bidwell and West & Ralston have been working 10 days or 2 weeks past, and are ruuning any amount of tailings down into the upper portion of Main St. None of the long ditches have, as yet, been cleaned out, but work is being done on the Alderson ditch, and it is expected that they will get the water through in from 10 to 12 days. Next week work will also be commenced on the Big Ditoh for the purpose of getting the water through as early as possible, but nothing will be done on the Moore Creek ditch for 2 or 3 weeks yet. Willis has got the water through his upper ditch, upon Gold Hill, and is working his claims near Lincoln Gulch, ahd K. P. Plowman expects to have water running in his ditch in a few days, to commence work on his claims in Bear Run Gulch.

Montana.

NEW DISCOVERY.—Helena *Gazette*, April 1: Yesterday we saw some rock from a silver lode recently discovered near the head of Clancy Creek. The new discovery is called the Little Giant, and at 6 ft., has a solid body of one ft. of ore, which assays $114 to the ton, on an average from several assays.

BEARTOWN.—Deer Lodge *Independent*, April 6: The miners are elated at the prospect of a good season. Robt. Fenner and Michael Laforcate, at the Top of Deep, have put in 1,000 ft. of fluming, and built a large reservoir. They have a hydraulic and intend working night and day. Hawley & Co., have been prospecting a bench on Deep, 100 ft. above the gulch, opposite No. 61 below Discovery; they have ruu a tunnel 40 ft. and sunk a shaft 16 ft. deep, and are digging a ditch to bring water on the ground. There are 5 Co.'s on Elk Creek who value their claims at from $10,000 to $25,000 eaoh. Mr. Hyde, our informant, was shown some rick specimens of gold-bearing quartz taken from a lead at the head of Frst Chance. Ten men are starting in to work the new mines ou the Flint Creek Hills, a ditch 4 miles long having been brought in last season for that purpose.

Some gentlemen were up at Cariboo 10 miles southeast of town, this week looking at some quartz lodes with a view to putting up arastras for working the same.

The Rock Creek Ditch Co. have men engaged cleaning ont the ditch prepatory to turning in the water.

Lew Smith & Co., havo gono up to their mines on Lost Creek with the intention of commenceng work.

The water will be turned into the Miuers Ditch at Fredrickson tho coming week.

GERMAN GULCH.—Ford McCleory & Co., have commeuced work; several other Co.'s expect to commence work next week.

PHILIPSBURG.—Both mills are running. Brown & Plaisted cleaned up about 400 lbs. of hullion from 15 days rnn, on ore from tho Eastern Comancho, Dashaway and Horton. Mr. McArdle, Sec. of the St. Louis & Montana M. Co. and Mr. Newoomer brought up 60 lbs. of hullion from Col. Lyon's mill, taken from Speckled Tront oro. This hullion is worth about $10 per lb. Brown & Co. aro engaged takiug out oro from the Rumley & Bugher mine. Tne lode in some places is 40 ft. wide, and carries its width as far as developed.

Utah.

BIG COTTONWOOD.—S. L. *Tribune*, April 9: The Illinois and French mines have been worked through the wiuter, yielding a large amount of good ore. The Sailor Jack and McDougal, on Gesler's Peak and the Two Robinsons and Little Giant, in auother portion of the coñon, are all being developed to a good account. The Reed and Benson mine will start up in a few days.

CAPT. SHAW who is erecting a mill at Camp Floyd for an English Co. owuing mines there, is sanguine of large results, having already abont 1,800 tons of ore on the dump to start on, and, with the mines developing richer every day, he expects to ship about $40,000 worth of bullion per month.

STAR DIST.—Among the leading developed mines are the Indepeudence, London, Liverpool, the Pitney, Ruby, Frankland, Eclipse, all on Ruby Hill. The ledges are located in a quartzite formation, which indicates permanency, and are clearly traceable for 1½ miles in the hill. They ruu from 3 to 7 ft. in width, increasing as depth is attained. The ore is free milling and very rich, the average assays running from $94, the lowest, to $2,000 the highest.

S. F. Stock Exchange Board.

SAN FRANCISCO, April 18, 1872.

The sales at the Board for the week ending the 12th inst. aggregate the unprecedented sum of $7,183,700. For the first three months of this year they have heen as follows: January, $17,778,915; February, $24,774,331; March, $17,629,387, making an aggregate of $60,182,633 for the quarter. For the same time in 1869 it was $21,737,500; in 1870 $13,660,000, and in 1871, $21,701,725. These figures will show the magnitude of the operstions for this year. The Crown Point mining Co. paid out last week in dividends $300,000; the Belcher, $208,000; Eastport Coal mining Co., $2,500; Keystone Co., $7,500; Raymoud & Ely, $210,000; Yuba Gravel mining Co., $5,000; and this week the Meadow Valley miue has dishursed $90,000.

The Chollar-Potosi mine turned out last week 967 tons of ore assaying $43.03. The Crown Point yielded the enormous amount of 3,037 tons estimated at $188,000. The March expenses were $203,515 and the receipts $630,848. The War Eagle sent down this week $11,631. The Savage produced last week 600 tons of ore assaying $47.68 and the Hale & Norcross 540 tons. The Hale and Norcross Mining Co. at a meeting to-day increased their capital stock from $1,600,000 in 8,000 shsres to $3,200,000 in 16,000 shares. The meeting of the Consolidated Virginia to he held on May 20 is for the purpose of taking into consideration a proposition to increase their capital from $5,800,000 in 11,600 shares, to $7,080,080 in 23,600 shares of $3.00 each.

The stock market has heen more active and excited during this week than ever before in its history. Everything hss gone up at an unusual rate and everybody is investing in stocks. Washoe descriptions hold the lead. The sessions of the Board have heen prolonged and the street business has heen heavy. The numher of people who are engaged in buying stocks are large and all those who weut in early have sold out with handsome profits.

On Friday the excitement was great and the business was so large that only part of the list was called at a time. The Board went in half an hour earlier that day and held only one session on scconnt of the funeral of a member. Saturday there was no abatement in the excitement and the whole list of Washoe stocks still continued to rise. Monday, market again active and prices rising, and at the second session the further advance was surprising, consideriug that nearly all kinds were unusually high, and a general fall was expected. The market value comhined ou that day of Alpha, Belcher, Chollar-Potosi, Confidence, Cousolidsted Virginia, Crown Point, Exchequer, Gould & Curry, Hale & Norcross, Imperial, Kentuck, Overman, Savage, Segregated Belcher and Yellow Jacket was $54,518,000 while at the same date in 1871 they were all worth together only $9,064,200 according to value of stock. The incrcasc was, $45,453,800. Wednesday, stocks were still active and the Board held a long scssion, and it is proposed to employ short haud reporters to expedite husiuess since it is now impossible to write it up. To-day (Thursday) operations are still active and they have in fact heen prolonged ou that basis to a greater time than was anticipated. The session to-day was very active hut a general depreciation of prices is anticipated and it only remains to be seen who comes out "second best."

Comparative Prices—Extremes, Advance and Decline.—S. F. Stock and Ex. Board.

	April 11.	*Highest.*	*Lowest.*	April 18.	*Adv.*	*Dec*
Alpha	$71	150	65	125	64	—
American Flag	15½	18	14½	18	2½	—
Belcher	850	1020	835	1000	150	—
Buckeye	5	10	4⅞	—	—	—
Chollar-Potosi	125	245	117½	245	120	—
Caledonia	39	95	35	—	—	—
Cons. Virginia	95	150	85	130	35	—
Crown Point	1000	1500	960	1350	350	—
Dancy	4¼	9½	4	9½	5¼	—
Eureka Cons	27⅜	35	26	35	7¾	—
Eureka	17½	17⅝	16	—	—	—
Excelsior	80	90	26	—	—	—
Gould & Curry	400	530	375	530	130	—
Golden Chariot	18½	25	17½	—	—	—
Hale & Norcross	515	710	425	710	195	—
Imperial	260	375	220	360	100	—
Ida Elmore	18¾	28	17¼	—	—	—
Kentuck	350	475	325	455	105	—
Mammoth	—	—	—	—	—	—
Meadow Valley	25½	25½	21	23½	—	—
Mahogany	18	22½	18	—	—	—
Ophir	85	170	80	150	65	—
Orig. Hid. Treas.	—	14	12	—	—	—
Overman	95	155	87	150	55	—
Pioche	17	17	15	—	—	—
Raymond & Ely	110	118	105	115	5	—
Savage	410	610	387½	610	200	—
Sierra Nevada	46	57½	42	56	10	—
Succor	—	13	5⅞	13	—	—
Wash. & Oreole	7¼	7¼	6	—	—	—
Yellow Jacket	185	235	195	195	40	—
St. Patrick	—	20	20	—	—	—
Seg. Belcher	120	160	160	160	40	—

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

ASSESSMENTS.

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	DAY DELINQUENT.	DAY OF SALE.
Alps S. M. Co. Nev., March 1, 75c.	April 9	April 30
Buckeye M. Co., Nev., Mar. 23, $1.25	April 26	May 15
Cons. Virginia M. Co., Nev., Mar. 19, $3.	Apr. 24	May 18
Dancy M. Co., Lyon Co., April 3, $1.50.	May 9	May 27
Francis M. Co., Cal., April 5, $1	May 14	June 4*
Golden Chariot, Idaho T., April 12, $1.50.	May 22	June 18
Gould & Curry, Nev., Jan. 30, $15	Mar. 4	April 25
Grand Duke M. Co., U. T., Mar. 5, 25c.	April 15	May 15
Ida Elmore, Idaho, March 5, $3	April 11	May 10
Ingomar S. M. Co., Ely, April 2, 25c.	May 8	May 31*
Hahb & Hunt S.M.Co., Nev., Mar. 20, 25c.	Apr. 29	May 27
Jackson M. Co., Nev., April 3, 25c.	May 5	May 25
Knickerbocker, M. Co. Nev., Mar. 23, 50c.	Apr. 27	May 17
Lemon M. and M. Co., Eureka, Apr 1, $1.	May 7	Jun 12
Louisi M. Co., Nevada, April 6, 10c.	May 14	June 10
Lyons & Wheeler Co., A. T., April 6, 10c.	May 15	June 3*
Mahogany M. Co., I. T., April 3, $1.50.	May 11	June 3
Marcelina S. M. Co. Mar. 8, 10c.	April 15	May 7*
Mt. Jefferson M. Co., Cal. Apr. 3, 30c.	May 6	May 22*
Nevada L. & M. Co., Nev., March 28, 4c.	May 2	May 24*
Nuestra Senora de Guadelnpe, May 12, $2.	Ap 15	May 8*
Opbir S. & G. M. Co. Cal. Mar. 18, 20c.	April 20	May 7
Overman S. M. Co, Gold Hill, Mar. 18, $4.	Apr. 13	May 13
Page & Panaca, Nev. April 12, 50c.	May 20	June 15
Peter Walter M. Co. Placer Co. Mar. 11, $1.	Apr. 18	May 6
Phœnix S. M., Nev., Mar. 19, 75c.	April 24	May 15
Pocahontas O. M. Co., Cal., Feb. 25, $5.	April 6	May 5*
San Buenaventura Co. Cal., Jan. 19, $1.	Feb. 29	Mar. 29
Siempre Viva Co., Mex., Mar. 25, 30c.	May 2	May 20*
South Eureka, Nev., Mar. 2, 15c.	April 4	April 23
S. Gold Hill M. Co., Nev., Apr 1, $2.50.	May 6	May 27
S. F. M. Co., Utah Ter., April 13, 25c.	May 15	June 8*
Silver Wave, W. P., Nev. Apr. 10, 50c.	May 14	June 13*
Spring Mt. Tunnel Co., April 11, 15c.	May 20	June 10*
Sncoor M. & M. Co., Nev., Mar. 20, $2.	April 23	May 15
Sumner, Kern Co., April 11, $10	May 22	June 21
Tallulab M. Co., Nev., April 5, $1.50	May 7	June 4
Tecumseb O.S & O.M.Co. Cal. Mar. 20, $3.	Apr. 23	May 14*
Union G. M. Co., Cal., April 11, $1	May 13	June 3*

MEETINOS TO BE HELD.

Adams Hill Con. M. Co.—Annnal Meeting, May 6
Central Coal M. Co.—Annual Meeting, May 6
Golden Age & Empire M. Co.—Annual Meeting, May 27
Greene M. Co.—Annual Meeting, April 27
Best & Belcher M. Co.—Meeting May 13
Empire M. Co.—Annual Meeting, May 13
Eureka M. Co.—Annual Meeting May 7
Hope Gravel M. Co.—Annual Meeting, April 23
Hnhn & Hunt S. M. Co.—Annual Meeting, April 22
Independent G. M. Co.—Meeting May 8
Kinston M. Co.—Annual Meeting April 20
Spring Mountain Tunnel Co.—Annual Meeting May 9
Nevisda Land and M. Co.—Special Meeting April 25
Original Hidden Treasure M Co.—Annual Meet, May 7

LATEST DIVIDENDS—(Within Three Months).

Belcher, $20.—Payable April 10
Cbollar Potosi, $1.—Payable Feb. 10
Crown Point, $25.—Payable April 12
Eastport, Coose Bay, Coal M. Co. 1 per ct.—Payable Feb. 12
Eureka Gold M. Co., $1.—Payable March 11
Keystone M. Co., $7.50.—Payable April 10.
Meadow Valley M. Co., $1.50.—Payable April 13
North Star O. M. Co., $7.—Payable April 9
Raymond & Ely, $5.—Payable March 8
Raymond & Ely M. Co., $7.—Payable April 9
Yule Gravel M. Co., 50c.—Payable April 10

—*Advertised in this journal.

QUARTERLY DIRECTORY.—D. M. Bishop & Co., publishers of the "S. F. Quarterly Trades Guide and Merchants' Directory," announce their intention to add to their publication a complete business directory of every place in the State.

Steam Communication and Engine Power for Isolated Mines.

The large number of enterprises recently introduced to the notice of British capitalists, and connected with the development of the enormous mineral resources of the far western portions of the United States, has led to many inquiries as to how it happens that men so admittedly acute as the Americans should offer valuable mining concerns in the English market instesd of retaining them for themselves, and the almost invsriable confirmation of the vendors' statements as to the intrinsic value of the minerals by independent English engineere to clear up the mystery. The facts, however, are extremely simple. Most of the mines are situated so far from railways, etc., that it is not profitable to carry the ore to market, and the necessary plants and machinery cannot be got to the mines without far larger capital than the ownere have at their disposal, especially where, as in many cases, the mines have been heavily encumbered to obtain the requisite funds for prospecting and proving the mine; but when once the mine is furnished with a good park of machinery there is nothing to fear, for as bullion is carried at the same price per ton as ore, the profits on sending it down are ample.

The profits earned by the companies already on the English market have been eminently satisfactory, yet most of the mines would have been far more advantageously placed had they had facilities for cheap and rapid transport, and for the erection of ample machinery at the mines. In countries so thinly populated as Utah, Colorado, New Mexico. etc., the construction of railwaye must, for sometime, be so limited that comparatively few will be benefited by them; but now that it has been demonstrated that a speed of 20 miles an honr can be obtained with a traction-engine of eubstantial coustruction, there is no reason why any mine within 1,000 miles of a railway should not be brought within forty-eight hours of established communications, especially when the route is through fertile valleys, where there is an abundance of fuel and water to keep the traction-engine going. With snch means of communication there should be no difficulty in keeping the mines well supplied with materials, without much additional expense, as compared with the prices paid at the nearest manufacturing cities.

In mining operations, moreover, considerable advantage results from plenty of steam-power being at disposal, and in providing thie (aided by modern inventions) a mine a few hundred miles from a line of railway is really no less favorably situated than one but a few miles distant. Tube boilere, no part of which weighs more than ¾ cwt., are eo easily conveyed on the backs of mules, or even of men, when absolutely necessary, that steam equal to 300 or 400 horse power can be readily had in the most isolated district. With boilers of this class the quantity of steam generated depends simply upon the number of (say) 60 lb. tubes used, and as all of these are filled with water, and in communication with one and the same steam chamber, which may consist of a tube capable of bearing a maximum pressure per square inch, explosions, with their attendant delays, are almost impossible. Assuming a traction-engine line to be established between the mines and the railway (and thie really involves but the ontlay for the price of the engine), carriage of boiler sections and parts of engines would offer no difficulty whatever, and all delays in putting such mines in profitable operation would be at an end.

In Australia and South Africa there is the great difficulty arising from the absence of water and fuel, but on the Pacific elope of the United States there is abundance of both, so that the eetablishment of good traction-engine lines in those regions would be alike advantageons to the miners and remunerative to those supplying the capital to purchase them.—*London Mining Journal.*

Farming One Hundred Years Ago.—In 1790, Franz Fuse, of Bohemia, one of the authorities of hie age, spoke of the prevalence of the inventive spirit, which he donounced. He was himself a witness that "the folly had been pushed to euch an extent" that people were trying to make eowing and reaping machines. But he "thanked God" that the farmers had still *some* judgement left, and thus these stupid efforts to get something new met with their proper reception—neglect.

The stock of mill iron ie lower than it has been for years.

Gould and Curry Improvements.

The Gould and Curry Company, says the Virginia *Enterprise* of the 4th inst., are making very extensive and important improvements at their main shaft. The old hoisting frame and all connected therewith is being taken down preparatory to the erection of new and more powerful and substantial hoisting machinery. The works were shut down day before yesterday for the purpose of making this change, and the new works are in such a state of forwardness that they will be ready to start up in about ten days from the present time. A new and most substantial fireproof building of etone and brick, forty by eighty feet in size, is being erected over the Bonner shaft, and in this is now being set up a new and powerful hoisting engine. This engine is of the same capacity as the large new engines in use at the Crown Point and Belcher mines, and it will be used for hoisting up from the new incline about to be commenced below the 1,500-foot level. All the machinery is very heavy, the fly-wheel weighing 6,200 pounds, the spur-wheel 9,600 pounds, and all else in the same proportion. The opening for the commencement of the incline is completed, and now stands the largest untimbered cavity on the Comstock range, being a grand artificial cavern forty-two feet wide by sixty-five in highth. But that this work is done in hard blasting-rock it would be very nnsafe to make so large an opening without socuring it with heavy timbers.

The bottom of the Gonld and Curry shaft is now lower than any other point reached by the Comstock. The bottom of the shaft is 1,800 feet below the surface, and below this has been eunk a sump twenty-one feet dceper. At the bottom of the sump has been blasted out, to the westward, in the solid rock, a reservoir capable of holding 35,000 gallons of water. The bottom of the shaft and bottom of the sump are perfectly dry, but it was thought best to make the reservoir in order that any rush of water (from any source) could be controlled. It is not likely that they will ever be troubled with water from below, but in case of accident to the pumping machinery that above might flood the incline, in case no receptacle for it was provided at the bottom of the shaft. The new building will be covered with an iron roof, and every precaution taken to guard against fire from the row of frame buildings standing immediately to the west. An improvement worthy of note in the sheaves of the hoisting frame, over which the wire cable will run, is that they are all lined with wood. This improvement was the suggestion of Mr, Lackey, Superindent of the mine, and is one which will doubtless be adopted in all our leading mines. The cable running over wood, instead of iron, will prevent the weakening of the strands by cryetallization. Workmen swarm about the shaft and everything is in such a state of forwardness that we have no doubt of the new works being ready to start up at the time mentioned.

Legends of the Yellowstone.

Here, the trappers tell us, is the "mother region" of the gold, where the Indians told Father de Smet it was found on the surface. Here are the burning plains, so testifies Bridger, at the head of the Yellowstone, and large lakes, and boiling springs like the geysers of Iceland. Here he eaw his Two Ocean River, which, after flowing for some distance, eeparates into two large etreams—one traveling to the Atlantic, the other to the Pacific. In one of these vales is a large tract of sage brush, every leaf and branch perfect, and here and there are rabbits, sage hens, and even Indians, all turned to solid etoue. Ill fares it with whosoever penetratee these mysteries, for the genius of the place at once adds him to the group of statuary. More wonderful still—and our trapper told it with great awe—these bushes bear rare fruit—thousands of rubies, sapphires, diamonds, emeralde large as walnuts. "I tell you, sir," said one veracious narrator to Captain Reynolds, "it is true, for I gathered a quart myself, and sent them down the country." A party of whites were once hotly pursued by Indians, and could only travel by night, when they were aided by the brilliant light shot from a huge diamond in a neighboring mountain, by which they traveled on for three coneecutive nights. Here once an old trapper was loet on his road from Fort Laramie to Taos, and wandered for many days; and in drinking from a stream found pieces of yellow metal large as hazel-nuts which he carried to Taos and found to be gold. He spent many years seeking the place again, but in vain. These and many other legends and traditions of these regions the trapper gave us as truths familiar in the mountains as household words, which it would be impious to doubt.—*Lippincott's Mag.*

Cone of Sequoia Gigantea.

This Sequoia is a native of California only, and though ranked among the tallest and largest of trees, its seed bearing cones are among the very smallest of all the conifers. The trees are found principally in Calaveras, Mariposa and Fresno counties, but are seen in a few other placer in the Sierra Nevads. They attain a hight of between three hundred and four hundred feet, with diameters from one inch at a year old, to 37 feet, or 112 feet in circumference at the base of the trnnk.

There was one tree in the Calaveras grove that when first discovcred was prostrate, that

must have messured when in the vigor of its growth very nearly 450 feet high. The grove was first discovered by one of a party of American miners on a hunting expedition in the mountains in 1850. The seeds have heen widely disseminated and the trees are now found growing luxuriantly in nearly all parts of the United States, England and many places on the European continent, apparently as healthy and vigorous as in their native soil.

The illustration herewith given shows the natural size of the cones.

California Pears in Europe.

C. W. Reed, of Yolo county, last fall as a matter of experiment shipped several hoxes of Easter Beuree pears to different points in England. Some to London, some to Glasgow and some to Liverpool. The pears were shipped late in the season and were in the snow blockade on the railroad from three to four weeks. Some went hy the way of Boston, and some by the way of New York.

He has lately received an account of the expcriment. The pears sent by New York arrived in perfect order, and condition; while those sent by Boston had apparently been touched by the frost and were in rather poor condition.

On the whole, the experiment is regarded by Mr. Reed as a perfect success, and proves that California pears can be laid down in any of the above named cities in a good merchsntable condition. It also satisfies Mr. Reed thst pecnniarily the husiness will pay.

In confirmation of the above, B. S. Fox of San José, sent some pears to Ireland, his old home, and although it was a small shipment to friends, it proves that the fruit can he shipped and arrive in good condition. These experiments are of great value to our State. We have already a large market in the Atlantic States for our fruits, and particularly for pears, hut if we can supply England with her millions of people, with our delicious pears at remunerative prices, we have a market literally beyond our ability to supply. Our fruit growers will make a note of the above facts.

Dr. Franklin's Toast.—Dr. Franklin once dined with the English and French ambassadors, when the following toasts were drunk:

The British ambassador said:—"England —the eun whose bright beams enlighten and fertilize the remotest corners of the earth."

The French ambassador, glowing "with national pride, but too polite to dispute the previous toast, drank:—"France—the moon whose mild, steady and cheering raye are the delight of all nations, coneoling them in darkness, and making their dreariness beautiful."

Dr. Franklin then arose, and, with his usual dignified eimplicity said:—"George Washington,—the Joshua who commanded the eun and the moon to stand still, and they obeyed him."

Animal Power.

Eritors Press:—Allow me to ask the following questions, viz.:—

1st. Working a horse or an ox all day, how much—taking in account their respective weight—can they pull and not be over worked?

2d. What is equivalent in the working capacity of three oxen, in horse power?

3d. Pound for pound, which will pull most easily, a desd load, like corn, or a springy one, like hay? T. F. B.

Marengo Rsnch, Los Angeles Co.

In the foregoing qneries there are a few nice points involved. We once took a contract for hauling wheat by the ton a distance of ten and a quarter miles over a generally level road, but with 2 or 3 elevations and depressions of about a fourth of a mile in length each, and of about equal ascent and descent; other than this, the road was hard and good. We put on two new wagons of the same size and weight, and made hy the same man. To one wagon we put a pair of large common farm horses, and to the other a large, good yoke of oxen.

We commenced by hauling a single ton on each wagon, every day with no return load but the empty wagons. Both horses and oxen were fed an equsl quantity of ground feed each, and all the good hay they would eat. Both teams left at the same hour in the morning, but the horses would arrive home three hours the first, heing able to trot most of the way returning. The distance both ways amonnting to twenty and a half miles a day; we found at the end of a single week that the horses—to use a farmers' phrase—held their own, whilst the oxen were losing weight and suffering from fatigue, as they would lie down, almost immediately on bcing turned out, and sometimes before they hsd finished their food.

We now hitched on another yoke of oxen, nearly equal in strength to the first; but the result after another week was the same; the four oxen were more fatigued than the two horses drawing equal loads and changing wagons every day from horses to oxen, so that any differcnce in case of draft would he equalized. It was evident, therefore, that the distance traveled, was whst was worrying the oxen and not the weight of the load. We now put two tons upon the two yoke of oxen and wagon and taking one dsy to go and the next to return; the horses being loaded and going daily as before. After two week's work, the oxen doing the same amount of work as the horses in the same time, were every day improving till the job was completed.

During the whole time, the load for the horses was an even ton weight or averaged that day by day; and with thst load, it required full feeding with ruhhing down and much care, to keep the horses up to their starting condition. On all good roads we should prefer horses before oxen; but in all bad places or in timbered land, where the labor is logging or getting around among brush and bad places with stumps and rocks or mudholes, the paticnt ox is to he preferred.

An elastic weight, as feathers or unpressed hay, against a dead weight as corn or lead, pound for pound, the elastic material will draw the easiest. First, becsuse the *whole load* of the elastic substance does not start at the same instant, and it is easier to start half a load than the whole of it at once; and secondly, because the elastic load will allow of the wheels rising over short inequalities or small stones without crushing them, which if it did crush them would reqnire extra power, because, with the dead weight you would expend the same power in drawing the load proper, and the additional power required to crush the stones. If our correspondent should hold to a different view than we have expressed, we would be pleased to hear from him.

Value of Slow Reading.—Frederick W. Robertson, the distinguished Englieh preacher, once wrote to a lady friend: "I never knew but one or two faet readere, and readers of many booke, whoee knowledge was worth anything. Miss Martineau saye of herself that ehe is the slowest of readers—eometimee a page an hour. But then what she reads she makes her own. Girls read too much and think too little. I will answer for it that there are few girls of eighteen who have not read more booke than I have; and ae to religioue books, I can count upon my fingers in two minutes all I have ever read. But they are mine.'

The President of the Northern Pacifio Railroad company denies the statement that a quantity of railroad iron had arrived in New York from England for the above company, and says that it is the intention to use none but American iron on that road.

Useful Information.

The Nature of Different Resins.

Dr. Sacc, of Neuenburg, Switzerland, has made an extensive inquiry into the nature of different resins. We condense from it the following results. The resins spoken of are copal, amber, dammar, common resin, shellac, elemi, sandarach, mastic, and Caramba wax. All these resins can be reduced to powder.

The following will become pasty before melting: amber, shellac, elemi, sandarach, and mastic; the others will become liquids at once.

In boiling water, Caramba wax will melt; common resin will form a semi-fluid mass; dammar, shellac, elemi, and mastic will become sticky; while copal, amber and sandarach will remain unchanged.

Dammar and amber do not dissolve in alcohol; copal becomes pasty; elemi and Caramba wax dissolve with difficulty; while resin, shellac, sandarach and mastic dissolve easily.

Acetic acid makes common resin swell; on all the others it has no effect.

Caustic soda dissolves shellac readily, resin partly; but has no influence on the others.

Amber and shellac do not dissolve in sulphate of carbon; copal becomes soft, and expands; elemi, sandarach, mastic, and Caramba wax dissolve slowly; while resin and dammar disaolve easily.

Oil of turpentine dissolves neither amber nor shellac, but swells copal; dissolves dammar, resin, elemi, sandarach, and Caramba wax easily, and mastic very easily.

Boiling linseed oil has no effect on copal, amber, and Caramba wax; shellac, elemi, and sandarach dissolve in it slowly; while dammar, resin, and mastic dissolve easily.

Benzine does not dissolve copal, amber, and shellac, but does elemi and sandarach to a limited extent, and Caramba wax more easily; while dammar, resin, and mastic offer no difficulty.

Petroleum other has no effect on copal, amber, and shellac; it is a poor solvent for resin, elemi, sandarach, and Caramba wax, and a good one for dammar and mastic.

Concentrated sulphuric acid is indifferent to Caramba wax; it dissolves all resins, imparting to them a dark brown color, excepting dammar, which takes a brilliant red tint.

Nitric acid imparts to Caramba wax a straw color; to elemi, a dirty yellow; to mastic and sandarach, a light brown; it does not effect the others.

Ammonia is indifferent to amber, dammar, shellac, elemi, and Caramba wax; copal, sandarach, and mastic become soft, and finally dissolve; while resin will dissolve at once.

It is not difficult by means of these reactions to test the different resins for their purity.—*Deuzlin, Polythenic Journal.*

Experiments About Heat.—The Providence *Journal* gives the following interesting experiments made in that city with an excellent glass-mounted thermometer.

In the house with open windows it stood at 90.2°. Out of door in the shade at 95°—freely suspended in the sun six feet above the greensward 99.5°. In the same position with wet bulb 79.9°.—with bulb covered with black silk, 109.96°. When laid upon the grass in the sun it rose to 104°. Laid upon white cloth, placed upon the grass, 105.0°, and when similarly placed upon black silk it indicated 113°.

The experiments with different colored coverings show very conclusively the utility of light colored clothing for those who are obliged to be exposed to the direct range of the sun at high temperatures—and the experiment with the wet bulb shows as clearly the value of free perspiration in keeping down the temperature of the body, which, however, the observer finds in his own person, notwithstanding the perspiration while making these experiments, to have risen to 100.5°—which is about two degrees above the usual standard for cooler days. The average temperature of the healthy human body throughout the year, in temperate climates, is 98.4°—while in tropical regions it is about one degree higher.

The large clock at the English Parliament House is the largest one in the world. The four dials of this clock are twenty-two feet in diameter. Every half minute the point of the minute hand moves nearly seven inches. The clock will go eight and a half days, but it only strikes for seven and a half, thus indicating any neglect in winding it up. The pendulum is fifteen feet long, the wheels of cast-iron, the hour bell is eight feet high and nine feet in diameter, weighing nearly fifteen tons, and the hammer alone weighs more than 400 pounds. This clock strikes the quarter-hours, and by its strokes the short hand reporters in the Parliament chambers regulate their labors. At every stroke a new reporter takes the place of the old one, whilst the first retires to write out the notes he has taken during the previous fifteen minutes.—*Ex.*

Ivory is bleached by exposure to sunlight. For piano makers and others, it is prepared by first sawing it into thin sheets or plates. These are placed on suitable frames, under glass, and exposed to light for several months. The frames are of peculiar construction and patented. They are so arranged as to shift, thus reversing the exposure of the ivory, so that both sides may be duly acted upon by the light.

Long and repeated boiling injures glue.

Sparrows and Mosquitos.

A highly respectable gentleman of New York, well known in this city, having noticed our recent allusion to the great increase of mosquitos in Boston, writes us a private note on the subject. He says that for three years past these pests have been diminishing in New York city. He had been in the city day and night during June and July just past, and had not yet seen one mosquito, nor heard but two or three during the night watches. He attributes this change to the active services of the English sparrow, which have recently been introduced in that city. Four years ago, twenty pairs were imported, and provision was made for their accommodation. Now it is estimated that there are five thousand pair in the New York park and gardens; and their active and industrious habits are believed to have materially diminished the swarms of mosquitos which have heretofore made New York a byword and a hissing among all light sleepers who have sensitive skins. This theory is strengthened by the fact that the same experience has marked the introduction of the sparrows into Jersey City—the mosquitos have greatly diminished there even, which is mosquito land itself.

If there is anything in this—if the English sparrow does actually wage war on mosquitos, as on measuring worms and caterpillars, and other insect nuisances, which threatened at one time to compel the removal of shade trees from all our cities and towns—then we go for importing one thousand or five thousand pairs at once, to be domesticated in Boston and immediate neighborhood, as a matter of more importance to the peace and comfort of our citizens than would be the addition of one hundred extra policemen.—*Boston Traveler.*

Fastening Loose Window-sashes.—The most convenient way to prevent loose window-sashes from rattling when the wind blows, is to make four one-sided buttons of wood, and screw them to the stopes which are nailed to the facecasiugs of the window, making each button of proper length to press the side of the sash outwards when the end of the button is turned down horizontally. The buttons operate like a cam. By having them of the correct length to crowd the sash outwards, the sash will not only be held so firmly that it cannot rattle, but the crack which admitted dust and cold air will be closed so tightly that no window-stripa will be required. The buttons should be placed about half-way from the upper to the lower end of each stile of the sashes.

Canal Boat Propulsion.—Dr. R. Hunter, of Cleveland, Ohio, haa invented a method of propelling canal boats by means of an india-rubber plate attached to the stern of the boat and actuated by steam in the manner of a fish's tail.

Mechanical Hints.

Best Time for Painting Houses.—*Technologist* says: The best time for painting the exterior of buildings is late in the autumn or during the winter. Paint then applied will endure twice as long as when applied in early summer or in hot weather. In the former it dries slowly and becomes very hard, like a glazed surface, not easily affected afterwards by the weather or the beating of storms. But in very hot weather the oil in the paint soaks in the wood at once, as in a sponge, leaving the lead nearly dry and nearly ready to crumble off. This last difficulty, however, might in a measure be guarded against though at an increased expense, by first going over the surface with raw oil. By painting in cold weather, one annoyance might be escaped, namely, the collection of small flies on the fresh paint.

Oil for Harnesses.—Harnesses, it is said, may be rendered impervious to water by thoroughly impregnating them with a mixture made in the proportion of twenty-one gallons of pure whale-oil and fifteen to seventeen pounds of india rubber shreds. Heat these ingredients together at a temperature of from 194° to 240°, which will insure the dissolution of the rubber.

Another.—Alcohol, 1 gallon, white turpentine, 1½ lbs., gum shellac, 1½ lbs., Venice turpentine, 1 gill. Let them stand by the stove until the gums are dissolved, then add sweet oil, 1 gill, and color, if you wish it, with lamp-black, 2 oz. This will not crack like the old varnish.

Elastic Varnish for Leather.—Take two parts by weight of resin, and one of india rubber, and heat them in an earthenware vessel till they are fused together; after which they should be stirred till they are quite cold; a little boiled linseed oil may be added while the materials are hot.

To Improve Gilding.—Mix a gill of water with two ounces of purified nitre, one ounce of alum, one ounce of common salt; lay this over gilt articles with a brush, and the color will be much improved.

Any hard, steel tool, will cut glass with great facility when kept freely wet with camphor dissolved in turpentine. The ragged edges of glass vessels may also be thus easily smoothed by a flat file.

Cleaning Brass.—One of the best liquids to clean old brass is a solution of oxalic acid.

Good Health.

More About Tight Shoes.

Poor, little, pinched, tired feet! How my heart ached for them, as I saw them encased in snug, trim, buttoned boots! They were on the feet of a little girl, four or five years of age. The "night train" had just reached its destination, and early morning found us very tired and sleepy as we stepped to the platform and hurried on our way.

The child had evidently worn those new, tight boots all night, and was now so stiff and lame that each step was a distortion of her dear little feet and ankles. How she must have suffered during the long, long hours of that night of travel! I could but contrast her appearance with that of a little boy by my side, whose shoes were old, and easy, and comfortable. I knew that he had enjoyed a nice night's sleep, with day clothing laid aside, and robed in his night dress as at home. Now he was bright and fresh, and well fitted for the day of travel before him, while the other little one was just the reverse. I thought: "When will parents learn common sense, and dress their children for comfort!" All day long, as I journied on, and many times since, have I seen, in imagination, the poor, little, pinched feet, as I saw them on that morning.

Tight shoes—what misery they give! Who of us has not worn them, and suffered in them, and felt as though we could not endure them a moment longer? How our tempers have been turned, and peevish or angry retorts given, all on account of tight shoes! Away with tight shoes, both for ourselves and all under our care! They are a deadly foe to comfort and happiness.

Let us also be charitable to the failings and faults of others; for if not caused by tight shoes on the feet, they may be pinched somewhere, either in body or mind. There are aches and pains, secret trials and disappointments, that may be called the tight shoes of the soul; and how often we wear them perversely, suffering anguish when we have only to throw off the bondage, the desire for conventional trimness of effect, and, shod appropriately and sensibly, step forth cheerily on our way.—*Hearth and Home.*

Morbid Sorrow.

Too often it is the case that men remember their sorrow, and do not register their joy. But even under afflictions, if men did but know it, there are musical tones which might strike through the requiem's wail. There are lights that might illumine the dark, Rembrandtian sorrows. Men fall into a mania. Sorrow takes on a diseased form. It becomes morbid. It whets and stimulates itself. It ferments. It overflows. It tinges the whole mind from top to bottom with its color. As just after a drenching rain every twig on the tree is fringed with the drops, and every leaf weeps; and, as when some gust of wind strikes it the tree rains again, as if it were a cloud; so, when sad experience comes upon us, we are apt to be remorseless with ourselves, and to work upon our own susceptibilities. We do not put hope over against despair, and cheer over against gloom. Therefore much of the suffering which men have in life, much of the gloom which they are under, results from the not using of themselves wisely. I see in many who come to me a morbid taste for suffering. It is a hideous form of excitement. Persons at last even come to a state in which they want to suffer—or rather, want to be thought to suffer. They want to reap in the fields of sympathy this abnormal and, what seems to me, hideous praise of seeming to suffer. Sometimes no greater offense can be given than to compliment persons on their health, and happiness, and prosperity. For they are martyrs, and they walk under a cape of sadness; and not to recognize that, is to deny them the chief pleasure almost of their life. To be miserable is their joy!—*Beecher.*

Reported Cure of Hydrophobia.—In the newspapers appears the statement of a case of hydrophobia which occurred at or near Detroit, and which was treated successfully by the following means: One grain sulph. morph. was injected hypodermically every four hours, and 30 grains castor given at the same intervals. Small quantities of chloroform were also inhaled. Sleep was produced in half an hour, lasting an hour and a half, and finally the convulsions ceased. The patient was wrapped in a woolen blanket wrung out of a warm solution of muriate of ammonia, 20 grains to the ounce; but this was not done till the symptoms began to yield. There was nothing very novel in this treatment, especially as to the morphia and chloroform, which were doubtless the efficient agents, admitting the case to be correctly stated. The castor and the warm fomentation may have aided slightly. But the patient is described as "barking like a dog," seizing the pillows in his teeth and shaking them like a ferocious dog, etc. This part of the story does not add to its credibility. It is matter of surprise that newspapers conducted by intelligent men will from time to time give currency to such statements, whilst physicians everywhere have declared against them as popular errors. Probably one-half the civilized world still believe that men with hydrophobia act the part of rabid dogs, and are frequently relieved from suffering, through professional authority, by pressure between feather beds.—*American Chemist.*

What to Do in Emergencies.—If a person falls in a fit, and begins to snore loudly, with a very red face, it is apoplexy. Let him be seated so as to favor the blood going downwards, from the head; apply cold cloths to the head, or cushions to equal quantities of snow or pounded ice and common salt. If the person is perfectly still, face pale, and there is no perceptible breathing, it is a fit of fainting. Do not touch him, except to loosen the clothing; then keep off five or ten feet distant, so as to allow the air to come in; make no noise, and there will soon be a calm, quiet return to consciousness and life, for it is only a momentary cessation of the circulation of the blood to the head. But suppose there is a very violent motion of the hands and feet, and are all sorts of bodily contortions, it is epilepsy. Let the man contort until he is tired; you can't hold him still; all your efforts only tend to aggravate the trouble and exhaust the strength; all that ought to be done is to keep the unfortunate from hurting himself. There is no felt suffering, for as soon as he comes to he will tell you that he remembers nothing whatever of what has passed, appears to be the only calm and self-possessed person in the whole crowd, and is apparently as perfectly well as before the occurrence. Dizziness often comes instantaneously, and we begin to reel before we know it. Shut the eyes, whether you are walking along the street, looking over a precipice, ascending a ladder, or climbing to a ship's mast head; the fear of dizziness disappears instantly if you look upwards.—*Hall's Journal of Health.*

Antidote to Phosphorous.—It is well known that many metallic salts, such as acetate of lead, sulphate of copper, salts of mercury, bismuth, etc., are withdrawn from their aqueous solutions by vegetable charcoal, but to a still greater exteut hy mineral black. Carbon also absorbs many alkaloids from their solutions, and it is upon this property that the process is based for the detection of strychnine in beer by its means. MM. Eulenberg and Vohl now show that phosphorous is also absorbed by carbon, and to such an extent that carbon taken in the form of pills constitutes a complete antidote to the poisou, and relieves those who have to manipulate phosphorous from all the disastrous consequences hitherto accruiug. The experiments they have made upon animals have yielded exceedingly favorable results. They prepare the auimal charcoal pills by powdering the charcoal and making it up with a little gum. In match-factories they find the results of these pills are better than those obtained hy the use of the essence of terebinthine of M. Personne, as the continued use of the latter was found to produce violent headaches.—*Am. Artisan.*

California Boarn of Health.—Dr. Logan in his last monthly health report, says:—The State continues in the possession of the high sanitary condition that has ruled for some time past. Pneumonia and catarrhal affections have prevailed pretty generally, but of a mild form; also, rheumatism. Several well marked cases of scarlatina have been observed in differennt points. Small-pox still continues by frequent importations from other places, but owing to the prompt measures adopted in isolating the cases as soon as discovered, it has not spread. There is now one case in Sacramento, which is quarantined in a tent some two miles from the city. Vaccination has been so general as, probably, to render it impossible for this disease to prevail to any extent during the approaching dry season.

Exercise.—The amount of daily exercise necessary for health depends upon the kind of exercise, and varies considerably with different persons and with the same person at different times. A safe rule to go by is to exercise until slightly fatigued. It should not be continued so long that half an hour of perfect rest will not entirely remove all feeling of fatigue. Special exercise for retaining health should not as a general rule be taken less than two or three hours after a meal, except it may be some slight exercise, as moderate walking, riding, etc. A person should always be thoroughly rested after exercise, before eating; perhaps the very best time of day for taking exercise is from 10 to 12 o'clock in the forenoon, although the time may be varied to suit the person's convenience.—*Herald of Health.*

To Cure the Love of Ardent Spirits.—Captain Hall was the commander of the Great Eastern steamship. He had fallen into such habitual drunkenness that his most earnest efforts to reclaim himself proved unavailing. At length he sought the advice of an ancient physician, who gave him a prescription which he followed faithfully for seven months. At the end of that time he had lost all desire for liquor, although he had many times been led captive by a most debasing appetite. The prescription, which he afterwards published, and by which so many other drunkards have been assisted to reform, is as follows: Sulphate of iron, 5 grains; magnesia, 10 grains; peppermint water, 11 drachms; spirit of nutmeg, 1 drachm; twice a day.

To Relieve Frosten Feet.—To relieve the intense itching of frosted feet, dissolve a lump of alum in a little water and bathe the part with it, warming it before the fire. One or two applications is sure to give relief.

Whooping cough is now cured by *compressed air.* Dr. Sardahl, of Stockholm, reports 102 cases rapidly cured by this treatment.—*Medical Journal.*

Scientific Press.

W. B. EWER.....SENIOR EDITOR.

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San Francisco:

Saturday Morning, April 20, 1872.

Gold and Legal Tender Rates.

SAN FRANCISCO, Wednesday, April 17, 1872.—Legal Tenders buying, 91¼; selling, 91¾. Gold in New York to-day, 110⅞.

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Notices to Correspondents.

R. T. writes to us to know whether, in working with a hydraulic with a given fall or pressure, increasing the size of the pipe in which the water is conducted to the nozzle, will increase the force or power of the stream?

If the orifice at which the water enters the pipe remains the same, and also the head or pressure, and size of nozzle, increasing the size of the pipe would make no material difference. That is if your pipe is now of sufficient capacity to carry freely the number of inches you require. If it is not, of course increase it until it will. When you arrive at that point no further enlargement would be any benefit, except that it might decrease the friction in a very slight degree.

The same correspondent wants to know whether carbolic acid is ever applied as a medicine either externally or internally.

It is used externally in cases of bad sores, ulcerations, etc., principally for its antiseptic properties. Sometimes applied internally, but not often. Its uses are as yet little known, and experiments are being continually made with it. When used as a medicine it is generally diluted freely with water.

L. B.—The specimen of ore sent, is micaceous iron.

MR. A. B. PAUL has just finished at the Miners' Foundry, one of his electric chemical, dry amalgamating mills for the Calaveras Mining Co., at Murphy's Camp, Calaveras County. The mill is a very complete affair of six tons capacity.

STOCKS.—By reference to our Stock Exchange report the general activity and rise in price in mining stocks may be seen.

The Scarcity of Iron.

American skill and inventive faculty is constantly applying iron to so many new uses, and our increasing manufacturing prosperity in all the different branches connected with the railroad, foundry and rolling mill interests, causes the present scarcity and consequent rise in value of iron to be much felt. All kinds of iron are reported at very high and steadily increasing prices, with great scarcity. To make the matter worse, as far as any immediate reduction in price is concerned, the demand for iron is very great and increasing wonderfully. There is an extraordinary activity in railroad building, not only in the United States, but in Europe and elsewhere, and the necessity for iron in the manufacture of agricultural implements, engines, iron cars, iron steamships, and the ordinary arts is greater than it ever has been before.

Many reasons for this advance in prices are given. By some it is contended that at the close of last year, all the stock had been nearly worked up by mills using large quantities and they did not wish to purchase ahead until their books told them how well they had done. As soon as they saw the figures were profitable they all wanted to buy at once, which naturally caused the market to rise. Others say that it was through the unprecedented demand for railroad material, caused by the unusual amount of road in process of construction or projected. Again, it is held that the advance is due to the uncertainty as to the action of Congress on the tariff question; for by a reduction of the tariff, trade would be so affected that many furnaces would stop, which cause prodnces to curtail the capacity of their works, rather than increase them, as later developments prove they should have done. Then it is said that it is owing to the greatly increased demand in manufacturing establishments—foundries, mills, etc.—and the progress in this country of making iron building material, iron and steel bridges, mining machinery, stairways, elevators, car wheels, rails, gas and water pipes, stoves and furnaces, iron ships, farm implements, arms, cars, and the numberless little articles for domestic use, tools, etc., all of which helps to exhaust the supply, since they need a large quantity of iron in their manufacture. The labor question in Europe and the uncertainty as to increase of supply, together with the rapid consumption has also been considered.

It is most probable that all of these reasons have a bearing on the question and perhaps it is more likely that they have all exerted their influence, rather than any special cause. However, it is certain that a number of enterprises are suffering from the effect, whatever the cause. Railroad men who commenced the construction of roads a few months since, find their prospective calculations sadly altered by this unexpected rise in iron, and besides having to pay from $10 to $15 more a ton than they expected, may consider themselves in luck if they can procure what they absolutely need and pay cash in the bargain.

The European market is very close and it is impossible to get more than small quantities at a time and then only by paying cash, contrary to the usual custom. The state of the markets has induced skilled laborers, who knew their importance, to keep constantly striking for higher wages, and their efforts have been aided by the coal miners, whose actions have caused English coal to go up higher than ever before, which also exerts a great influence on the iron product of that country. Pig iron has been contracted for by large consumers, in some cases a year and a year and a half ahead, and other parties not so fortunate or farsighted are compelled to run on "short rations."

When this scarcity began to be felt slightly, about a year ago, it was supposed that it would only be temporary, and most iron producers were cautious about increasing their facilities for fear of depressing the market by producing more than the necessities of manufacture called for, and thereby rendering the business improfitable by lowering the prices. The iron-producing regions of the United States have not been able to do as much as they might have done, on account of the scarcity of fuel, caused by the different coal miner's strikes, and many companies have not been able to keep pace with the demand.

Although the foreign article does not exert the influence in our markets that it did when the English had an exclusive monopoly, it nevertheless affects us seriously since the American production is not equal to the demand; nor, in fact, is that of both countries combined just at present.

The progress made in the past few years since the war, by the United States, in the magnitude, scope, and variety of manufactures is such as was never anticipated, even by the most sanguine persons. Our railroad interests are enormous, and we are just turning our attention to the resuscitation of our commercial marine which the necessities of the age require shall be of iron. Not only new railroads are being built, but the extent of lines already constructed which need daily repair in the matter of rails, wheels, etc., would call for a large quantity of iron. Our population is steadily increasing, and the class of emigrants coming to our shores and engaging in agricultural pursuits causes an increasing demand for farming implements, which also consume quantities of iron. We are beginning to ship machinery of this and other classes to China and Japan, and the prospects are that that trade will take a great deal of iron out of the country which would otherwise be used at home. The importance of the mining interests of this coast, to which so much attention is being turned, is bringing capital here, and with it the necessity for mills, machinery, etc., of enlarged capacity and strength, and the iron interests in our part of the country need more of a supply than heretofore.

Iron is the greatest necessity of modern civilization; it is impossible to do without it. If the supply were entirely cut off for a year hundreds of thousands of men would be thrown out of employment, and business of all kinds hurt more or less. We could not advance, and would be compelled in many cases to have recourse to the rude tools of the ancients to perform the necessary labors of the day. Its application is so universal, so wide, that the mind fails to conceive the probabilities of such an occurrence. The world must have iron, and have it in abundance; and with increased production comes an increase of uses. It is to be hoped that the iron producers of the world will use their most strenuous efforts to accelerate the production of their mines and furnaces, and not take advantage of the present scarcity to keep up prices and discourage manufactures.

THE COLORADO MINES.—The new placer diggings on the Colorado river are said to be creating quite an excitement and a number of enthusiasts are about to wend their way thither. People are leaving Schellburn, White Pine, Pioche and other points in the old mining districts, to try their luck in the new placers. Since the information as to their extent and richness is very meagre, everybody wants to know about them, and we should advise all who want to change their abode to wait until something definite is learned and not risk their money and time in running after another "excitement," which may amount to nothing. If the country is rich, there is time enough for all to go, and if it is not, nobody wants to go. A certain class of men, on this Coast, however, are always waiting for some new district, and rush there on general principles, without regard to weather, time, or any other consideration, and to them advice is thrown away. Sensible men will wait developments and reliable information.

New Mode of Prospecting Mines.

The Virginia *Enterprise* mentions a new mode of prospecting, recently adopted in the lower levels of some of the principal mines on the Comstock lode, in which it is desired to keep the condition of the ledge from the knowledge of the workmen. Heretofore it has been customary to run a drift along the vein, and cross-cut at intervals for the purpose of examination. Of course, with this plan, every one gaining admission to the cross-cuts could tell exactly how the vein looked, which did not suit the managers, who desire to have earlier information than the rest of mankind. So they have adopted the device of running a drift in the country rock, parallel to the vein and boring from thence into the ledge at intervals to determine its character and value.

By the boring-in plan the miners see nothing but the borings that come out, and cannot tell whether they are in paying or barren rock; but by frequent assays, the Superintendents know exactly what they are about. It has leaked out, that one or two leading mines in Gold Hill, and the same number at Virginia City have thus been pretty effectually ganged for long distances on from one to three levels. While outsiders have been wondering at the great amount of time consumed in running long drifts parallel to the lead in the mines of several companies, and while they have been asking themselves why no cross-cuts were made, the Superintendents have been quietly boring into and feeling their way along the vein.

This new mode of prospecting a mine is certainly ingenious; but how the stockholders, outside of the "ring," who are taxed to pay the cost of such expensive prospecting, and who have a right to know the exact condition of the mine will like the plan remains to be seen. It is said that the recent astonishing rise in stocks along the Comstock is entirely due to the result of assays of borings secured for the exclusive benefit of the "rings."

ENGLISH CAPITAL IN OUR GRAVEL MINES.—The North America drift gravel claims, at Hepeedam (Whisky Diggings), Sierra county, containing 450 acres, have been sold recently in the London market to the "North America Gold Mining Company," (limited) for $400,000, including $50,000 working capital. The purchase embraces the three groupes of claims known as the North America, Niagara and Vermont, lying contignous in the ridge dividing the counties of Sierra and Plumas. They are well opened, and proven to be propertiee of great value. D. W. C. Morgan, a former resident and mine owner in Sierra, took possession for the new company about one month since, and is making improvements, with the view of employing 100 or 200 men another year—65 men are now engaged, and as many more will be put on in a month or two. These mines are now working profitably, and it is predicted they will prove the most extensive and remunerative of any in this section.

We congratulate our English friends on the acquisition of this property, and feel certain that under the management, the returns will be fully up to their most sanguine expectations.

RICH SPECIMENS.—Some beautiful specimens of gold quartz from a mine in El Dorado county, have been on exhibition at the Quincy Hall Clothing Store, in this city, during the week.

They were selected from a ton of very rich rock, which was taken out at a single blast, and are said to be valued at $7,000. A single specimen from the same mine was shown here some two or three months since, which was valued at nearly $10,000.

The ledge from which it is taken is said to abound in "pockets," and judging from the appearences of the pieces in question the owners are very fortunate individuals.

Patent Can-Opener.

Tho variety of canned fruits, meats, fish and vegetahles consumed hy the civilized world is constantly increasing, while the amonnt annually conenmed is already mnch greater than is generally snpposed. Tho cheapest receptacles for putting up snoh preserves aro tin cans tightly soldered, and consequently the hulk of onr canned goods are so sealed. To furnish the best implement, at a moderato cost, for opening these cans, has called into requisition mnch inventive ingenuity, and various dovices havo boon patented, some of which seom to answer tolerahly well the purposos for which they wore intended.

To produce the host can-openor, in all respects, however, seems to havo beon left to a California artisan, who patented the one hore represented in 1870. It cuts either a ciroular opening or a square ono, as may he desired. To make a round cut, as in openiug an oyster can, the roundod point is thrnst downward through the top, and the handlo lowered so as to bring the circular cutting knife, (which slides on the bar, in ordor to regulate the size of tho opening,) down to the surface of the can, when with a slight pressure its point will enter the can, and when the handle is drawn around, the cut is easily

made. To make a square opouing, as for instance in a sardine box, the instrnment is inverted, and the straight cutting knife at tho point is inserted, instead of the ronnded point, when by an up and downward movement of the handle, acting as a lever, a straightforward inoision is made. The flat spring over the har holds the sliding knife in place. It is a simple, easily handled instrument, comparatively indispensable for family use, and especially serviceahle to hotels, restaurants, ships, etc. Tinners and saddlers also find them quite useful in their trades. Eugene F. Dewey, formerly of San Francisco, is the inventor. Weister & Co., patent salesmen, No. 17 New Montgomery street, are general agents for the Pacifie States, and can be addressed for agencies. For information to distant readers we will mention that samples are sent, post paid, for 75 cents, in currency or postage stamps.

Utah Mines.—The mines in Little Cottonwood are doing splendidly, snd the Emma, Flagstaff, Wellington, Davenport, Montezuma, Lexington and Savage have a large amount of ore on hand ready for shipment as soon as the weather will permit. A number of snow slides have occurred in the canon, recently, resulting in loss of life and injury.

The heavy storms have caused snch an accumulation of snow that great fears are entertained of futnre slides, and preparations have heen made to prevent accidents as far as possible. A numher of capitalists and experts are in readiness to make examination of several mines as soon as the weather will permit them to leave Salt Lake City. Samples of gold quartz have heen brought to that place from Little Cottonwood, which look well.

Pacific Coast Mercantile Director.—This is the name of a new publication, several specimen pages of which have been laid upon our table and which will be issued at an early day. This paper hae been started mainly through the instrumentality of Mr. William H. Murray, business manager, who has been for several years a travelling correspondent of this journal, and to meet a primary want which he found to exist for a medium of communication between the merchants of the interior and the wholesale dealers of this city. Each number of the paper will comprise from 16 to 32 pages, according to the demands for advertising space, and will be furnished regularly to interior merchants, bookkeepers, etc., at the rate of $1 for 12 months. We presume the paper will be issued mouthly. Among its contributors are such men as Prof. E. S. Carr, of the State University, R. G. Sneath, etc., while quite a number of our leading business men have allowed the use of their names as promotere and encouragers of the enterpriee. We understand that the advertieing columus of the first number are fast filling up.

The Spiral Spring Pencil Sharpener.

The aocompanying illustration represents a neat device for sharponing lead pencils so as to make a fine point, without having to soil the fingers in so doing. It is made in two parts, the guide, which is placed upon the pencil, and a oircular cntter raised upon a wooden stand. The stand is made bowl-shaped so as to collect the lead and shavings. The guide consists of a tube having a revolving spring within it, whioh clasps the pencil, allows it to tnrn inside the tnbe and at the same time prevents its slipping. One surfaco is beveled, so that part of the pencil may project sufficiently to bo subjected to the cutter, and by being tnrned by the hand. preseut a different surface to the cutter, until it tapers to a fine point.

The disk or outter is a fixtnre upon the wood, but the metal cap which covers it is movahle. Upon the oap is a rest, called the guard, into which the guide is placed. A portion of the blade, or cutter, is exposed by the cap being cut away. The

BURGESS' SPIRAL SPRING PENCIL SHARPENER.

guide is worked back and forth over the cutter, so presenting the pencil to be cut off until the point is made. The cutter is of fine saw steel and has a very sharp edge. When that part of the blade in use becomes dull, by moving the cap slightly a new edge is presented, which may be repeated until the whole circumference of the cntter has become dulled. It is then only necessary to take out the screw, remove and sharpen the blade, and replace it.

This device is intended for Fabers' pencils principally, but will sharpen any which will enter the spring. It will be found useful in banks, counting-houses, sohools, families, etc., and especially convenient for ladies whose pencils are proverhially hlunt, and whose pen-knives are seldom sharp; moreover it will not soil the fingers. The principal parts of this invention have heen patented, and the patent covering the remainder is pending. Huhert Burgess is patentee, and J. Stott, 1,002 Market street, is agent.

Selling Milk.—Some German papers are urging that milk be sold, like spirits, according to the percentage of the valuable constituent. Both sellers and purchasers of spirits are satisfied with this method, as would be also both sellers and purchasers of milk. The advantages are manifest, so much so that one editor thinks it necessary to allude to one only,—that there would then be "no necessity among dairymen of raising milk-water-giving cows and of making the cattle sick."

Coal.—During the month of March 15,200 tons of coal were shipped from the Pittshnrg Coal Company and the Black Diamond Coal Company's mines at Mount Diablo, Contra Costa Co.

Geological Survey.

The members of the Geological Survey are all busy pursuing the various duties allotted to them by Professor Whitney, and it will not he long before the State maps aro completed. We spoke a short time since of the map of the Plioceno rivers, which, when finished, will he particularly interesting as showing the localities of the deep gravel deposits of the State. The geological map of the State is in the engraver's hands; a large portion of it is finished. The rocks of the whole State have been geologically located. One of the interesting features of this map is the colored portion showing the direction and location of the auriferous slate rock, chiefly of Jurassic age, which runs out to the ocean near Oregon, inclnding the auriferous gravel hasins of the Klamath and Trinity rivers. Some of these same slates are now on the top of Mt. Dana.

Another interesting point is that it distinctly shows the regnlarity with which one formation followed the othor in a sort of land-making process toward the west. It is very practically shown and applicable in connection with the Pliocene rivers, the formations corresponding to which are traceable all over State, in the valleys far removed from the Sierras. This map is to be properly colored to represent the different geological formations and as soon as the different plates are made the map will be issued. The Pliocene river map is a distinct and separate publication. Another edifying feature is that which shows the distribution of the lavas of the State, where the activity of volcanic action existed and where it thinned out.

Prof. Whitney will leave this week with a party for the region of the late earthqnake. He intends investigating the phenomena connected with this great convulsion of Nature and the effects produced on the conntry surrounding what is supposed to have heen its central or starting point. The results of these observations will douhtless be of great public interest and we anticipate with pleasure the pernsal of the data which the Professor will collect. He hus made the stndy of the subject of earthquakes a specialty, and his investigations will be of a strictly scientific nature. His familiarity with the geology and physical geography of the State peculiarly fit him for the task he has undertaken and his statements may be looked on as reliable and valuable.

Railroad District.—The Highland Silver Mining Co. are enid to have etruck a fine body of rich ore in the Humboldt mine in Railroad District, Nevada. The Elko mine has also developed a good body of ore. The mines are all looking well but there is still plenty of snow to contend with.

Patents & Inventions.

Full List of U. S. Patents Issued to Pacific Coast Inventors.

[From Official Reports to Dewey & Co., U. S. and Foreign Patent Agents, and Publishers of the Scientific Press.]

For the Week Ending March 26th, 1872.

Grain Separator.—Garland A. Dabney, San Jose, Cal

Valve for Water Closets.—William Smith, S. F., Cal.

For the Week Ending April 2d.

Process and Apparatus for the Manufacture of Sulphate of Lead.—H. Augustus Whiting, S. F., Cal.

Machine for Clarifying, Mixing and Bleaching Lard.—Oscar J. Backus, S. F., Cal.

Manufacture of Hose and Tubing for Water, Steam and Other Fluids.—Sydney P. Cook, S. F., Cal.

Stamping and Hammering Machine.—George D. Crocker, Virginia City, Nev.

Grape Crusher and Stemmer.—George Johnston, Sacramento, and William F. Johnson, Folsom, Cal.

Device for Propelling Canal Boats.—Thomas K. McDonell, S. F., Cal.

Clothes Dryer.—Anson C. Stowo, San Jose, Cal.

Compound Implement.—John C. Schlarbaum, San Jose, Cal.

For the Week Ending April 9th.

Apparatus for Obtaining Mercury from its Ores.—Henry Johnson, San Francisco, Cal.

Shoe-Fastening.—Aaron Lawson, Petaluma, Cal.

Wood Pavement.—Henry M. Stow, San Francisco, Cal.

Wood Pavement.—Henry M. Stow, San Francisco, Cal.

Preparing Blocks for Wood Pavement.—Henry M. Stow, San Francisco, Cal.

Propeller-Wheel.—Rasmas Johnson, San Francisco, Cal.

Machine for Making Concrete Pipes.—George I. Eagan, San Francisco, Cal.

Artificial Stone.—George L. Eagan, San Francisco, Cal., assignor to himself and W. H. Van Doran, Springfield, Ill.

Furnace for Smelting Ores.—Theophilus L. R. Scheuner, Salt Lake City, Utah Ter.; antedated April 3, 1872.

Infringements of Patents.

A snit has been recently instituted by Frank O. Fisher, against R. B. Craig and Joseph Craig for alleged infringement of patent of the "Hydraulic Chief" nozzle. The plaintiff claims that he has with the knowledge of the defendants heen manufacturing and selling the said apparatus, and that notwithstanding this the defendants, contrary to his will, commenced to sell the improvement in October, 1871, and have continued to do so up to the present time. The patent, which is well known, consists of a swivel-jointed nozzle and pipe combined so as to form a double movement; the nozzle proper having a perpendicular movement, while the swivel joint proper enables the entire apparatus to he tnrned by a horizontal movement, in any direction. Between the upper and lower elbow composing this joint is a space left for the insortion of packing hetween the flanges, in order to be freely turned on the elhow, and still form a water-tight joint. The plaintiff prays for damages to the amount of $5,000.

John L. Stevens and Geo. W. Stevens have entered suit against Geo. W. Swan and Oliver Hinckley.

Complainants state that they are the inventors of a new and useful improvement in cases for transporting eggs. It consists of a box or case, divided into compartments of such a size as to hold one egg each, the box of any depth, placing a separate diaphragm horizontally hetween each tier from the bottom to the top. Complainants further show that in an action at law against Henry Cohn and Charles Martin, in October last, for a violation of the exclusive privilege secured to the plaintiffs, the jury of the United States Circuit Court returned a verdict of guilty, and awarded damages in the sum of one dollar. The defendant herein—Swan & Co.—have manufactured and sold these boxes since February, 1867, and that without the consent of the owners of the patent. Plaintiffs pray that the defendants may be compelled to make a showing of their business in the shape of egg-hox manufacture, and that they may he decreed to account for, and to pay over to them all the gains and profits which may have accrued to defendants from usiug, making and vending said impr ovement.

The excitement created hy the discovery of placer diggings in Lake county has ahated.

Domestic Economy.

Poor Housekeepers Make Poor Servants.

"We have sold our honse aud gone to boarding, and I am once more at rest." Thie was said by a lady who had had a beautiful home, and a eufficient income to live delightfully, *if* she had only known how.

"I have heen tormented to death with poor servants," eaid she, "and do not believe there ie such a thing as a good cook to he found in all New York. I am tired enough of this country, and should like to go hack to Paris, where we cau live delightfully, and with so little trouble."

Ah! the trouble is not all with the servauts, thought I. Ladies must know somethiug of household matters themselves. A cook comes to you well recommended; but, perhaps, in her last place the lady *preferred* bakers' bread to home-made; never cared for a nice, wholesome soup, with the dinner, and chose to send to the bakers for her pies, rather than have them made in the house. Let your cook he ever so good, she must be in constant practice, else ehe will be liable to make some very annoying failures, if only at intervals of ten days, or a fortnight, she may be called upon to make an extra effort.

Then again, ladiee do not cousider how tastes vary in differeut families. A dish that is highly esteemed in one is utterly distasteful in another; and what to the cook and servants in the kitchen, may seem delicious, will not satisfy the more cultivated palate above etairs.

What ladies most need in housekeeping is patience and intelligent forhearance. Let a lady have discrimination enough to judge whether her servants, even if they have not her ways of doing their work, may not have the elements of good servants in them, and then let her know enough *herself* to instruct them into her own ideas of labor, and she may not only have good servants, but be able to keep them eo.

Not every one realizes how much careful marketing has to do toward a well cooked meal. If the marketing is left to the servants, the servants leave it to the butcher, or grocer, aud the best cook may work hard and intelligently and yet come far short of the succees she might have attained, had good material been put iuto her hands.

Then the family often complain that their dinner is badly cooked, or unsatisfactory, for no earthly reason, save that the head of the house doee not understand how to carve, and help to the best pieces.

An old eervant once told me how, week after week, the roast beef would be sent down from the table, with the tenderloin all left for the servants, the gentleman, meanwhile, complainiug daily, that they always had tough heef, simply hecause he did not know enough to turn over his piece of beef, and help himself to a tender elice.

A lady once complained, at dinner, that her fish was always soft, and never came to the table looking as it ought; and yet I could discover, at once, that the fish had been kept almost to a spoiled condition, and kuow that her cook had not suitahle utensils to cook it in, so as to give her a chance to bring it, neatly, to the tahle.

Ah! ladies of New York, and of America generally, the fault is not wholly below stairs. *Educate yourselves.* Instead of writing long letters on what women are not *permitted* to do, learn, *first*, to do that which all allow, it is your duty to do. Understand fully your duty to your husbande, your children, and your servants, and having learned the lesson, *do it well.*

How to Cover a "Comfortable."

When the outsides of a comfortable or bed quilt have become tattered, if it is not so heavy that an extra covering will make it burdensome, it is a good plan to renew it in this fashion:

Firet, wash it as clean as possihle. If it dries somewhat streaky no matter; that it shall be thoroughly sweetened is the main object; and no amount of exposure to the air or heating with a stick will accomplish this in the case of an old, long-used comfortable. Trim off the tattere of the old covering, have the new in readiness—good dark calico is the best thing—and tack it on in the way log-cabin patch work is done. That is, holding the quilt upon your lap or on a tahle front of you, commencing at the nearest edge, folding the cloth hack toward you. Then baste or tack with strong thread the wrong side of the covering to the quilt, making the stitches short on the right eide, and as long upon the wrong side as you think consistent. Wheu you have gone the length of the quilt, go over another portion, say six or eight inches wide, and tack again. Just as you would make a block of log-cabin patch-work, only that the cloth is all in one piece instead of in strips, and no corners to be turned. Wheu one side is fiuished, do the other in the same way.

When this covering becomes soiled, it can be in five minutes ripped from the quilt for the wash, while if elahorately knotted or quilted the tack becomes quite formidable.—*Western Farmer.*

Recipe for Winter Mince Pie.—Oue pouud of ready made sausage, seasoned, one pound of zante currante, one pound of raisins, small pint of syrup, three-fourths of a cup of viuegar, spice to taste. Put on the stove and boil ten minutes. This quantity makes six pies and is very little tronble to put together.

How to Carve.

On page 187 of volume II. we gave au article under the above head from the pen of Mrs. Henry Ward Beecher, but the following, from *Hearth and Home*, contains something farther, which will he found of interest to every one who deeires to be ahle to carve well aud easily, and without awkwardness:

Carving is a very desirable accomplishment for hoth ladies aud gentlemen, and should be taught. Oue cannot learn it by tuition, hut by practice, joined by a small slice of theory. It is true the French style of eerving meat sliced is fast banishing the uecesity of carving at the tahle of the rich; hut in middle life, where such elegancies are not practiced, a knowledge of carviug should be a part of a boy's or girl's eduoatiou.

How often do we hear a person say: "Oh, excuse me, I can't carve; I never tried." Or, if it be attempted, one soon finds himself sadly embarrassed. He grasps the knife and fork desperately. He has learned that a slice of the hreast of the turkey is a dainty; that a wing is good; the second joint also; that the leg is not so good. But it is not an easy task to separate them; and he thinks he would rather chop wood than cut turkey. He doee not know that on the back lies a delicious morsel called the oyster, and the side bones below the second joint are considered titbits. This must be taught him.

Ladies ought especially to make carving a study; at their own homes the task ofteu devolves upon them, and they should he able to perform it with ease, and not be forced to accept the assistaoce of visitors, who would probably dread the operation. The platter should he placed so near the carver that he has full control over it; if far off nothing can prevent an ungraceful appearance. A sharp knife is reqnisite, and a thin and well tempered blade.

In carving turkey, cut off the wing nearest to you first; then the leg and eecond joint; then slice the breast uutil a rounded piece appears; insert the knife between them and separate them—this part is the nicest bit of the breast; next comes the "merry thought."

After this, turn over the bird a little, aud just helow the breast you will find the oyster, which you separate as you did the inner hreast. The side bone line beside the rump, and the desired moreel can be taken without separating the whole bone. Proceed the same with the other eide. The fork need not be removed during the whole process. An experienced carver will dissect a fowl as easily as you can break an egg or cut a potato. He retains his seat, manages his hands and elbowe artistically, and is perfectly at ease. There is no difficulty in the matter; it only requires knowledge and practice, and these should be taught in the family, each child taking his turu. Chickens and partridges are carved in the same way.

Taking Boiled Potatoes Out of the Kettle.

If there is one thing harder than another in preparing this indispensable article for the tahle it is taking a boiling hot kettle (covered or not) from the fire and pouring the water out slowly, which cannot be accomplished without nearly or quite scalding the hand which holds the kettle; consequently the open air is usually better than in a close, dark corner of the kitchen; and it is well known that every house is not provided with a drain.

Imagine this proces occupying at least four minutes in the cold or etifled air, eteam rieing and enveloping the whole form. One or two holders is requisite; then oftentimes the kettle, which is not of the best iron, is covered, replaced on the stove to stand from fifteen to thirty minutes, until the potatoes are saturated with rust or a taste of iron, and all in the bottom watery, having soaked up what it is impossihle to turn off, or burned or blackened, making it necessary to throw one-third of them away.

To do away with all these objectione have a long handle skimmer (which costs ten cents), and while the water is flopping place it on one side under all the potatoes it will hold at once and so on until all are removed into a convenient dish. The heat retained in the potatoes will make them perfectly dry and mealy while the steam is escapiug. They should he eaten before they are done smoking.

To mash or jam them, skim out as we have shown into a tin-pan; place the pan on a flat surface; then mash (not pound), which will not hurt the pan or the potatoes, season and stir with a spoon.

The kettle is easily removed to cool, or with oue stroke the boiling water may be turned into the slop pail. Try it.—*Ex.*

Rice Croquettes.—Take four ounces of rice and cook well in a pint of milk and the rind of half a lemon. Add more milk if needed to keep the rice covered. When done, mix with two tablespoonfuls of sugar, two ounces of butter, two tahlespoonfuls of milk, yolks of three eggs, a pinch of salt and nutmeg if agreeable. Put back on the fire and stir for a minute. Spread out ou a dish till cold. All this may be done the night before if wanted for breakfast. Then mix, shape, dip them in whites of eggs and bread crumhs and fry. You can cook the rice first place in water, by adding two tablespoonfuls of cream when ready to make croquettes of them.

To Keep Knives from Rusting.—Scour them on a board, crosswise, with some dry brick, after having wiped them perfectly dry; and put them away without wiping off the brick dust.

Vinegar from Unripe Fruit.

Unripe fruit, especially apples and pears, as are well known, is much used in the manufacture of vinegar; but the process usually adopted is defective in many important points. We give helow the substance of an article from *Granger's Manual of Vinegar Making*, which may, perhaps, serve a useful purpose. The principal fault of the old process consists in throwing away the pulp after the juicee are expressed. As this, however, contains a large percentage of starch, excellently adapted for conversion into vinegar, it is necessary to prepare the fruit so as to save this portion of ite substance. With this object it is to be grated, exactly as potatoes are prepared in the manufacture of starch, and the pulp passed through a moderately fine sieve, or through a coarse and open meshed cloth. There is thus nothing left behind hut pomace proper, or cellnloee, all the etarchy matter having been paeeed through the sieve with the juice. This is next to he diluted with water, in proportion to the quantity of starchy matter thus ohtained, and the whole is placed in a clean copper kettle, one or two per cent. of concentrated sulphuric acid being added, and heated long euough to transform the starch into grape sugar. The sulphuric acid is to he neutralized by means of carbouate of lime; the gypsum or sulphate of lime thus produced allowed to settle, aud the liquid is to he left for fermentation to take place, with or without the uee of yeast. A liquid having 8 to 10 per cent. of sugar can easily be made to have 4 or 5 per cent. of alcohol after fermentation, which, hy its suhsequent acidification, will yield a vinegar of 5 to 6 per cent. of acetic acid.

Cucumber Salad.—Mrs. S. J. H. writes: We have just prepared our winter's supply of cucumher salad, and this ie how we made it. There were about a dozen ripe "White Spine" cucumbere lying on their viues, and these we picked, washed, pared, cut into strips, taking out the seeds, and then to each dozen cucumhers—which we cut up into pieces like small dice—we put twelve large white onions, chopped, six large green peppers, also chopped one quarter pouud each of hlack and white mustard seed, and a gill of celery seed. These were all mixed together, a teacup of salt added, and they were then hung up in a cotton bag to drain, for twenty-four hours. Then the salad, with enough clear cold vinegar added to cover it, was put into stone jars and fastened nearly air-tight. In six weeks it will be fit for nse. We found this recipe in a old paper some years ago, and it has proved one of the nicest pickles we ever used. It looks as well as it tastee, so white and crisp, and makes an elegant salad for a joint of cold meat. It is not like the Spanish salad, that requires "a counselor for salt, a miser for vinegar, a spendthrift for oil, and a madman to stir it up," but it is quite as good in its way, and not very troublesome to make. —*Hearth and Home.*

Summer Beverages.

Apple Water.—Slice two large apples, put them into a jar, and pour over them one pint of boiling water. Cover cloee for an hour; pour off the fluid, and sweeten if necessary.

Apple Tea.—Roast eight fine apples in the oven, or hefore the fire; put them in a jug with two spoonfuls of sugar, and pour over them a quart of boiling water. Let it stand one hour near the fire.

Beverage of Figs and Apples.—Have two quarts of water hoiling; split six figs, and cut two apples into six or eight slices each; boil the whole together twenty minutes; pour the liquid into a basin to cool, and pase through a sieve when it is ready for use. The figs and apples may be drained for eating with a little boiled rice.

Cottage Cheese.—Boil two chickens till tender, take out all the bones, and chop the meat fine, seasou to yonr taste with salt, pepper and hutter, pour in enough of the liquid they were hoiled in to make it moist, put into whatever mold you wish, and when cold turn out and cut into slices. It is excellent.

Bean Soup.—Wash the beans and boil them with salt pork. When soft, take them out, and pass through the colander. Then put them hack in the same water they were hoiled in, with four hard boiled eggs cut in quarters, and a lemon sliced, and a little pepper if yon like it. Boil again, and serve. This soup is very nice.

Recipe for Mock Mince Pie.—One cup of raisins, one cup of currants, one cup of syrup, one cup of sugar, three-fourths of a cup of vinegar, one teaspoonful of allspice, one teaepoonful of cinnamon, three cups of water. Boil all together and when cool add three soda crackers rolled fine. This will make three pies.

Quick Cake.—Sieve three cups of flour, and add two teaspoons baking powder, a pinch of salt, one cup of sugar, three eggs well beaten, half a cup of butter, and sweet milk enough to make a moderately stiff batter. Bake twenty minutes in a good oven.

An Improved Method of Cooking Beets.—Bake them; it requires about two hours to bake a medium sized beet. I hardly think any person will resort to the old method of boiling them after eating one meal of baked beets.

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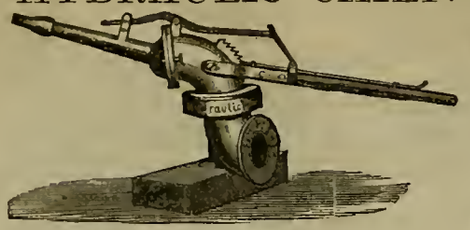
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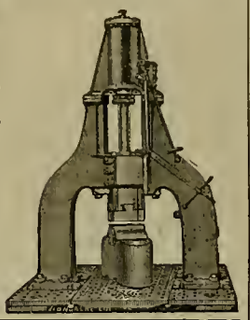
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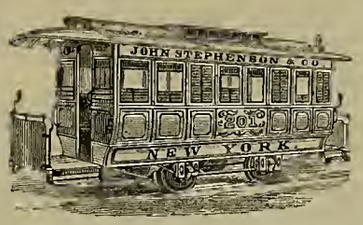

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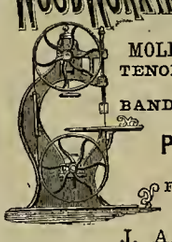
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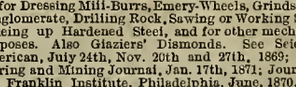
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The Best Zinc for Galvanic Batteries.

Mr. William Filmer has given us a few notes on this subject which will be interesting to our readers:

The form of battery used by silver platers, electrotypers, and in fact for all manufactnring purposes to which the galvanic battery is applied, is that known as the "Smee Battery." The three elements of this battery are dilute sulphnric acid, platinized silver and zinc plates. The sulphuric acid of commerce is generally sufficiently pure for practical purposes, but it is not so with the zinc, which is always more or less impure, sometimes so much so as to increase the working expense many times what it should really be. The impurities consist of iron, lead, and other metals which cannot be wholly separated from it in the process of smelting. Pure zinc is not acted upon by dilnte sulphuric acid, but when foreign metals are present with it an action more or less violent takes place, in proportion to the amount of impurity. This is partially overcome by coating the zinc with mercury. As long as the mercury remains on the surface no action appears, but it is necessary to renew the amalgamated surface sometimes daily, causing a considerable increase of expense as the mercury cannot wholly be recovered, it falling to the bottom of the battery vessel, and forming an amalgum with the zinc and its impurities. The extra expenses caused by using impure zinc are therefore the extra amount of zinc consumed, the mercury used to amalgamate it, and the sulphnric acid with which the surplus zinc has united. This waste is no small item in practical use, amounting from two to four times what it shonld be if pure articles were used.

In an experience of many years I have found that this waste may by reduced to a minimum by using what is known as the "New Jersey spelta." It is the pnrest zinc smelted. When immersed in dilute sulphuric acid it shows scarcely a perceptible action. I have used itthree-quarters of an inch thick, when it was necessary to amalgamate it, but twice until it was consumed.

In nsing small batteries, the zinc slabs are generally melted down and cast to the required size. This practice is bad, as in smelting in an iron pot, and pouring with iron moulds the zinc takes up more impurities, particles of iron and carbon, etc. It will be fonnd much better to take the original slab and either saw it with a circular saw, or if that is not handy to cut it with, a cold chisel, to the required size.

Mining Accidents.—A miner named Maher, at Oregon Gulch, Trinity County, was hurt last week by a falling plank. His ribs and one arm were broken.

Robert Welch was struck in the throat by a piece of rock from a blast in the Belcher mine last week. The rock went through his windpipe, but the wound is not dangerous.

The Pioche *Record* says that recently while the ore buckot was being lowered in the Bowery Shaft, 150 feet deep, the brake broke and the momentum of the bucket caused a general break-up of the hoisting gear. The windlass, bucket, etc., were precipitated to the bottom, but no one was injured.

H. H. Murray, foreman of the Wellington mine was smothered in an avalanche which occurred at Little Cottonwood on the 12th inst. His body was recovered. A number of other workmen were also buried by the same slide, which came, it is said, from a hight of 2,000 feet, but they were all got out safely.

Discoveries.—A quicksilver mine is reported to have been found in the northwestern part of Fresno Conuty and another in Napa County, in the mountains, near St. Helena.

The Weaverville *Journal* chronicles the discovery of an exceediugly rich quartz ledge on East Hay Fork containing both silver and gold.

An extensive deposit of crystallized sulphur is reported to have been found in the Beaver Mountains, Utah.

Bridges.—The Pacific Bridge Company of Oakland have procured gronnd on Berry street, near Third, and are putting up machinery for the manufacture of bridges. Hereafter all their timber will be dressed to an even size and framed by machinery invented for the pnrpose. This will render these bridges considerably stronger, and in the opinion of many engineers 25 per cent. more durable, as timber by being dressed has a smooth hard surface, which is less affected by moisture than when rough.

This company furnish bridges of any desired span ready to raise, with all iron work complete, or when desired they furnish the bridge and raise and finish the same.

They have already contracted for, or completed, bridges in the counties of Butte, Sonoma, San Mateo, Alameda, Merced, Marin and Santa Cruz. They are now erecting one over the San Lorenzo River for the California Powder Co., which has a span in the clear of 160 feet. It is built strong enongh for railroad cars, and will be completed the present month.

They will frame two bridges, one for Alameda county and one for Marin county, immediately. When their machinery is in motion we shall examine it and give a more extended description. The company intend to remove their office to the city as soon as their machinery arrives. They propose to make a specialty of working all kinds of heavy timber, and manufacturing heavy iron and wooden structures. They are still in room 14, Wilcox Block, Oakland, where they will take pleasure in showing all who call, models and designs in bridge architectnre.

New Incorporations.

The following bave filed certificates witb the County Clerk, San Francisco.

Pioche Champion Co.—April 11. Location: Nevada. Capital stock, $3,600,000. Trustees—George Reiter, Tbomas Findley, Geo. W. Beaver, J. D. Fry and S. Heydenfeldt.

Home Ticket M. Co.—April 11. Location: Eureka District, Nevada. Capital stock, $3,000,000. Trustees—S. S. Tilton, George L. Bradley, James Laidley, C. W. Fox and James S. Kennedy.

Railroad Consolidated M. Co.—April 13. Location: Nevada. Capital stock, $2,500,000, in 25,000 shares. Trustees—J. W. Moyle, W. F. Myers, S. S. Bowckes, S. D. Ingoldshy and S. W. Lee.

Pride of the Mountain M. Co.—April 13. Location: Nevada. Capital stock, $3,500,000, in 35,000 sbares. Trustees—George D. Roberts, Lafayette Maynard and Archibald C. Peacby.

St. Lawrence M. and M. Co.—April 13. Location: Placer County. Capital stock, $1,000,000, in 10,000 shares. Trustees—Marion J. McDonald, O. H. Bogart, Cbarles E. Gibbs.

French Gold Hill M. Co.—April 15. Location: Storey county. Capital stock, $500,000, in 5,000 shares. Trustees—R. F. Morrow, Cbarles Forman, George Treat, G. W. Beaver, H. H. Flagg.

Pacific Bridge Co.—April 13. Object: Tbe manufacturing and building of bridges, and wooden and iron structures in the Pacific States and Territories. Capital stock, $100,000, in 1,000 shares. Trustees—William H. Gorrill, Charles H. Gorrill and Cbarles F. Lucas.

Pacific Paving Co.—Object: To pave streets, do street work, contract and deal in all materials for street work and business operations in general. Capital stock, $100,000, in 1,000 sbares. Trustees—Wm. Ede, Cbauncy B. Williams and Horatio G. Livermore.

Mammoth Blue Gravel Co.—April 17. Location: Little York township, Nevada county. Capital stock, $2,000,000. Trustees—R. F. Knox, Abner Dohle, John Prince, James T. Dean and A. D. Carpenter.

Baltimore American M. Co.—April 17: Location: Gold Hill M. District, Storey county, Nevada. Capital stock, $2,400,000. Trnstees—M. Morgentbaul, J. W. Ford, John B. Winter, A. K. Grim and J. A. Coolidge.

An Appropriation of $50,000 bas been favorably reported on in Congress for the purpose of removing Rincon Rock, an obstruction in tbe harbor of San Francisco. The same action was taken in reference to the Wilmington break-water, at San Pedro, the port for Los Angeles, tbe amount being $75,000. Both of these appropriations will be of great benefit tq the harbors mentioned.

The Northern Pacific R. R. Co. are about to build a large car shop at Kalama. Grading on that road is now being prosecuted in Frost's Prairie, two miles south of Hodgson's.

Sales.—The Brown Mining Co's property in Colorado, consisting of the Glasgow, Brown, Coin and Mammoth lodes have been sold to the Hon. J. B. Chaffee, for npward of $18,000.

The Cedar Mine, near Bear River, belonging to J. R. Nickeson, sold for $15,000. The ledge is a large and promising one. So says the Auburn *Herald*.

Cullom and Co's smelting works, at Swansea, Colorado, have been sold to an English company.

The Gold Hill *News* understands that the Dunderberg mine, near Carson, has been sold to English capitalists for $200,000.

A Salt Lake company has purchased the Tecoma mine, says the Elko *Independent*, for $110,000.

The Mountain Lion Mine, in Ophir District, Utah, is reported sold for $200,000.

The Phœnix Ditch Co. bas sold out to J. T. McLean, and a contract has been let to hring a ditch to Tahle mountain.

Tbe Mount Jefferson mine in Sonora, is said to bave been bought by capitalists in this city.

Tbe Empire, Scbuyler and Scbnectady ledges in Wallapi District, Arizona, have been sold for $14,000, and tbe Union mine for $3,000.

Mining affairs in Trinity County are looking up, and recent developments are reported favorable. The county, always considered a good mining locality, has lacked capital, from its remoteness, and there is a probability that this essential element will no longer be wanting to renew its general activity.

The Owen's ledge, in San Diego county, the ore from which paid from $15 to $17 per ton when it was opened a few years since, and now pays $50 and $60, is doing finely and the prospects are flattering for an increase in the richness and a supply of ore.

[Publishers' Notice.]

From the Gold Hill News.

The *Daily News* of Gold Hill, Nevada, one of tbe most faitbful advocates of mining interest, alludes to Raymond's new book on "Mines, Mills and Furnaces" of the Pacific States* in favorable terms. We extract tbe following:

Tbe present work is in no sense a repetition of Mr. Raymond's former ones. It contains a full and comprebensive account of tbe gold and silver mining industry of the United States, with practical recommendations of great importance to those engaged in it. Tbe cbapter on tbe treatment of auriferous ores in Colorado is the best account of the stamp-mill process ever published in this country; and tbe general discussion of smelting processes for silver ores supplies an instant want. The series of volumns, of whicb tbis forms tbe third, which have proceeded from tbe rapid hut careful pen of Commissioner Raymond, are recognized in this country and in Europe as professionally autboritative and popularly interesting to a remarkable degree. To be technically accurate, but not tecbnically abstruse, is tbeir salient and acknowledged merit.

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*For sale wbolssale and retail at publlahera ratea, by Dewey & Co., publiahera Scientific Press, San Francisco. Singla copiea $3.50.

Leather Market Report.

[Corrscted weekly by Dolliver & Bro., No. 109 Post st.]

San Francisco, Thursday, April 18, 1872.

Sole Leather.—The demand is still equal to tbe supply, and prices still continue firm.

City Tanned Leather, ₱ lb	26@29
Santa Cruz Leather, ₱ lb	26@29
Country Leather, ₱ lb	24@28
Stockton Leather, ₱ lb	26@29

French skins are firmer with an advance in some grades. Heavy California skins are firm, with an npward tendency.

Jodot, 8 Kil., per doz	$80 00@
Jodot, 11 to 19 Kil., per doz	76 00@ 90 00
Jodot, second choice, 11 to 15 Kil. ₱ doz	60 00@ 76 00
Lemoine, 16 to 18 Kil., ₱ doz	75 00@ 77 50
Levin, 12 and 13 Kil., per doz	68 00@ 70 00
Cornellian, 16 Kil., per doz	70 00@
Cornellian, 12 to 14 Kil., per doz	60 00@ 68 00
Ogenan Calf, ₱ doz	54 00@
Simon, 18 Kil., ₱ doz	65 00
Simon, 20 Kil. ₱ doz	68 00
Simon, 24 Kil. ₱ doz	72 00
Robert Calf, 7 and 8 Kil	35 00@ 40 00
French Kips, ₱ lb	1 00@ 1 30
California Kip, ₱ doz	60 00 to 80 00
French Sheep, all colors, ₱ doz	15 00
Eastern Calf for Backs, ₱ lb	1 15@ 1 25
Sheep Roans for Topping, all colors, ₱ doz	9 00@ 13 00
Sheep Roans for Linings, ₱ doz	5 50@ 10 50
California Russett Sheep Linings	1 75@ 5 50
Best Jodot Calf Boot Legs, ₱ pair	5 25
Good French Calf Boot Legs, ₱ pair	4 50@ 5 00
French Calf Boot Legs, ₱ pair	4 00
Harness Leather, ₱ lb	30@ 37½
Fair Bridle Leather, ₱ doz	48 00@ 72 00
Skirting Leather, ₱ lb	34@ 37½
Welt Leather, ₱ doz	30 00@ 50 00
Buff Leather, ₱ foot	18@ 21
Wax Side Leather, ₱ foot	18@ 29

A NEW BOOK ON MINING.

The Explorers', Miners' and Metallurgists' Companion; Comprising a Practical Exposition of tbe Various Departments of Exploration, Mining, Engineering, Assaying, and Metallurgy. The Most Practical and Comprehensive Work on Mining Subjects Extant. Comprising 640 Pages and 81 Engravings. By J. S. Phillips, M. E. Price, bound in cloth, $10 (in coin); in leather, $12. Forwarded by mail, in cloth, $11.40, currency; in leather, $13.75. Issued and for sale by Dewey & Co., Patent Agents and Publisb ers Scientific Press, S. F.

Continental Life Insurance Co., 302 Montgomery street, corner of Pine.

Daily Weather Record,

By the U. S. Army Signal Service, for the Week Ending Wednesday, April 17, 1872.

Place of Observation.	Date.	Observation taken at 9 A. M.	Hight of Barometer.	Thermometer.	Rel. Humidity.	Direction of Wind.	Vel. of Wind. Miles per Hour.	Force of Wind. 0=Calm to 12=Hurricane. Scale Malloy.	Amount of Lower Cloud.	Rainfall since last Report.	State of Weather.
San Fran'co.	Thu	11	30.39	44	67	N.W.	1	Light			Clear
	Fri	12	30.25	45	84	Calm			1-4		Fair
	Sat	13	30.11	53	76	W.	5	Gentle		.06	Fair
	Sun	14									
	Mon	15	29.94	49	93	Calm				.35	Threat'g
	Tu	16									
	Wed	17	30.08	50	85	S. E.	4	Gentle	3-4		Cloudy
San Diego.	Thu	11									
	Fri	12									
	Sat	13	30.13	48	77	E.	1	Light			Clondy
	Sun	14									
	Mon	15									
	Tu	16									
	Wed	17									
Portland, Or.	Thu	11	30.37	39	91	S.	10	Fresh	4-4	.07	Lt. Rain
	Fri	12									
	Sat	13									
	Sun	14									
	Mon	15									
	Tu	16									
	Wed	17	29.94	46	76	S. E.	1	Light			Fair
Virg'a, M. T.	Thu	11	29.63	20	93	W.	1	Gentle		.04	Lt. Snow
	Fri	12	29.69	21	75	Calm					Cloudy
	Sat	13									
	Sun	14									
	Mon	15	29.80	20	63	Calm					Clear
	Tu	16	29.71	25	65	Calm					Cloudy
	Wed	17									
Corinne.	Thu	11	29.96	28	59	N.W.	8	Fresh	4-4		Cloudy
	Fri	12	30.18	31	79	S.	6	Light			Fair
	Sat	13	29.82	39	39	S.	15	Brisk			Cloudy
	Sun	14									
	Mon	15	30.13	32	61	N.					Cloudy
	Tu	16	29.85	37	62	N.E.	6	Fresh			Cloudy
	Wed	17	29.88	39	91	S. W.	4	Gentle		.19	Cloudy
Cheyenne.	Thu	11	29.57	26	88	N.	28	Brisk	2-4		Fair
	Fri	12	30.00	22		W.	4	Gentle			Clear
	Sat	13	30.06	21	71	S. W.	2	Light			Clear
	Sun	14									
	Mon	15	30.10	37	64	W.	3	Light			Clear
	Tu	16	29.91	28	65	N.W.	5	Gentle			Clear
	Wed	17	29.71	27	88	W.	15	Brisk			Cloudy
Denver.	Thu	11	29.53	25	80	N.	2	Light	1-4		Fair
	Fri	12	30.03	28	54	Clear					Clear
	Sat	13	30.10	27	76	Calm					Clear
	Sun	14									
	Mon	15	30.15	31	48	S.	5	Gentle			Clear
	Tu	16	29.97	32	69	S. E.	2	Light			Fair
	Wed	17	29 81	37	82	Calm				.12	Fair
Omaha.	Thu	11	29.41	51	79	S.	15	Brisk			Clear
	Fri	12	29.89	37	48	N.W.	12	Fresh			Clear
	Sat	13	30.32	36	90	Olear					Clear
	Sun	14									
	Mon	15									
	Tu	16	30.29	36	70	S. E.	6	Fresh			Cloudy
	Wed	17	29.86	41	82	S. E.	2	Light			Cloudy
Davenport, I	Thu	11	29.94	52	59	E.	5	Gentle	1-2		Fair
	Fri	12	29.85	39	58	W.	9	Fresh			Clear
	Sat	13	30.29	42	48	W.	21	Brisk			Clear
	Sun	14									
	Mon	15									
	Tu	16									
	Wed	17	30.10	39	72	E.	2	Light			Cloudy

San Francisco Metal Market.

Corrected weekly by Hooker & Co., 117 and 119 Cal. street

PRICES FOR INVOICES

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

Thursday, April 18, 1872

Iron.—			
Scotch and English Pig Iron, ₱ ton	$55 00	@	60 00
White Pig, ₱ ton	52 00	@	— —
Refined Bar, bad assortment, ₱ lb	— 05½	@	— 06
Refined Bar, good assortment, ₱ lb	— 06	@	— 07
Boiler, No. 1 to 4	— 05	@	— 06
Plate, No. 5 to 9	— 08	@	— 09
Sheet, No. 10 to 13	— 06½	@	— 07
Sheet, No. 14 to 23	— 07	@	— 09
Sheet, No. 24 to 27	— 06	@	— —
Horse Shoes	8 00	@	
Nail Rod	11		
Norway Iron	9		
Rolled Iron	6		
Other Irons for Blacksmiths, Miners, etc.	6	@	7
Copper.—			
Sheathing, ₱ lb	— 24	@	— 28
Sheathing, Yellow	— 24	@	— 26
Sheathing, Old Yellow	— 11	@	— 11½
Composition Nails	— 24		—
Composition Bolts	— 24		—
Tin Plates.—			
Plates, Charcoal, IX ₱ box	12 00		— —
Plates, I O Charcoal	10 00		10 50
Roofing Plates	11 00		— —
Banca Tin, Slabs, ₱ lb	—		— 45
Steel.—English Cast, ₱ lb	— 16		— 17
Drill	16		17
Flat Bar	17		20
Plough Points	3 75		
Russia (for mould boards)	12½		
Quicksilver.—₱ lb	—		— 85
Lead.—Pig, ₱ lb	— 06		— 06½
Sheet	— 08		— 8½
Pipe	— 9		— 10
Bar	— 08		— 09
Zinc.—Sheets, ₱ lb	— 10		— 10½
Borax.—Refined	— 25		— 30
Borax, crude	— 5		— —

RICHARD H. BUEL, Consulting Mechanical Engineer, 7 Warren Street, New York. Advice and assistance given to those who desire to invest funds in meritorious and valuable Patent Rights. Machinery of all kinds bought and sold. Unusual facilities for testing engines, boilers and other machinery. I refer particularly to Professor R. H. Thnrston, of the Stevens Institute of Technology, who has consented to associate himself with me in consultation on matters of special importance. 10v24-13t

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$5 to $20 per Day and no Risk.—Do you want a altnation as salesman at or near home to introduce our new 7-strand White Wire Clothes Lines, to last forever. Don't miss this chance. Sample Free. Address Hudson River Wire Works, 75 William street, N. Y., or 1 Dsarborn street, Chicago, Ill. 23v1-12mbp

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Ladies Desiring to Procure a First-Class Sewing Machine against easy monthly installments may apply to No. 294 Bowery, 157 E. 26th, 477 9th Ave., New York. Good work at high prices if desired. 21v1-12mbp

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Important to Miners.

FREY'S IMPROVEMENT ON

Evans' Under Current and Sluices,

For Saving Fine Gold and Floating Quicksilver.

For particulars address

WATERS & CO., Assayers, Agents,

NO. 54 J STREET, SACRAMENTO.

16v24-3m

Blowers, Steam Pumps, Hair Felt.

Mining Tools

PORTABLE ENGINES, TURBINE WATER WHEELS, Wood and Iron Labor-Saving Machinery, Hardware, Belting, Lacing, Packing, and a general stock of Engineers', Miners', Farmers' and Mechanics' Tools and Mill Supplies.

TREADWELL & CO.,

At the Old Stand, } Cor. Market and Fremont Sts., SAN FRANCISCO.

12v24-eow

Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the Scientific Press, we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

Francis Mining Company--Location of works, Mariposa County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 8th day of April, 1872, an assessment of one dollar per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary of the company, 409 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 14th day of May, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 4th day of June, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

By order of the Board of Trustees.

T. F. CRONISE, Secretary.

Office, 409 California street, San Francisco, Cal.

Ingomar Silver Mining Company—Location of works, Ely Mining District, Lincoln County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 2d day of April, 1872, an assessment of 25 cents per share was levied upon the capital stock of said company, payable immediately, in U. S. gold coin, to the Secretary, at the office of the company, Room 21, Hayward's Building, 419 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Wednesday, the 8th day of May, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Friday, the 31st day of May, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

By order of the Board of Trustees.

CHAS. S. NEAL, Secretary.

Office, Room 21, Hayward's Building, No. 419 California street, San Francisco, California. ap8-4t

Lyons & Wheeler Mining Company—Location of works, Maynard Mining District, Mohave County, Arizona Territory.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 6th day of April, 1872, an assessment of Ten Cents per share was levied upon the capital stock of said Company, payable immediately, in United States coin, to the Secretary, at the office of the company, Room 3, No. 419 California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on Wednesday, the 15th day of May, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 3d day of June, 1872, to pay the delinquent assessment, together with the costs of advertising and expenses of sale. By order of the Board of Trustees. T. W. COLBURN, Secretary.

Office, Room 3, No. 419 California street, San Francisco, California. ap13

Marcelina Silver Mining Company.—Location of Works: Eureka District, Lander County, Nevada.

Notice—There are delinquent upon the following described stock, on account of Assessment (No. 2) levied on the Eighth day of March, 1872, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificats.	No. Shares.	Am't.
Cunningham, P. P.....22	200	$20 00
Cunningham, P. P.....23	100	10 00
Quinlan, P. B.....56	50	5 00
Worland, C. R.....58	1000	100 00

And in accordance with law, and an order of the Board of Trustees, made on the Eighth day of March, 1872, so many shares of each parcel of said Stock, as may be necessary, will be sold at public auction at the office of the company, Room 21 Haywards Building, 419 California street, San Francisco, Cal., on the 7th day of May, 1872, at the hour of 2 o'clock, P. M., of said day, to pay said delinquent Assessment thereon, together with costs of advertising and expenses of sale.

CHAS. E. ELLIOT, Secretary.

Office, Room 21, Hayward's Building, 419 California street, San Francisco, California.

Mount Jefferson Milling and Mining Company—Location of works, First Garote, Tuolumne County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 3d day of April, A. D. 1872, an assessment of Thirty Cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company. Any stock upon which said assessment shall remain unpaid on Monday, the 6th day of May, A. D. 1872, shall be deemed delinquent, and will be duly advertised for sale, at public auction, and unless payment shall be made before, will be sold on Wednesday, the 22d day of May, A. D., 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

By order of the Board of Trustees. J.W. CLARK, Sec'y.

Office, 418 California St. San Francisco. ap13-4w.

Nevada Land and Mining Company---Location; Spruce Mountain, Antelope and Clifton Mining Districts, Elko County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 28th day of March, 1872, an assessment of four cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the Co.'s office, room 5, No. 302 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Thursday the 2d day of May, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Friday the 24th day of May, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees

WM. H. WATSON, Secretary.

Office—Room 5, No. 302 Montgomery st., San Francisco, California. mar30-td

Nuestra Senora de Guadelupe Silver Mining Company.—Location of Works, Tayoltita, San Dimas District, Durango, Mexico.

NOTICE.—There are delinquent, upon the following described Stock, on account of Assessment levied on the 12th day of May, 1869, and re-levied on the 8th day of March, 1872, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No of certificate.	No. shares.	Amount.
Thomas Brennan....163	10	$20 00
Henry Beck..... 34	5	10 00
Henry Beck..... 81	5	10 00
Valentin Gassner.... 71	30	60 00
L. Rosenfelder.....114	6	12 00
L. Rosenfelder.....184	10	20 00
H. Schumaker..... 84	5	10 00

And in accordance with law, and an order of the Board of Trustees, made on the 8th day of March, 1872, so many shares of each parcel of said Stock as may be necessary, will be sold at public auction at the sales-room of Maurice Dore & Co., No. 327 Montgomery St., on Wednesday the eighth day of May, 1872, at the hour of 11 o'clock, A. M., of said day, to pay said delinquent assessment, thereon, together with costs of advertising and expenses of sale.

E. J. PFEIFFER, Secretary.

Office—No. 210 Post Street, San Francisco.

Ophir Copper, Silver and Gold M. Company—Location of Works, Ophir, Placer County, Cal.

Notice is hereby given that at a meeting of the Board of Trustees of said Company, held on the 18th day of March, 1872, an assessment of twenty (20) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, N. E. Cor. Sansome and Halleck Sts., entrance on Halleck street, San Francisco. Any stock upon which said assessment shall remain unpaid on the 20th day of April, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 17th day of May, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. R. G. BRUSH, Secretary.

Office, N. E. Corner Sansome and Halleck Streets, S. F.

PACIFIC BRIDGE COMPANY,

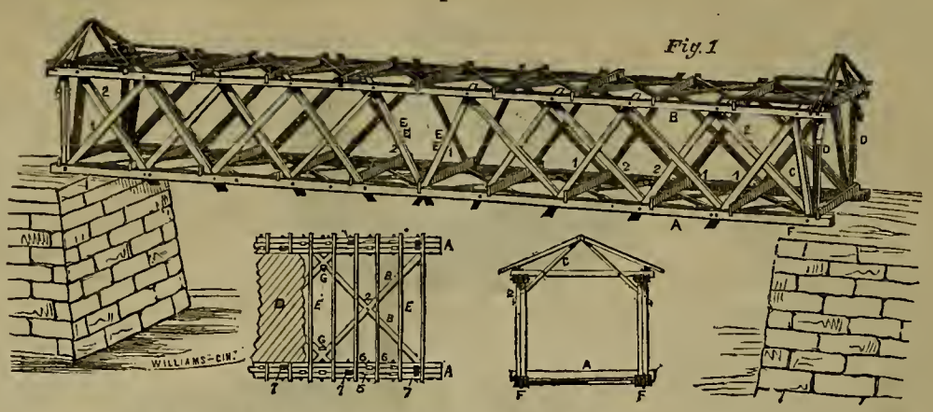


Fig. 1

WORKS NEAR SOUTH POINT MILL, BERRY STREET, OAKLAND, CAL.

Are Prepared, with Superior Machinery, to Manufacture and Build all kinds of Bridges on Smith's, Howe's, and other Improved Plans. Framing of all kinds done by Machinery.

These Bridges have been thoroughly tested in the East for Three Years, and wherever tried have proved superior to any other Bridge in the following points:

Being built of wood entirely, they are not affected by change of temperature.

The timber used is placed so directly in the line of strain, that less material is required to support the same load.

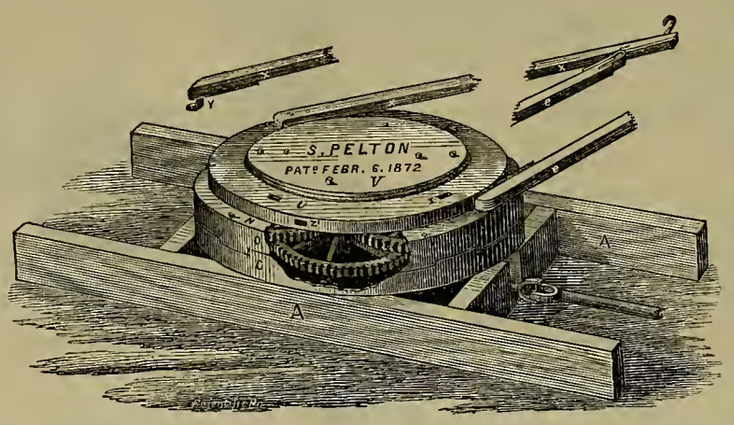
It is not perceptibly affected by shrinkage. It is the most Economical Bridge built. It is adapted to any practicable LENGTH OF SPAN.

Plans, Specifications and Terms will be sent to any County, Township or Person wishing to build a Bridge, and no charge made unless the Plan is used. For all Public Bridges the Plan will always be open to competition.

Smith's celebrated CAST IRON PIER, economical, and adapted to heavy currents, built at low rates.

C. H. GORRILL, Secretary. **W. H. GORRILL, President.**

THE CALIFORNIA GIANT.



PELTON'S SIX-FOLD POWER---PATENTED FEBRUARY 6, 1872.

THIS REMARKABLE HORSE POWER

Is more than Three-fold the strength of any Portable Horse Power in California, and as its name indicates, is emphatically of six-fold strength in its first and second gears. The bevel (or third gear), which drives the line shaft, is securely and substantially adjusted, and is of equal or sufficient strength to match the first and second six-fold gears. The place where the casing is broken away (in the engraving) shows two of the upper and one of the lower wheels of the six-fold gear. There is no longer any necessity for Threshers to use a Power that requires Fifteen Horses to work it!—which wear out and break down often, when they can be furnished one that is free from these faults—

Which will do the Same Work with Ten Animals!

The trial which I offer to all will prove its title to the merit I claim for it in my Pamphlets. All wishing MORE LIGHT ON THE SUBJECT, will please send their name and address for Descriptive Pamphlet to

SAMUEL PELTON, Patentee and Manufacturer,

16v24-1am Box 1732, San Francisco, Cal.

Silver Wave Mining Company----Location of works, White Pine Mining District, White Pine county, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the Tenth (10th) day of April A. D. 1872, an assessment of fifty (50) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of said company. Any stock upon which said assessment shall remain unpaid on Tuesday, the fourteenth day of May, A. D. 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the Thirteenth (13) day of June, A. D. 1872, at the office of the company, at 2 o'clock P. M., to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. J. W. CLARK, Secretary.

Office, No. 418 California street, San Francisco, Cal. ap4w

Spring Mountain Tunnel Company.—Location of Works, Ely Mining District, Pioche, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 11th day of April, 1872, an assessment of fifteen (15) cents per share was levied upon the capital stock of said company, payable immediately in United States gold and silver coin, to the Secretary, at the office of the company, Room 37, Merchants' Exchange, California St., City and County of San Francisco, State of California. Any stock upon which said assessment shall remain unpaid on Monday the 20th day of May, 1872, shall be deemed delinquent, and will be duly advertised for sale, at public auction, and unless payment shall be made before, will be sold on Monday the 10th day of June, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. J. M. BUFFINGTON, Secretary.

Office, Room 37, New Merchants' Exchange, California Street, San Francisco, Cal. ap20-4w

San Francisco Tunnel and Mining Company.—Location of Works, Little Cottonwood Mining District, Utah Territory.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the thirteenth (13th) day of April, A. D., 1872, an assessment of Twenty-five (25) cents per share was levied, upon the assessable stock of said company, payable immediately to the Secretary at the office of the company. Any stock upon which said assessment shall remain unpaid on Thursday, the 16th day of May, A. D., 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday the eighth (8th) day of June, A. D., 1872, at the office of the company, at the hour of 2 o'clock, P. M., to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. W. CLARK, Secretary.

Office—No. 418 California street, San Francisco, California. ap20-4w

Siempre Viva Silver Mining Co.—Location of works, District of Zaragoza, Sinaloa, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 25th day of March 1872, an assessment of 35 cents per share was levied upon the capital stock of said company, payable immediately, in U. S. gold coin, to the Secretary, at the office of the company, No. 314 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Thursday, the 2d day of May, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 20th day of May, 1872, to pay the delinquent assessment together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOHN F. LOHSE, Secretary.

Office, No. 314 California street, San Francisco, Cal.

Spring Mountain Tunnel Company, Ely Mining District, Pioche, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 12th day of March, 1872, an assessment of fifteen cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, Room 37, Merchants' Exchange, California street, city and county of San Francisco, California. Any stock upon which said assessment shall remain unpaid on the 22d day of April, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 13th day of May, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. M. BUFFINGTON, Secretary.

Office, Room 37, New Merchant's Exchange, California street, San Francisco, California. mar16-td

San Francisco, March 16, 1872

Tecumseh Gold, Silver and Copper Mining Company.—Location of works, Gopher District, Calaveras County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 20th day of March, 1872, an assessment of Three ($3.00) dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, F. J. Herrmann, at the office of the company, No. 634 Washington street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 23d day of April, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 14th day of May, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

F. J. HERRMANN, Secretary.

Office 634 Washington street, Room No. 2, up stairs, San Francisco, Cal. Office hours from 11 A.M. to 2 P.M. m23-4t

Union Gold Mining Company.---Location of works, Howland Flat, Sierra county, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 11th day of April, 1872, an assessment of one dollar ($1.00) per share was levied upon the capital stock of said Company, payable immediately in United States gold coin, to the Secretary, at the office of the Company, Room No. 22, Merchants' Exchange Building, California street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the 13th day of May, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 3d day of June, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. ALFRED K. DURBROW Secretary.

Office—Room No. 22, Merchants' Exchange Building, California street, San Francisco, California. ap13-td

$1,000 REWARD! For any case of Blind, Bleeding, Itching, or Ulcerated Piles that **De Bing's Pile Remedy** fails to cure. It is prepared expressly to cure the Piles and nothing else. Sold by all Druggists. Price $1.00.

O. F. RICHARDS & CO., Agents, corner Clay and Sansome streets, San Francisco, Cal. 8v24-1y

Machinists and Foundries.

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO

IRA P. RANKIN, A. P. BRAYTON,
GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS

Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

☞ Particular attention paid to Jobbing Work and Repairs.

N. B.—Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR.

18v20-3m GODDARD & CO.

FULTON
Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

E. corner of Tehama and Fremont streets, above Howe street, San Francisco. 3-qy

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GEORGE T. PRACY,

MACHINE WORKS,

109 and 111 Mission Street,

SAN FRANCISCO.

These Works have lately been increased, by additional Tools, and we are now able to turn out any kind of work, equal to and cheaper than any establishment in the State; that is to say:—

STEAM ENGINES,

Flour and Saw Mills,

QUARTZ MACHINERY

Printing Presses,

AND MACHINERY MADE OF EVERY DESCRIPTION.

Improved Safety Store Hoists,

Fitted with Cutting's Patent Cams, unequaled for safety, convenience and cheapness. This Hoist can be built for about half the price of any other in use. To be seen at HAWLEY & CO.'S.

ALSO, MANUFACTURER AND SOLE AGENT FOR

Pracy's Celebrated Governor.

TURNING LATHES, Etc., constantly on hand.

4v23tf

UNION IRON WORKS,

Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR

WILCOX'S PATENT WATER LIFTERS.

Dunbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,

SACRAMENTO CITY

PACIFIC

Rolling Mill Company,

SAN FRANCISCO, CAL.

Established for the Manufacture of

RAILROAD AND OTHER IRON

—AND—

Every Variety of Shafting,

Embracing ALL SIZES of

Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames

—ALSO—

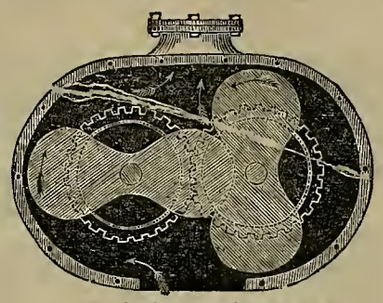
HAMMERED IRON

Of every description and size.

☞ Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention

☞ The highest price paid for Scrap Iron 9v143m

ROOT'S PATENT FORCE BLAST ROTARY BLOWER,



[Sectional view showing the pistons and gearing.]

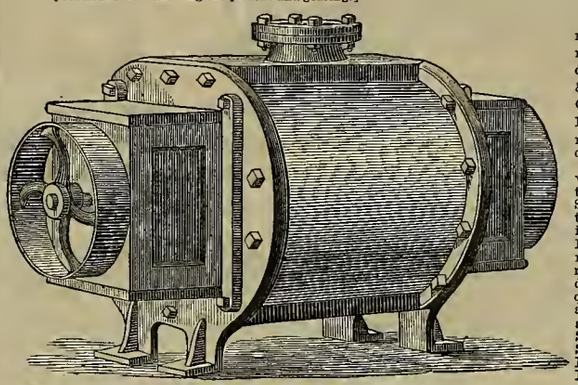
MANUFACTURED AT THE

GLOBE IRON WORKS,

Stockton, Cal.

Awarded the First Premium at the Paris Exposition.—Patented November 1, 1864; July 24, 1866; and October 9, 1866.

Adapted for Smelting, Foundry, Mining and Steamships. Requires 50 Per Cent. less power than any Blower now in use.



One of these Blowers may be seen at W. T. Garratt & Co.'s Brass Foundry, San Francisco; Gould & Curry and Savage S. M. Co.'s, Nevada; and at C. P. R. R. Co.'s Works, Sacramento; and other places on this coast.

CAUTION. — Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article. Quartz, Saw and Grist Mill, Iron, Stationary and Steamboat Engines, Horse-Power and Pumps, of all Sizes.

For Circulars and further information, Address

4v24tf GLOBE IRON WORKS, STOCKTON, CAL.

CAMERON'S

STEAM PUMPS.

PICKERING'S

Engine Regulators.

GIFFARD'S

INJECTORS.

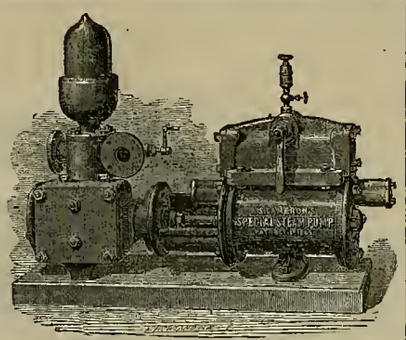
BARTOL'S

STEAM TRAP.

Surface Condensers.

DAVID STODDART,

114 BEALE STREET, S. F.



San Francisco Boiler Works, 123 and 125 Beale Street, San Francisco.

F. I. CURRY (late Foreman of the Vulcan Iron Works), Proprietor.

High and Low Pressure

BOILERS

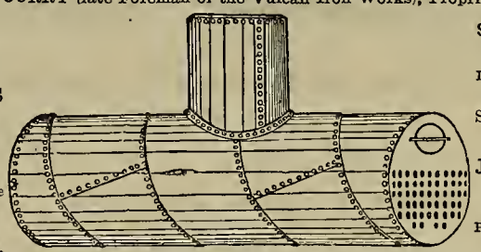
of all descriptions.

SOLE

Manufacturers of the

CELEBRATED

SPIRAL BOILER.



Sheet Iron Work of every DESCRIPTION done at the Shortest Notice.

All kinds of

JOBBING

and

Repairing

Promptly Attended to.

22v22-3m

THE RISDON
Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1868.
CAPITAL.....$1,000,000.

LOCATION OF WORKS:
Corner of Beale and Howard Streets,
SAN FRANCISCO.

Manufacturers of Steam Engines, Quartz and Flour Mill Machinery, Steam Boilers (Marine, Locomotive and Stationary), Marine Engines (High and Low Pressure). All kinds of light and heavy Castings at lowest prices. Cams and Tappets, with chilled faces, guaranteed 40 per cent. more durable than ordinary iron.

Directors:

Wm. Alvord, C. J. Brenham, C. E. McLane,
Wm. Norris, Wm. H. Taylor, Lloyd Tevis,
James D. Walker.

WM. H. TAYLOR.....President.
C. E. McLANE.....Vice President.
JOSEPH MOORE.....Superintendent.
LEWIS R. MEAD.....Secretary.

24v17-qy

OCCIDENTAL FOUNDRY,

137 and 139 First st., near the Gas Works, San Francisco.

STEIGER & BOLAND,

IRON FOUNDERS.

IRON CASTINGS of all descriptions at short notice.

NOTICE.—Particular attention paid to the making of Superior Shoes and Dies. 3v24-3m

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Miners' Foundry and Machine Works,

CO-OPERATIVE,

First Street, bet. Howard and Folsom, SAN FRANCISCO.

Machinery and Castings of all kinds.

COPARTNERSHIP NOTICE.

We have this day admitted Mr. William R. Eckart as a member of our firm, the business of which will be hereafter conducted under the firm name of Prescott, Scheidel & Co. PRESCOTT & SCHEIDEL.

Marysville, Jan. 8, 1872.

MARYSVILLE FOUNDRY.

Referring to the above, we respectfully solicit the patronage which has for the past twenty years been enjoyed by our predecessors, pledging our best attention to the wants of all who may so favor us.

Quartz and Amalgamating Machinery,

SAW AND GRIST MILLS,

STEAM ENGINES,

HYDRAULIC MACHINES,

HOUSE FRONTS, ETC.

☞ Repairs upon all kinds of machinery promptly made and at moderate charges. Having unrivalled facilities, we are prepared to make to order, at short notice, everything required in our line.

Specimens of our work may be seen in all the mining regions on this coast.

5v24-3m PRESCOTT, SCHEIDEL & CO.

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,

SAN FRANCISCO.

ALL KINDS of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch

☞ PRICES MODERATE. ☜

J. H. WEED. V. KINGWELL.

H. J. BOOTH & CO.,
UNION IRON WORKS,

(The Oldest and most Extensive Foundry on the Pacific Coast).

Cor. First and Mission Sts.,

SAN FRANCISCO.

Marine, Locomotive and Stationary Engines, Quartz Crushing and Amalgamating Machines, Mill Irons and Brass and Iron Castings, of every description, made to order.

Steamboat Repairing, Boiler Making, Turning and Finishing,

EXECUTED WITH DISPATCH.

Beet Sugar Machinery complete in every part—made a specialty.

OIL MACHINERY.

A complete set of Machinery of our own design and patent for extracting oil from Castor Bean, dispensing with Hair Cloth. Also Machinery for Flax Seed Oil, Mustard Seed Oil, and Sun Flower Seed Oil.

MARBLE MACHINERY

For sawing Marble of any thickness or size.

Irrigating Pumps. Steam Pumps.

Plans, Estimates, and Advice promptly supplied.

H. J. BOOTH. GEO. W. PRESCOTT. IRVING M. SCOTT

4v24-1ys1amr

SAN FRANCISCO

SCREW BOLT WORKS,

PHELPS BROTHERS, Proprietors,

MANUFACTURERS OF ALL KINDS OF

Machine Bolts, Bridge Bolts, and Ship or Band Bolts.

13 and 15 Drumm Street, San Francisco. 4v24ly

FERRACUTE MACHINE WORKS,

Bridgeton, N. J.

PRESSES, DIES and all FRUIT CANNERS TOOLS a specialty.

Improved 3-lb. Can Press for $65; Rotary Solder Cutter, $15, etc. 13v24-13t

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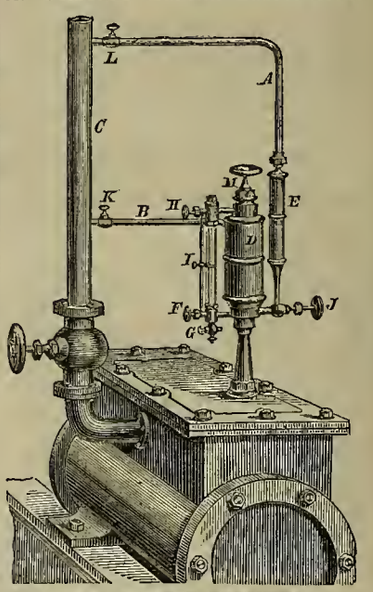
Machinery.

N. Seibert's Eureka Lubricators.



THE HIGHEST PREMIUM

Awarded by the Mechanics' Institute Fair, San Francisco, and State Fair, Sacramento, 1871.

These Lubricators are acknowledged by all engineers to be superior to any they have ever used; feed constantly by pressure of condensed water, supplied by pipe A, regulated under the oil by valve J, and forced out through check valve and pipe B into the steam pipe C; it then becomes greasy steam, passes to all the valves and cylinder at every stroke of the engine; glass tube I indicates amount used per hour. Packing on rods and stems lasts longer, and the rings on the piston will not corrode. One pint of oil will last from three to six days, according to speed and size of engine; I, sliding gauge; K, valve to shut off when engine stopped; H, F, valves to shut off in case of frost; steam does not enter the cup; it is always cool; warranted to give satisfaction. Patented February 14, 1871. Manufactured by California Brass Works, 125 First street, S. F. 24v23tf

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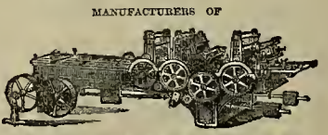
POWER, TAINTER & CO.,

MANUFACTURERS OF



WOOD-WORKING MACHINERY,

3003 Chestnut street (West end Chestnut street Bridge)
PHILADELPHIA.

☞ Woodworth Planers a Specialty. 2v23-1y

McAFEE, SPIERS & CO.,

BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco.

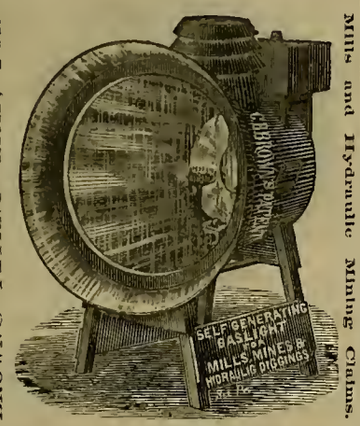
Notice is hereby given, that the copartnership heretofore existing between A. J. Severance, Charles W. Raadall and J. Gus. Burt, under the firm name of "Severance, Holt & Co.," is this day dissolved by mutual consent. A. J. Severance, having purchased all the interest of his late partners, will continue the business of manufacturing and selling Diamond Drills, as before, under the style of A. J. Severance & Co.

Dated San Francisco, Nov. 24, 1871.
Office, 315 California street. A. J. SEVERANCE,
CHAS. H. RANDALL.
22-tf23-tf J. GUS. BURT.

WM. M. BETTS & BROTHER,
CARRIAGE SPRING WORKS,
218 Fremont street, bet. Howard and Folsom,
SAN FRANCISCO.
LOCOMOTIVE, CAR,
And all kinds of Carriage and Wagon Springs made to Order and Warranted.
3v24-3m

CALDWELL'S
Improved Stop Governor,
Manufactured at the CYCLOPS MACHINE WORKS, 113 and 115 Beale street, San Francisco.
3v24-3m WM. CALDWELL.

BROWN'S PATENT LAMP.


BROWN'S PATENT LAMP, FOR
Mills and Hydraulic Mining Claims.
C. B. BROWN
SELF GENERATING GAS LIGHT
MILLS, MINES & MORALS DIGGINGS

One of these Lamps, when placed at a distance of 200 feet from the bank, will light up a bank surface 250 feet in length and 100 feet high, and to a much better advantage than any other light heretofore tried, and at an expense not to exceed five cents per hour. Lamps furnished at short notice.

For further particulars address

C. B. BROWN,
7v24-t Placerville, Cal.

Varney's Patent Amalgamator.
These Machines Stand Unrivaled.

☞For rapidity pulverizing and amalgamating ores, they have no equal. No effort has been, or will be spared, to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

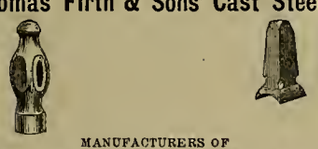
This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the apperture and between the grinding surfaces.—Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Setlers made on the same principle excel all others They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill-men are invited to examine these pans and setlors for themselves, at the office, 229 Fremont Street, San Francisco.

NELSON & DOBLE,
AGENTS FOR
Thomas Firth & Sons' Cast Steel.



MANUFACTURERS OF
Sledges, Hammers, Stone Cutters', Black smiths' and Horse-Shoers' Tools,
13 and 15 Fremont street, near Market, San Francis
10v14qr

SHEET IRON PIPE.
THE
Risdon Iron and Locomotive Works
Corner Howard and Beale Streets,

Are prepared to make SHEET IRON AND ASPHALTUM PIPE, of any size and for any pressure, and contract to lay the same where wanted, guaranteeing a perfect working pipe with the least amount of material.

All kinds of OAR WHEELS, AXLES and RAILROAD WORK made to order. Standard sizes of Wheels constantly on hand. Wheels bored and pressed on, Axles turned, etc., at Reasonable Rates.

☞ All kinds of Machinery made and repaired.
24v22-3m JOSEPH MOORE, Superintendent.

J. M. STOCKMAN,
Mannfacturer of
PATTERNS AND MODELS,
(Over W. T. Garratt's Brass Foundry).

N. W. corner Natoma and Fremont streets, S. F. Entrance on Natoma street. 6v23-3m

BLAKE'S PATENT STEAM PUMPS.

WHAT IS SAID BY THOSE WHO USE THEM.

SALEM, Oregon, Jananry 16th, 1872.

MESSRS. BERRY & PLACE, San Francisco—Gentlemen: In answer to your qnery regarding the working of the large Blake Steam Pnmp, our company purchased of you, we would say in all sincerity that the pnmp *has exceeded our expectation*. It has been in use since the 27th of September, 1871, and has thus far given the most perfect satisfaction. It does its work with ease, does not get out of order, and requires but little or no attention to run it. It is SIMPLE, DURABLE, and PERFECT in its construction. We have found it entirely satisfactory and just the pnmp *in every respect* needed for our work.

Yours, respectfully, W. F. BOOTHY, Pres't Salem Water Works.

PHŒNIX MINE, Napa County, Jnnaary 10th, 1872.

MESSRS. BERRY & PLACE, San Francisco—Gentlemen: The No. 8, Blake Steam Pnmp we bought of you last fall is doing good service. We are having a large amount of water to contend with during this stormy weather; but the pump throws it all out of the main shaft (160 feet deep) with perfect ease, and in only working from 60 to 80 strokes a minute. It is a complete pump and no mistake. We are well satisfied with its working, and if you wish to use the name of our company, as a reference, you are at liberty to do so. Very resp'tly, GEO. FELLOWS, Supt. Phœnix Quicksilver M. Co.

OFFICE STARR MILLS, VALLEJO, Cal., Jnnaary 13th, 1872.

MESSRS. BERRY & PLACE, San Francisco—Gentlemen: We are pleased to state that the No. 3 Blake Pnmp purchased of you, has constantly supplied our three boilers for the past year, with water heat to above boiling point with one of Armstrong's Patent Heaters. It has given us no trouble nor expense, and has in fact fully come up to your recommendations. Yours, Etc., STARR BROS. & CAMPBELL.

OFFICE S. J. WOOLEN CO., SAN JOSE, Jannary 29th, 1872.

MESSRS. BERRY & PLACE, San Francisco—Gentlemen: We have used a No. 6 Blake Steam Pump now for about two years, both as a Tank Pump and as a Fire Pump in case of need: and it has given excellent satisfaction. *It suits us in every respect.* Very respectfully, R. F. PECKHAM, Pres't San Jose Woolen Co.

BELMONT, Cal., February 6th, 1872.

MESSRS. TREADWELL & CO.—Gentlemen: In reply to your inquiry concerning the large Blake Steam Pump, purchased of Berry & Place, by Mr. Ralston, I will say, that it gives ENTIRE *satisfaction*, even working as it now is, where no other Pump could; for it is *at present six feet under water*, yet it does its work PERFECTLY.

Yours, Etc., J. E. BUTLER, Supt. Water Works and Engineer at W. C. Ralston's.

BLAKE'S PATENT STEAM PUMP.

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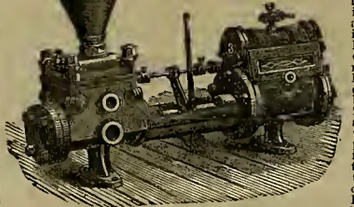

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6v24-eowhp

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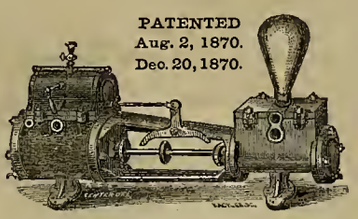

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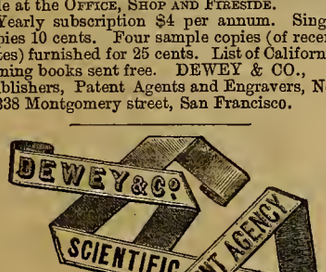

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SAN JOSE, March 15, 1872.—Messrs. DEWEY & Co.—Gentlemen:—Accept our thanks for the prompt and able manner in which you have obtained our letters patent on Animal Trap. Believing you to be gentlemen that can be relied upon as Patent Solicitors, we remain, yours respectfully, COOMBE & PHELPS.

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Mines, Mills, and Furnaces of the Pacific States and Territories; An Account of the Condition, Resources, and Methods of the Mining and Metallurgical Industry in those Regions, Chiefly Relating to the Precious Metals. By Rossiter W. Raymond, Ph. D., Vice-President Am. Inst. of Mining Engineers; Editor "Engineering and Mining Journal." Author of "Mines of the West," "American Mines and Mining," etc. J. B. Ford & Co., 1 vol. 8vo. 458 pp. Ex-Cloth. Sold by DEWEY & Co., publishers Scientific Press, San Francisco, at publishers' rates, $3.50. This volume will scarcely need to be recommended to those who are acquainted with the "Mines of the West," "American Mines and Mining," and other professional publications of its author. The present work is in no sense a repetition of Mr. Raymond's former ones. It contains a full and comprehensive account of the condition of the gold and silver mining industry of the United States, with practical recommendations of great importance to those engaged in it. The chapter on the treatment of auriferous ores in Colorado is the best account of the stamp-mill process ever published in this country; and the general discussion of smelting processes for silver ores supplies an instant want. The series of volumes, of which this forms the third, which have proceeded from the rapid but careful pen of Commissioner Raymond, are recognized in this country and in Europe as professionally authoritative and popularly interesting to a remarkable degree. To be technically accurate, but not technically abstruse, is their salient and acknowledged merit.

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COMMENCING

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6.30 P. M. Overland Emigrant Train, Through Freight and Accommodation.

7.30 A. M. Steamer New World (from Broadway Wharf)—Connecting at Vallejo with Trains of California Pacific Railroad.

4.00 P. M.* Sacramento Steamer (from Broadway Wharf). Connecting at Vallejo with trains of California Pacific Railroad.

2.00 P. M.* Steamer Antelope, from Broadway Wharf, connecting at Donahue with Trains of S. F. and North Pacific Railroad.

OAKLAND BRANCH.—LEAVE SAN FRANCISCO, 7 00, 8 10, 9 20, 10 10 and 11 20 a. m., 12 10, 1 50, 3 00, 4 00, 5 15, 6 30, 8 06, 9 20 and *11 38 p. m. (9 20, 11 20 and 3 00 to Oakland only).

LEAVE BROOKLYN, *5 30, 6 40, 7 50, 9 00 and 11 00 a. m., 1 30, 2 40, 4 55, 6 10, 7 40 and 10 10 p. m.

LEAVE OAKLAND, *5 40, 6 50, 8 00, 9 10, 10 00, and 11 10 a. m., 12 00, 1 40, 2 50, 3 50, 5 05, 6 20, 7.50 and 10 20 p. m.

ALAMEDA BRANCH.—LEAVE SAN FRANCISCO, 7 20, 9 00, and 11 15 a. m., 1 30, 4 00, 5 30, and 7 00 p. m. (7 20, 11 15, and 5 30 to Fruit Vale only).

LEAVE HAYWARDS, *4 30, 7 00 and 10 45 a. m., and 3 30 p. m.

LEAVE FRUIT VALE, *5 25, 7 35, 9 00 and 11 20 a. m., 1 30, 4 05 and 5 30 p. m. *Except Sundays.

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They are of light draught, easily adapted to any depth, and are very easily handled.

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These Plows took the First Premium at the State Fair in Sacramento, in 1870; at the Northern District Fair in Marysville, 1870 and 1871; and at the Upper Sacramento Valley Fair, Chico, 1870 and 1871. At the Mechanics' Fair, held in San Francisco in 1871, a Silver Medal was awarded these Plows; and the State Agricultural Society, at the last Fair, offered a premium of $40 for the best Gang Plow. The committee was composed of practical farmers from the agricultural counties, who, after a fair test and thorough competition with the leading plows of the State, awarded the premium to the Eureka Gang Plow. From this it will be seen that these celebrated plows still maintain their reputation over all competitors. Patented Sept. 7, 1869.

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SAN FRANCISCO, SATURDAY, APRIL 27, 1872.

VOLUME XXIV. Number 17.

Improvement on Railroads.

We present herewith the illustration of an improvent in the construction of railroads, invented and patented by John L. Boone, of this city, through the SCIENTIFIC PRESS Patent Agency. The invention consists, first, in an improved material for manufacturing railroad ties, and secondly, in an improvement in the construction of the tis itself, by which a greatly improved road-bed is produced.

The first part consists in forming railroad ties of any animal or vegetable fibre, cemented together with asphaltum, and subjected to the necessary pressure in monlds, to form, as it were, an artificial wooden block, of the proper size and shape. This block, it is claimed, will be, to a certain extent, elastic, at least as much so as wood, while being composed of fibre locked up in asphaltum, it will not decay or deteriorate with age like wood. It is also claimed that spikes driven into the block, will be retained with much more tenacity than in wood; thus at once giving two invaluable requisites for a tis. The materials of which the block is composed can be cheaply and readily obtained in all parts of the world, and the tie is easily manufactured in quantity, which is another indispensable requisite for a manufacture so generally required.

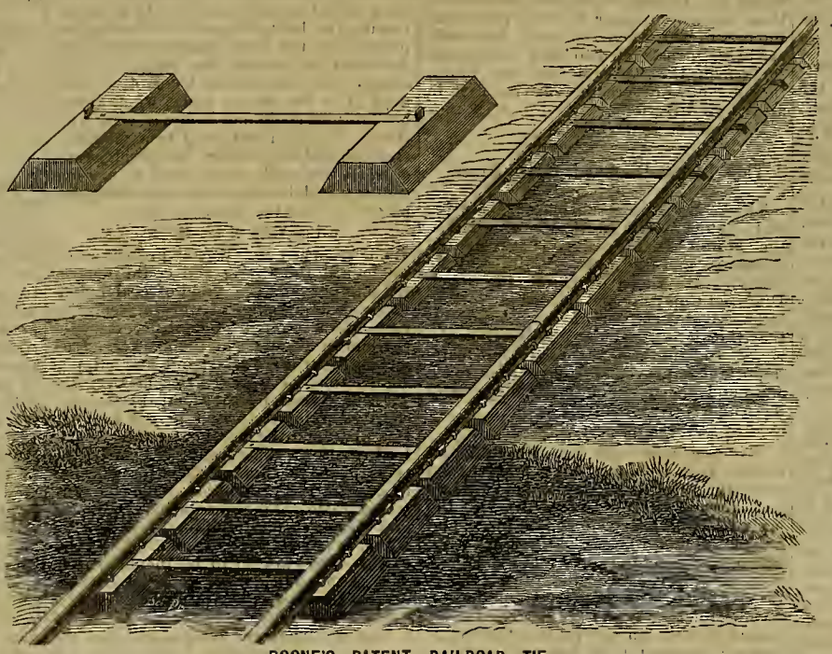
The construction of the tis is plainly shown in the engraving. Two short blocks of the material, say two feet long, by ten inches square, are united together by an iron rod, the ends of which lie in a recess in the block, so as to pass beneath the rail. The ends of these rods are then turned up so as to hook over the outside flange of the rail. The blocks are parallel with each other, so as to form a continuous foundation or bed for the rail. In constructing the track, the ties or blocks are placed closely together, so as to form two side stringers, upon which the rails are spiked, so as to bind the blocks together longitudinally, while the transverse tie rods prevents them from being displaced sideways. By placing the blocks close together so as to form a continuous foundation for the rail, the inventor claims that he avoids the springing of the rails between the ordinary transverse ties, as the trains pass over it. Our readers will recollect the up and down motion of a train of cars, when moving upon an ordinary track, and how it loses this movement when it is running over a bridge, or other continuous foundation. This movement is occasioned by the yielding of the rails beneath the wheels of the cars, as they pass from tie to tie, and is necessarily destructive, to both the track, and rolling stock of the road, besides being unpleasant to the passengers. By constructing the foundation in a continuous line, this is avoided, and a smooth easy movement given to the train. In cold countries, the rails are frequently broken by a passing train, after a cold or frosty spell of weather, and much damage frequently occurs thereby. This is also avoided by this construction.

The fibre being compressed together in a heterogeneous mass, the block will have no grain like wood, and will not, therefore, split; rendering it capable of holding the spikes with extraordinary tenacity, thus ensuring the permanency of the fastenings.

There are already constructed in the United States over 60,000 miles of railroad, and its extent is being increased at the rate of several thousand miles yearly. In every mile of this road the number of ties required is about 2,640, making an aggregate of 158,400,000 ties required on the road already constructed. Supposing these ties to be renewed every four years, it will require 39,600,000 ties per year. We build annually 7,000 miles of new road, requiring 18,480,000 ties, which, added to the annual requirement above mentioned, gives 58,080,000 ties to be furnished every year. Now, if we calculate the average cost of each tie at forty cents, we have a total of $23,232,000 as the annual cost of ties, in the United States alone. This is no fancy picture, but actual facts based upon correct calculation. It is certainly high time that some substitute for wooden ties be introduced, or we shall shortly find ourselves without sufficient timber to keep up our long lines of railroad. Even now in thickly settled portions of our country there is beginning to be a scarcity of timber suitable for railroad ties, and the ties begin to command a high price; *yet we have but just began to build railroads.* Before many years every town and hamlet in the country will have its branch lines, and our land will be a net work of iron bands. Now is the time to begin to introduce some more proper and inexhaustible material for the ties, in order that we may save our timber without further depletion. It is merely a question of time, as sooner or later our railroad engineers will have to look about them for material with which to construct the foundations of their roads. Iron ties are being introduced into India, and we hear of various experiments in that direction elsewhere; but iron, like wood, is not inexhaustible, and its high price and want of the proper elasticity is against it.

The tie above described can be manufactured very cheaply, costing but little, if any more, than wood. The materials of which it is manufactured are practically inexhaustible. Fibre suitable for this purpose grows everywhere, on the prairie, in the swamp, upon all soils and in all climates. It can be obtained for the simple cost of collecting it. Asphaltum is found in immense quantities in the United States, Europe and other parts of the world. But a small proportion of asphaltum will be required in the manufacture of the blocks, its only use being for cohesive and preservative purposes. The blocks can be readily transported to the place where they are required for use without occupying unnecessary space.

This invention has been assigned by the inventor to himself and Rudolph Herman, of this city, and application has been made for foreign patents. These parties intend to use every exertion to have their system of tieing railroads, practically tested in this State, and thus introduce a new enterprise and manufacture upon our coast. We wish them success.



BOONE'S PATENT RAILROAD TIE.

San Francisco Microscopical Society.

The San Francisco Microscopical Society has recently been re-organized on a permanent basis with excellent prospects. They are at present using one of J. Becks (London) binocular first-class microscopes, the property of a member, but will shortly send for one for the society with all the necessary appurtenances. An interesting meeting was held last week at the society's rooms. A number of donations were received among them some slides from Walmsley of Philapelphia, comprising a specimen of Wolffia Columbiana, the smallest of true flowering plants; seed of Japanese Tree (Pantoronia Imperialis); Leaf of Mnium Cuspidatum; Arsenions acid; the foot of a tree toad. A specimen of soil from Owen's River Valley was presented by Mr. Hanks.

The society is limited to 20 active members but associate members are also admitted who come as guests. These are also corresponding and honorary members. The meetings are held once in two weeks. The officers of the society are as follows: H. G. Hanks, President; Dr. A. B. Stout, Vice-President; Chas. M. Kinns, Secretary; Henry C. Hyde, Corresponding Secretary; and D. P. Belknap, Treasurer. We wish the society all success in the interesting field which is before them.

In Nevada county there are 1,240 miles of ditch used for mining purposes, the combined cost of which was $3,720,000, or $3,000 a mile.

Sargent's Mineral Land Bill.

In our issue of March 2d we made favorable reference to this bill, as one well calculated to enhance the interests of the mining community; but we regret to see that a substitute has been introduced into the Senate, which entirely changes some of the important features of the House bill, and in such a manner as to render the bill decidedly objectionable. Thus, Section 2 provides that a mining claim "located by *one* or more persons may equal, but shall not exceed, 1,500 feet in length along the vein or lode; but no location of a mining claim shall be made until the discovery of the vein or lode within the limits of the claim located,"

The effect of such an enactment would be to encourage monopoly and discourage prospecting. The original mining act fixed 200 feet as the limit of a single claim. Sargent's bill allowed 200 feet more for discovery; but the Senate bill increases the amount to 1,500 feet for a single claim, which would permit a very few men to acquire an entire lode.

Then Section 4 gives to all parties running a tunnel "the right of possession of all veins or lodes within 3,000 feet from the mouth of such tunnel, on the line thereof, not previously known to exist, discovered in such tunnel, to the same extent as if discovered from the surface;" and declares invalid all locations on the same line previously made by others after commencement of the tunnel. This is applying the privileges of the Sutro Tunnel Act—an exceptional work altogether—to every tunnel that may be run in the mines.

There are several other objectional features in the Senate bill, and we fail to find in it any modification which can be considered an improvement on the House bill. The mining press should speak out decidedly on this bill, and, if possible, bring such influence to bear as will at least modify its objectionable features.

No important branch of industry has been as studiously reflected in legislation as mining; but, when the laws are to be changed, such changes should only be made after mature deliberation and consultation with practical men who understand the technicalities and necessities of mining.

LAKE SUPERIOR GOLD DISCOVERIES.—The region of Lake Superior after getting up an immense silver excitement now goes in for gold. The reported gold fields lie from 70 to 100 miles back from the head of Thunder Bay, in a desolate rocky region, anything but a favorable location to live in. The gold is associated with sulphurets of iron. Reports say that one party of 12 men took out 10½ tons of ore this winter that "assays" from $5,000 to $7,000 per ton. The Saginaw *Enterprise*, in speaking of this wonderful region, also states that the latest discovery is an abundance of tin ore, richer than the Cornish mines, yielding from 40 to 60 per cent. of metal. It also states that the great Silver Islet mine is as rich as ever, and another new vein has been found as rich as the Silver Islet. We prefer to take all these statements "with a grain of salt," for it looks like somebody wanted to create an excitement and sell out; at least that would be a Californian's view of the matter.

CORRESPONDENCE.

From the Smoky City.

[Written for the PRESS.]

EDITORS PRESS:—If there is one thing more than another which will hring conviction to the mind of a Californian that the Pacific slope has tbe finest and beet climate under the eun, so far, at least, as we Americane are concerned, it is for him to take a trip overland in mid-winter. And if he does not soon find evidence more convincing than "proof from Holy Writ," then I am mistaken. There are a class of chronic grnmhlers in California who are continually finding fault with this, that and the other, but I helieve they could be easily cured hy causing them to pess a winter away from the Pacific slope in eome of the Eastern or Western States, and methinks I wonld hear them eey: "California, with all thy faults I love thee elill."

Since my arrival, numerous persons have made inquiries regarding California, her mines, productive soil and wonderful climate—where vegetahlee can be reised all the year round—which last, I have no douht, is received with many grains of allôwance by those who have passed a greater portion of their lives in a Northern clime, and who thiuk there are none hetter.

Pittsburgh.

Who hae not heard of the Smoky City with her wonderful manufactories, rich depoe its of bituminous coal, or as they are termed here, Black Diamonds, her glaes manufactories, which fnrnieh most of the glase used in the United States; her rolling mills, whose products can he found in almost any portiou of this continent. Her foundries of brass and iron are known far and near; for bere were made, during the Rehsllion, the famous Rodmen guns, which performed such good service in the cause of the Union. Here, also, are locacated some extensive plow factories which supply the Weetern and Southern States; and on many a Western farm, and Southern plantation can he eeen specimens of Pittshurgh manufacture. In fact, there is scarcely any article of iron or glass which has not a representative factory here.

Pittshurgh, geographically considered, ie well located, at the confluence of the Monongahela and Alleghany rivere, and in the course of time must attain to a high position as a commercial city, owing to the advantages which she possoses as a distrihuting point. But the great eecret of her prosperity lies in the enormous coal fields adjscent to the city; and some authorities tell us that the city overlays a bed of cosl, fourteen fect thick, but which will not be worked for many years, as the coal heds in the hills can be worked with greater profit. Each new railroad which is put in operation brings to light new discoverics of coal. The Pittsburgh, Virginia and Charleston Railroad, whiob has just hesn graded, is reported to have discovered magnificent veins of coal of a better quality than any now in use in this city.

Of late yeare, conaiderable attention has been paid to the cultivation of the grape in this region, but it does not meet with the success that attends the business on the Pacifie slope; in fact, I do not tbink the climate adapted to vinicultural pursuits; the seaeon is too ehort, and as soon as the frost appears the grapee are withered. Concord and Catawba varieties prove to be the best reised here.

Black Diamonds,

In Pittshurgh parlance, means coal, and the trade in the above mentioned article with the towns and cities on the Ohio and Mississippi rivers contribute to the prosperity of all concerned, from the dusky digger in the pit to tbe Black Diamond merchant. Eaob riee in the river is hailed with delight, not only by those who are engaged in the trade, but hy all the inbabitants of tbe towns and cities on the lower rivere, from Pittsburgh to New Orleane. Yeaterday was a buay day with them. As I stood on the bank of the Monongahela river I countod twelve coal tugs in eight with their tows, and the daily papers of this morning's ieeue inform us that yesterday aud tbis morning's ehipmente of coal wonld amonnt to 6,700,000 huehels, end 300,000 hnshels of coke; for he it known to the people of California that here, coal and ooke is sold hy the bushel, and not hy the ton, as on the Pacific Coast.

A New Enterprise.

Last summer, an experiment was made in smelting some of the rich silver oree of the Crœsue mine, in Utab, by some enterprising gentlemen of this city, and the result has exceeded their most sauguine expectations. So well were they pleased with the reeult that it is now their intention to erect an extensive smelting works, for the purpose of reducing the rebellious oree of that regiou. If this enterprise ie euccessful, no doubt we ehall soon eee Pittshurgh become the Swansea of the United States—as they have every facility here for the prosecution of the husiness.

Consolidation.

This city has lately consolidated with the towns contiguous, a subject that has heen agitated and discussed for many years. It finally has been accomplished, and now the Smoky City boasts of 120,000 inhahitants, placing her the eleventh in the renk of cities, according to population.

Prospects.

At no time in the history of Pittshurgh were prospects more flattering than at present. Work is plenty, and men are daily called for through the advertising columns of the papers. The price of iron has advanced, owing to an advance in Europe.

The price of soda has advauced from 3 cents per pound to 7 cents per pound, and as a consequence, the glass manufacturree have determiued to advance tbe price of glaes ten per cent. Some of the manufactories are making extensive additions to their worke, in order to keep pace with the orders whicb come to hand. Railroads are being constructed to nsw coal fields, to furnish the reqnisite fuel, and buildings in course of erectien can be seen in almost all directions. W. E. D.

Pittshurgh, April 3, 1872.

The Black Diamond Coal Mines.

The heet yielding and most extensive and systematically worked coal mines in the Monnt Diahlo range between the mountaiu and the San Joaquin, eays the *Bulletin*, are tbose owned by the Black Diamond Company and located at Nortonville. A description of these mines as they then appsared, was puhlished in the *Bulletin* ahout two years ago, hut many important improvements have heen made since and the yield of the mines greatly increased.

The Differcnt Veins.

The coal veins are found at different dcpths in a eeries of high and rugged sand-stone, cnt hy deep and eharp ravines and epareely timhered to the eouth of the mines. The upper vein at this place, and one of the first worked, is the Clark vein. The opening of tbe tnnnel is at a considerable elevation above the town and is reached hy a large and steep incline, on which the coal cars are rnn. The tunnel extends almost on a level into tbe mountain a distance of 4,580 feet with outlying drifts or chambers from whicb the coal is obtained. Work in tbis mine is not carried on as extensively now ae formerly; the other veins taking the lead. Next below the Clark vein is the Lower Black Diamond, with a gangway or tnnnel along the vein, 5,430 feet in length. The next in order is the Monnt Hope vein, with gangways 3,810 feet in length; and the last opened mine is still helow and called tbe Lower Mount Hope, gangwaye 1,000 feet long. The Mount Hope proper is reached by a steep incline, and about 300 feet deep, and from that level another runs to the Lower Mount Hope, a distance of abont 400 feet. The veins in these mines average in thickness from three to four feet, and furnish an excellent quality of coal. The cars are moved on the first incline hy a powerful engine on the eurface driving immense drums, on which the steel wire rope or cable is wound. A eimilar engine and ponderons hoisting drnms are located deep uuder gronnd at the foot of tbe firet incline, and furnisbed with steam through well protected pipes from the hoilsrs outside. Last winter the miners in tbe Lower Monnt Hope struck a large etream of water which filled the gangway and drove them out. Two of Stoddart's steam force pumps in the Upper Mount Hope were set at work, and the mine was eoon cleared of water. Two more of these pumps were then placed in the Lower Mount Hope, and one of them is kept running day and night; the other one being beld iu reserve. Tbe stream of water continnes to flow, but the pumps send it all to the eurface. Two large pumps are on the ground to he placed in the Upper Mount Hope for the better draining of the works sbould the flow of water ever increase.

Utilizing Refuse Coal.

The six large hoilers at the worke were at firet furnished with iron smoke-stacks, and it was found impracticable to hnrn ecreeninge and slags from the miues in the furnaces. A spacious and tall hrick chimney was erected, and the strong draft crsated hy it enables the company to utilize materials which would otherwise he piled up at a distance from the works and hurned.

Machine Shop.

Another important improvement end addition ie the machine shop, which has heen in operation but a short time. It contains turuing-lathee, drille, punches, forges, etc.; and the company not only does its own iron work there, but furniehes, repairs, etc., for other companies and individuals iu the vicinity.

The Railroad.

The coal is discharged from bnnkers at the mine into iron box cars. When a train is loaded, hrekemen take their placee, and it rushes down the eteep grade to the Bleck Diamond landing on the river, about eix milee helow. The locomotives are employed only in hauling hack the trains of empty cars, and a emall paesenger car which makes stated trips for miuers, ranchmen and school children. One of the locomotives lately imported from the East, is a ponderous machine, and carries its tender like a huge saddlo on ite hack. The object of this arrangement eecme to be to throw as much weight as possihle over tho locomotive driving wheels, increasing their adhesion to the rails when the eteep ascent is to be made. During the heavy rains the hallasting on portions of the road hecame so soft that it would not eustain the weight of this monster, and the emaller locomotives were ueed till a few weeks since, when it was hrougbt out again and ie now at work with them. The railroad itself ie a model of strength and durahility. The hridges and culverts are well constructed of massive timbsrs, and trackmen are constantly employed to keep the whole in repair.

Tho Yield of the Mines.

Thc company employs at present ahout 350 men in the mines, and could increase the numher and the yield of coal indefinitely, hut the plan of working seems to he to extract no more than ie neceseary for the known demands of the market. Last montb there were taken ont and shipped 10,518 tons of coal. A steam tug, the *Rabboni*, owned hy the company, is constantly employed towiug barges between this place and the landing. Other veseels load there at timee, and several of the river etcamers etop regularly for supplies of coal for their fnrnacee. The company contemplate makiug further improvsments and developments, the exact nature of which is not yet made known. The yield of the mines appear to be inoxhanstihle, and as the demand for their product increasee their capacity must ho enlarged.

BORAX.—The Inyo *Independent* has the annexed on this eubject: Tbere is in the vicinity of Columhns ahout 3,000 acres of laud containing borate of lime and borate of eoda. The dsposit varies in thickness from one inch to fifteen inches, and tbe crude material, ae taken from the marshes, yields ahout 15 per cent. of horacio acid. A firm is manufactnring a superior quality of horax from the horate of soda. Their horax is made by a procose differing entirely from tbat hy which the English borax ie made. It contains an excess of horacic acid and a lese per cent. of soda, hence its superiority over the European article. They own their own lands under State laws, hut wben the Government surveye are extended over tbsm they will, of course, have to purchase of the Government. Large quantities of horax can he made from tbese marshes, as the supply is almost inexhauetihle—tbc horate of eoda forming again within a few weeks aftsr it bas once heen gathered from the snrface of the land. We are indehted to Markley of Bishop Creck, for ssmples of the horax which, so far as we are ahle to judge, is as fine an article as was ever manufactured.

CALIFORNIA WHEAT EXPORTS.—The total export of wheat and flour for the United States, Eaat of tbe Rocky Monntains, reached an aggrogate value of ahont $68,000,000 in 1870. That value will not be mnch increased for the coming year, while California alone will he able to send away about 600,000 tons at a value somewhat exceeding $20,000,000

GIANT AND BLACK POWDER.—It ie well known that eix men have heen engaged at the Eureka mine, for the last montb in running a cross-cnt, and that these men have heen using the Giant powder as a hlasting agent. During the month the eix Giant powder men made 40 feet, the rock throngh which they ran being very hard in some places and not eoft in any spot. In the five months previous an average of 21 feet per month wae made with hlack powder and double drille. The men working Giant powder have not been eick a minnte during the 26 days they have been working in the crose-out. Three of the men who worked with the Giant powder were green hande at under ground mining. We are furnished with the following statement which compares the cost of using the two kinds of powder:

Statement.

In regard to the trial between hlack powder and double hand drill, and Giant powder and single hand drill, in the crosscut of the Eureka mine: Six men with single hand drill and hlack powder in five months drove 105 feet, or 21 feet per month. Six men with single hand drills and Giant powder drove 40 feet in one month at a cost to the Eureka Company, as follows:

DOUBLE HAND DRILL.

Labor	per month	$468 00
Black Powder,	" "	11 50
Candles,	" "	11 70
		$491 20

SINGLE HAND DRILL.

Labor,	per month	$468 00
Giant Powder,	" "	75 00
Caps,	" "	18 75
Candles,	" "	11 70
		$573 45

Cost per foot Giant Powder and single hand drill.....$14 33
Cost per foot Black Powder and double hand drill..... 23 39

or a saving in favor of single hand drill and Giant powder of 38¾ per cent.—*Grass Valley Union.*

A Strong Nation.

The census of 1860 gavo the total property velues of the United States at $16,000,000,000. The censue of 1870 makes a return of nearly $32,000,000,000. Thus the wealth of the nation had about doubled itself in a decade during which the country was convulsed hy a great civil war, involving an expenditure, to hoth sides, of not less than $6,000,000,000, and a vast detruction of life and property. Seven years aftor this terrible struggle, tbe total of national, state, county and mnnicipal dehts is only $3,271,874,768, and the country sustains a total tax of $688,520,435. These figuree give an impressive idea of the financial strength and wonderfully rapid development of the United States, in view of which, the National deht seems a light affair. Tho showing is the more remarkahle when we reflect that this debt has hsen reduced at a rate that would extinguish it in tweuty years, wbile permitting yearly reduction of taxation. All the hlunders of all the politicians cannot repress energies so boundless, though they may preveut their fullest and healthiest action.

SCHOOL LANDS.—The Surveyor General has forwarded to the different Boards of Supervisore of the State a communication calling attention to an Act in relation to school lande, approved April 4, 1870, whicb provides: "The Snpervisors of the eeveral conntiee of this State are hereby reqnired to report to the Surveyor General of the State, within six monthe after the passage of this Act, all school lands within their respective countiee heretofore eold under any law of this State, except those sold under Act of March 20, 1868; and all lands thue returned, whether eold or uneold, and not paid for, sball be subject to tbe provisions of said Aot of March 28, 1868, provided that delinquent purchasers of any euch lands shall have six monthe after the paesage of this Act to make full payment for the lands purcbased, and failing to do eo shall be proceeded against as provided for in said Act of March 28, 1868."

AGRICULTURAL VALUES.—The total value of the agricultural productione of California comprise 45 per cent. of her total indnetrial wbeat products; tbe producta of her mines—gold, silver, copper, quicksilver, coal, etc., reacbes only about 16 per cent; leaving but 40 per cent for all her otber industrial producte. The agricultnral yield of California for the year 1872 will he largely in excess of al other products oombined.

MECHANICAL PROGRESS.

The Physical Properties of Steel.

What is steel? This is a point which has been much discussed, but one upon which no conclusion has been reached, chiefly from the fact that the meaning of the word has never been clearly defined. We have the series—pig-iron, steel and wrought-iron; but the exact limits of steel have never yet been defined. The province of steel is sometimes enlarged, sometimes unreasonably circumscribed. In its properties and in its manufacture it is comprised between the limits of cast and wroagbt-iron—but when it begins or when it ends has never been defined. We condense the following from a work recently published by M. L. Graner, of the Paris School of Mines:—

The elements which enter into the iron in its conversion to steel are quite various, and of such slight proportions, in relation to the mass of iron, that even their exact determinations are difficult. These uncertainties render it extremely difficult, if not impossible, to produce two specimens of steel exactly alike. The same difficulties, indeed render it equally difficult to prescribe the exact limits of the composition of cast and wrought-iron.

The same foreign elements are found in cast-iron, steel and wrought-iron—the difference between the different members of the series is due solely to varying relative proportions, and chiefly to the single element of carbon. In each instance this element is found partly in merely mechanical mixture and partly in intimate combination or rather solution.

The large influence which carbon exerts on iron may be inferred from the fact that when iron is in a certain condition it requires only a few tenths of one per cent. to so modify it as to cause the iron to pass into that which is unqualifiedly steel. Indeed Rivet appears to think that the two are chemically identical—that steel is a mere change in the molecular constitution of iron.

There are certain ores known as "ores of steel," which naturally produce steel at a certain stage of fining, but which by still farther fining pass into iron. Again this same iron gives steel of a superior quality or cementation.

All metals, in fact, undergo remarkable changes through the influence of exceedingly small proportions of various foreign substances. Copper is partly modified by the merest trace of oxygen, sulphur or lead, zinc and tin by only a few tenths of one per cent. of iron; gold, according to Fremy, is rendered as brittle as antimony by one one-hundredths of one per cent. of lead or bismuth.

According to Fremy nitrogen exercises an important influence on iron—that steel is due not to the presence of carbon alone, but to a combination of iron with *nitrocarburets*. Careful analysis, however, shows that there is no fixed relation between the properties of nitrogen and carbon in either steel or iron—and that the proportions of nitrogen are found to vary, while those of carbon are more constant. Hence it has been supposed that the presence of the former is more or less accidental and unimportant.

Analysis shows that crude wrought-iron retains a part of all the elements present at the reduction of the ore in the blast furnace, and when steel is obtained from iron by fining, only those elements are completely eliminated which are readily oxidized, and here only a slight affinity for iron. Among those thus retained in greater or less proportions are carbon, aluminum, sulphur, phosphorus, silicon and copper.

In reality, steel and wrought-iron are compounds almost as complex as the crude pig which comes from the furnace—the proportions only are less. The proportions of carbon in that metal have no absolute value as regards its tempering power or the facility with which it may be drawn out.

All the carbon in white irons and tempered steel is really *combined* or held in solution, while in gray iron and steel not tempered, a portion of the carbon remains deposited *in the form* of graphite.

NEW STUFFING FOR CUSHIONS.—A material which has come quite extensively into use in Germany, as a substitute for hair in the stuffing of saddles, etc., consists of a mixture of flax seed and tallow. The advantage of this substitute consists primarily in the fact that the mobility of the seeds, one upon the other, prevents the packing or settling in any particular place, as often happens in saddles stuffed with hair, thus causing any given pressure to be readily and uniformly distributed over any given surface. The tallow serves the purpose, too, of keeping the leather flexible, and of preventing the absorption of perspiration, protects the article itself, and prevents the back of the animal from becoming galled. Animals with sores or galled spots on the back can be ridden with saddles stuffed with this material without any great inconvenience. The tallow also has the effect of preventing the rotting of the flax seed, and is to be added in sufficient quantity to give the requisite softness to the entire mass. An aromatic odor can be imparted by introducing oil of turpentine or camphor powder, and the durability considerably increased thereby. One part of tallow to from six to ten parts of flax seed may be used, according to the temperature.

Band-saws for Cutting Large Timber.

The substitution of the band saw, for the old style of reciprocating gig-saw, has produced in many kinds of wood working a decided revolution in the greater speed with which the work may be performed. But few would suppose that the same principle could be adopted to advantage in sawing large logs from the forests. This, however, has been done, and sawing machines constructed on this principle, capable of sawing stuff forty-eight feet in length, are for sale by firms located both in Philadelphia and London. We do not know that these have yet been used to an extent warranting the belief that they will prove more useful for ordinary sawmill work, or for sawing timber which two circular saws, one above the other, are found capable of cutting into plank; but for various special purposes, like the shaping of ship timber and many others, this adaptation of the band-saw seems to possess much merit, and will doubtless meet with extended favor, and may possibly admit of modifications in its structure now unthought of.

As concerns the proportions of the machine as made for heavy sawing, we find the diameter of the wheels over which the saw passes stated at six feet. These wheels are of wrought iron, and are tightened against the saw to a tension of from two and one-half to ten tons, the uppermost wheel being vertically adjustable a distance of twenty inches, and having its shaft, four inches in diameter, of steel. The shaft of the lower wheel is of wrought iron and is half an inch greater in diameter, and the journal boxes of both are lined with hard brass. The log carriage is commonly made with especial reference to the variety of work for which the machine is designed, and of course varies according to circumstances. For resawing, feed rolls are fitted to the apparatus. The production of large machines of this kind furnishes a good example of what may be done in extending the utility of an invention merely by the application of mechanical judgment without any exercise of what can be properly called inventive skill.—*Cabinet Maker.*

WROUGHT-IRON TIES.—An English scientific journal makes the following interesting statements: The new railway sleeper which has lately been brought forward in England, is likely, it is thought, to prove of special advantage in some respects, and particularly in tropical countries. The constructors of the various railways in India, for example, experience the greatest difficulty in making and maintaining the permanent way. The dry rot, and those pests of India, the white ant, are terribly destructive. Sleepers sent from England creosoted and "pickled" are not protected from the influence of the sun and vermin, and seldom or never last more than three years. It was necessary, therefore, to find a substitute impervious to the attacks of insects, which might be made perfect and ready to be laid down whenever and wherever required. The new sleeper is made up of a number of webs and plates of rolled iron, rivited together, and pierced with bolt-holes for the chairs. This is estimated to save about two-thirds of the labor of laying, and leaves but little work to be done by native or other labor. The direct cost is found to be not more than one shilling each above that of the best wooden sleeper, and they are calculated to last ten times as long in tropical countries, and three times as long in Europe. Many eminent engineers and railway constructors, who have examined these sleepers, express great confidence in their superior adaption.

THE iron sea forts now in course of construction for the defence of the prominent naval stations of Great Britain, will, with the foundations, cost five million dollars apiece. The iron shell of one of the forts for Spithead, near Portsmouth, has been shipped by rail for that harbor from the works of the Whitworths, in the iron districts. This shell or skeleton weighs twenty-four hundred tons, and is to be fitted up with fifteen inch iron plates twenty-six feet in length. Each fort is to be seven hundred feet in circumference and two hundred and thirty feet high. They are to be armed with two tiers of guns, one tier of twenty-four 600 pounders, and the other of twenty-five 400 pounders. The guns, it is calculated, will pierce twelve inch iron ships at two thousand yards distance.

BROWN TINT FOR IRON AND STEEL.—Dissolve, in four parts of water, two parts of crystallized chloride of iron, two parts of chloride of antimony and one part of gallic acid, and apply the solution with a sponge or cloth to the article, and dry it in the air. Repeat this any number of times, according to the depth of color which it is desired to produce. Wash with water and dry, and finally rub the articles over with boiled linseed oil. The metal thus receives a brown tint and resists moisture. The chloride of antimony should be as little acid as possible.

ARTIFICIAL BUILDING STONE is now made with air chambers extending through the entire walls, rendering them airy in summer and winter, impervious to frost, and comparatively water and fire-proof. The coping grooves together, forming one continuous solid stone, ever protecting the walls from the destroying elements of fire and water. The "Coming Stone" for foundation is stronger than many natural stones, and for building purposes—properly prepared—artificial building stone is as little liable to disintegration as natural stones.

SCIENTIFIC PROGRESS.

Atmospheric Influences on Lunacy.

The Chaplain of the Hayward's Heath Lunatic Asylum, Brighton, Eng., appends to the last annual report of that institution, a very interesting paper on the "Effects of Meteorological Facts of Insanity." A chart shews the rise and fall of lunacy for the last four years in relation to the changes of the atmosphere, the phases of the moon, the amount of ozone in the air, the rainfall, etc.

One of the results of this chart is fatal to the "vulgar error," that gives its very name to lunacy. "There is," says Mr. Crallan, "very little difference to be discovered in patients' fits between the average numbers for those days on which the moon's changes occur, and for the days composing the rest of the months, and what little difference there is in favor of the days on which no such change occurs."

It is very different with the sun. "I find," says Mr. Crallan, "upon examination of 212 accessions of fits, that, with five exceptions, they have been preceded or accompanied by considerable alteration in atmospheric pressure or solar radiation, or both; and here, I believe, lies the clue for which I have been seeking. For it seems to me tolerably clear that when a great fall or a great rise of the barometer, or a great rise or fall of solar radiation occurs—i.e., a decided change from bright to dull weather, or the opposite, or when both the atmospheric pressure and the solar radiation are much disturbed either in the same or contrary directions—an accession of fits invariably occurs. I am led, therefore, to the inference that it is, after all, not the moon which directly affects the epileptic patients; but the change of weather; and that it is the coincidence which not unfrequently occurs, of a change of weather with a change of moon, which has led the popular mind into the notion of the moon affecting both the weather and the epileptics."

So, too, of electricity:—"I find that, without one single exception, that these instances of augmented melancholic relapses have occurred after considerable disturbance of atmospheric pressure and solar radiation, either in the same or opposite directions. There is no doubt left on my mind of the fact that such disturbances are always accompanied by, if not due to, some alteration in the electricity. I find too, that on ten of these occasions I have records of thunder storms or heavy gales, but have no means of judging how far similar conditions might have existed at other times when these unmistakable manifestations of disturbance were too far off to be heard or seen, but not too distant to affect the health or to produce mental irritation or depression.

"I come, then, to the conclusion that, so far as my own observations go, any marked change of atmospheric pressure, solar radiation, or both, either in the same or contrary directions, is almost certain to be followed by increased number of fits among the epileptics, or by a development of mania or melancholia."

Piano Playing.

It may interest musicians as well as scientific gentlemen, to learn that Professor Schmidt, a German, has fully shown that pianists are men in whom certain mental qualities are enormously developed, and that their physical force is something astounding. The Professor heard Herr Rubenstein play at a concert, and took it into his head—of course after he had gone home—to count the notes which Herr Rubenstein had played by heart. The physiologist Haering has asserted that the profession of the pianist taxes the memory more severely than almost any other calling, and Professor Schmidt's counting of the notes gives countenance to the assertion: for by it the fact was shown that in that one performance Herr Rubenstein had used 62,990 notes. The Professor then used certain Austrian coins as a dynometer to test the pressure necessary to strike a key on Herr Rubenstein's piano, and found it to be equivalent to two ounces and a half, and so it was shown that the pianist in playing the 62,990 notes had used a force amounting to nearly 94¼ cwt.

The question arises, however, did he not exert a force far greater than this? for no pianist—especially no German pianist—uses merely force enough to bring a sound from the wires. What Bulwer said of Beethoven's "Storm" roused by the fell touch of a German pianist should be remembered, and would probably go to show that in that one piece alone Herr Rubenstein exerted force enough to move the earth from its orbit, while the ordinary player at concerts in the Bewery, should he utilize for that purpose the force he expends in one evening, might easily lug the world away far out of the reach of Professor Plantamour's comet, which threatens to destroy us all on the twelfth day of August next.—*The Week.*

ORIENTATION OF FRUIT TREES.—In *Les Mondes* we are told why some fruit trees in the open air are weak, contorted, and stunted. Their defects are due to the neglect of the precaution of placing them, when transplanted, as they had stood in the nursery ground. It is the effort of these trees to recover their original orientation which causes the contorted appearance.

The Principle of the Least Action in Nature.

Prof. Haughton, of Trinity College, Dublin, has recently delivered three very remarkable lectures which have attracted no inconsiderable attention, and involve the consideration of a very important principle, not only in mechanics but in nature generally.

Dr. Haughton pointed out that the principle of "least action" has been long known to mathematicians and physicists, but that it applies not only to material and inanimate objects, but likewise to animated nature, both in construction and action generally. The principle of least action, as it is applied to mechanics and astronomy, consists in showing that a certain integral v, ds, must be the minimum, where v is the velocity at each point, and ds the element of its motion, and upon this principle the most accurate calculations can be made.

Not only can astronomical calculations be made upon the principle of least action, but in architecture the construction and very existence of certain forms depends upon rigid adherence to this law; the construction, for example, of a truly "self supporting elliptical equilibrate dome," being an excellent illustration. Not only, however, does this important principle govern the inanimate world, but it is clearly demonstrable that the muscles of animals are arranged, weighed, and built up in accordance with this law, and that the needful automatic actions of organized beings follow the same precept.

Thus the bee is shewn to construct its cell upon this principle of "least action," Nature aiming at the production of a maximum quantity of work, with a minimum amount of material; for, inasmuch as it "costs the bee the trouble to make wax," so the construction of its cell, in a mathematical form which gives the largest possible room for storage of food with the smallest amount of wax, saves the bee trouble in collecting daily food to support muscular strength, by enabling him to build the best cell for the purpose with the smallest quantity of wax, and consequently with the least expenditure of force. Probably no more complete example could have been given of the fact that the bee's instinct accords in its action with the least expenditure of force in the production of the greatest beneficial results.

Carrying out this principle, it is shown how the shape and attachment of various tendons, ligaments, and muscles, the position and structure of different joints in various animals, are so arranged that the principle of "least action" is observed throughout. It would be impossible in a brief notice to give examples of this adaptation of means to an end in the most economic way, so far as the conversation of force is involved; but the illustration wherein it is shown that the arrangements of the spiral fibres in the heart is such that each fibre is made to do the maximum amount of work that its structure and arrangement are capable of, is especially beautiful. Thus we see that in the means employed by nature in briaging about the desired results there is no waste of force or redundancy of material—a consideration which it is especially important for the mechanist to endeavor to follow; and the lectures, above referred to, bearing entirely upon this grand principle of least action in nature, are as well worthy of the consideration of the mechanical engineer as they are of the physiologist and physician.—*Mich. Magazine.*

MOSES, AND MODERN SCIENCE.—J. Elliot, formerly Professor in Queen's College, Liverpool, says:—Geologists are not agreed about the number of hundreds or even of thousands of millions of years which must have elapsed since the earth'a crust took a definite and palpable form; and the Biblical expositors are still less agreed as to what can be made with their days. The exposition given by the late Hugh Miller was at once worthy of modern science, and of the spirit of poetry which invests old legends. He divides the earlier geological periods somewhat differently. He thinks he gets rid of the awkward difficulty of the supposed creation of light before that of the sun, and of the absence of the sun and moon until the fourth day, and that he has established a closer agreement between the record of Moses and the revelationary science than has ever been suggested before; while all the arguments and scarcasms launched against previous interpretations lose their force falling on empty air. He expresscs himself as well aware of the difficulty of the task set before him; but trusts that he has at least set up the framework of a sound structure, which the learning and ingennity of others may ultimately render more perfect in its details. Mr. Elliot has published a small volume in support of the above.

VARIETIES OF COLORS.—New tints of the various colors are constantly being discovered, even the two thousand shades which have been produced by the dyer's art only indicate the effects that may be produced by a continual admixture of one tint with another. Among the forty or more shades of blue, scarlet, crimson and yellow, there are hues which were wholly unknown a few years ago, and for which it has been necessary to coin an arbitrary name, as they resemble nothing previously known. Every little while the popular fancy demands a new variation, and colors must be mixed and blended until something entirely novel is produced. It may be pretty or otherwise—that is regarded as of comparatively little importance, provided it is the *style*.

MINING SUMMARY.

THE following is mostly condensed from journals published in the interior, in proximity to the mines mentioned

California.

ALPINE COUNTY.

I X L—Alpine *Chronicle*, April 13: A few days since a small vein 3 to 4 inches wide, was struck, assaying $292.62 and $1,079.73 per ton.

CALAVERAS COUNTY.

THORN MINE.—San Andreas *Citizen*, April 13: We were shown specimens last Wednesday of a singulsr nature. The ore came from a depth of 250 ft., and partakes of the natnre of crystallized quartz. This rock is worked at the rate of $40 per ton, and is growing richer, as they advance. Thorpe Co. has completed its hoisting works, and have started the mill which had been idle for the past 2 months. This Co. have a shaft 75 ft. in depth, and a level running south 60 ft. A level has also heen started to run northerly to obtain rock to keep the mill running night and day.

MILLS GRAVEL LEDGE.—The gravel has to he crushed hy an arastra before it can he worked, and yet Mr. Lloyd took up a pan of it and washed ont $2.25 The parties owning this claim are erecting a 5-etamp mill, which will he used to orush the quartz of some of the claims here. The Co. has just realized 66 ozs. on a 2-week's run.

SCHFFERD'S CLAIM.—This claim is down about 16 ft. and has struck a very fine lead. We were ehown specimens which show free gold, and will pay over $40 per ton. Some of the rock was prospected—merely pounded up with a hammer—and the result ehowed 25 cents, free gold. The piece pounded did not weigh a pound.

HUDSON.—The shaft is down 116 ft. and is going down till it reaohes 200 ft. At that depth tunnels will be started and a mill put up. The rock has improved all the way down, and the vein is 9 ft wide, abounding in sulphnrets and free gold.

GWIN.—The maiu shaft has heen retimhered, from top to hottom, and the water completely subjugated.

STICKLES.—It is the intention of the Co. to add 10 stamps to their mill—making 20 etamps in all. The ore taken from this lead is working as high as $15 per ton, and the Co. are running 20 men day and night.

BOVEE.—This mine is at or near Angels, Negotiations are in progress for its purchase by a German Co., who will at once ereot a new mill and put a force of miners to work.

WASHINGTON.—Ore is taken from the depth of 150 ft., which is working at the rate of $14 per ton.

ANGELS QUARTZ CO.—This Co., known as the Big Mine, are working from tho 500-ft. level, and taking out ore which pays $15 to the ton. The Co. are working 60 men night and day.

UTICA.—This Co. are working ore from the depth of 50 ft. The ore is worked hy an arastra and pays $40 per ton.

WEST POINT.—Cor. same: In the Zacatera they are ruehing out the ore. They have out already a great many tons assaying $250 per ton, the lead widening as they go down.

The Bartolo Co. are getting out rock and are working day and night. The ore is very rich.

The Woodland is a perfect success. The lead is about 2 ft. wide and the ore is very rich. A considerahle quantity of rock is waiting for teams to haul it.

SLUICE ROBBERY.—Calaveras *Chronicle*, April 20: On Friday night of last week the sluices in Moser & Co.'s claim, Tunnel Ridge were partially "cleaned up."

WHISKY SLIDE.—The mill on the Whisky Slide mine—a 10 stamp hattery—is kept running day and night. Several hundred tons of rock will he crushed before cleaning up.

WORK COMMENCED.—The Calaveras Hydraulic Co. Central Hill, have oommenced washing. One hundred and sixty inohes of water are used.

GOOD ROCK.—Four and three-fourth tons of quartz, from the 100-ft. level in the Lamphear, Spring Gulch, yielded $12 per ton.

PETTICOAT.—We have heen shown some very rich specimens of quartz from the 300-ft. level, about 40 ft. from the main ehaft. The quartz not only carries free gold in ahundance, but is largely composed of sulphurets.

NEVADA COUNTY.

BLOOMFIELD.—Nevada *Transcript*, April 17: The North Bloomfield G. M. Co. is running about 3,000 inches of water, with better prospects than ever hefore.

Haner & Brockmyer, Columhia Hill, are at work and doing well.

The Yuba G. Co. at the head of Hnmhug creek have machinery on their ground run by a hnrdy-gurdy. The Co. will soon put on an engine, and start up to thoroughly prospect their ground.

ITEMS.—At North San Juan, the claims of Powers, Davis, Beach and others are paying well. Daueke & Co.'s claims, on San Juan Hill are also paying first-rate. There is a prospect that other Co.'s owning claims on the same hill will start work soon. The American M. Co. at Sebastopol are realizing splendid dividends. About 60 hands are employed. The claims of Miller, Furth & Co. on the south end of Manzanita Hill, near Sweetland, are idle. The Co. are running a tunnel, which when completed will enable them to work every foot of ground on that end of the hill. It will be finished next fall. The Buckeye claims below Sweetland are paying well. A large numher of men are employed. Under the auspices of Bell & Co., French Corral, a new ditch is projected to carry water from the Sonth Fork of the Yuba to all points on the ridge below Cherokee. It will he ahout 20 miles in length, with a capacity sufficiently large to carry from 2,500 to 3,000 inches of water.

NORTH BLOOMFIELD CO.—The Co. are running nearly 3,000 inches of water in their ditch, and using about the same amount at Bloomfield and Columbia Hill.

LIBERTY HILL.—A. J. Doolittle has purchased extensive claims, and is going to work immediately to fit them up for extensive work.

LOCATIONS.—The Round Mountain Quartz Co. have located 80 ft. upon the Round Mountain Quartz Ledge, Nevada Township, commencing on the West of the South Yuha Quartz Co.

Casper & Co. have located 300 ft. on a quartz ledge, on Gold Flat, commencing at a shaft at the northerly line of the Wheel Quartz Co.

Isaac Adair & Co. have located 300 ft, commencing at the southerly line of the Wheel Quartz Co.

The South Yuha Quartz Co. have located 1,000 ft on the South Yuha Ledge, Blue Tent Dist. Nevada Township, with 100 ft. on each side of the ledge.

DIGGINGS OPEN.—The claim of Gentry & Co., Oustomah Hill, were opened on Tuesday, and will he ready for work soon. Yesterday, 8 or 10 men were employed siding up the flume preparatory to hoisting.

CLEAN UP.—Grass Valley *Union*, April 16: The gravel claims on Bunker Hill are turning out well. On Saturday, McCauley & Roberts cleaned up after 3 weeks ruu, 2 men working, $1,200.

CHISPA.—Last Saturday, Hans Roberts picked up on hie digging a lump of gold weighing 16 oz.

PLACER COUNTY.

OPHIR DIST.—Auhurn *Stars and Stripes*, April 18: The priucipal ledge is the "Black Republioan," upon which a large shaft is being sunk. This shaft ie down hetween 90 and 100 ft. with a well-defined ledge of from 14 to 20 inches in thicknese. The quartz taken therefrom has averaged about $16 per ton. On an extension of the same ledge is the mine of Rhodes & Co. There is a shaft down nearly 100 ft and they are still siuking on a widening ledge. Their last crushing was 33 tons of unassorted rock, which yielded about $23 per ton.

The Greene Mine main shaft is down about 235 ft., driving through quartz that will yield an average of $100 per ton. At the the point of present operations the ledge avorages about 15 inches.

The Bellevue Co'e claims emhrace 8 distinct ledges. Ou the principal ledge a shaft has been sunk near the crest of the hill. This shaft has reached nearly 140 ft., through fine milling rock, frequently showing free gold to tho naked eye. Crnshings have been made to the extent of 400 tons, yielding an average of over $30 per ton. On the same ledge a tunnel is being run from the westward, at the level of Doty's ravine. This tunnel, at 1,550 ft. from its mouth, will tap the shaft at a depth of about 179 ft and will drain off all the surface water of the hill. The tunnel has followed the ledge for ahout 200 ft., largo portious of the quartz showing a dazzling richness in silver and gold.

PLUMAS COUNTY.

EAST BRANCH.—Quincy *National*, April 13: The Taylor Hill Co., Taylor Hill, will soon get to work. They have got their claims in splendid condition for a season's run. The Pea Soup Co. have purchased the old Mill Creek flume for $400, and are putting it in good repair. The Bunker Hill Co., Oak Flat are working a strip of front ground which was left hehind some years since. John McCorkle, in Oak Flat ravine is running his hydraulic, with splendid prospects. Operations will probably he resumed on the Indian Hill claims this season. Marner & Moore are about to open the ledge on French ravine where the very rich pocket was found some years since—some $1,800 having been taken out of a very small quantity of rock. McDougal & Co. are at work in French ravine, with fine prospects.

SAN DIECO COUNTY.

BULLION.—San Diego *Bulletin*, April 10: W., F. & Co. shipped yesterday $5,876 in bullion, all from the Julian mines.

THE MINES.—San Diego *Union*, April 11: A clean up of ore from the Owens' ledge shows that the grade has advanced from $17 to $50 per ton. Eighty tons were crushed which yielded $4,000 and the mill has commenced running upou another lot, which it is expected will yield $75 per ton. This ore is from the depth of 225 ft., where the ledge is 5 ft. wide and easy to work.

THE Antelope has just cleaned upa small lot from the Madden mine which yielded $117 per ton.

STONEWALL CO.—The Co. has purchased the 40 horse power engine owned by Allison & Co. Five more stamps will be purchased, to be ruu by this engine.

SIERRA COUNTY.

BUTTES MINES.—Downieville *Messenger*, April 13: The 3 mills are in splendid working coudition. About 165 men are employed. The daily running expense is $500.

HIGH COMMISSION LEDOE.—The result of crushing 40 tons of ore to April 4th, is as follows: Working mill process, plates, $600; hattery tailings, $200; specimens, $300; 5 tons of mill tailings ehow freo gold.

MINING.—Yreka *Journal*, April 17: Several Portuguese Co.'s have been doing a flourishing business ground eluicing this winter on Long and Canal Gulches, above the hig ditch. They will now commence washing up the rich pay dirt, which yields largely.

The Chinese Co., that hought the old Jack Davis claim, supposed to be poor pay, took out 3½ lbs. of gold in a single week lately, and are still realizing hig pay.

SCOTT VALLEY.—Cor. same: The Bay City Co. on Indian creek, are picking up nuggots from 1 to 7 ozs. in size.

Daniel Starr is piping on French Gulch with flattering prospects, and Michael Reglan is piping agains this heavy hank at a rapid rate.

Miller & Baker, with their 3-ft. flume and 2 pipes, are making the precions metal appear in abundance.

Major Duncan picked np a 2 ponnd lump in New York Gnlch while ground sluicing a few days ago.

Hinckley & Owens have pnrchased the hoiler and engine of the old Siskiyou quartz mill, and are removing it to the lower end of Indian Creek, to prospect their deep claim.

TUOLUMNE COUNTY.

HOLDEN'S GARDEN.—Sonora *Independent* April 13: The old mining epot, at the head of town, is agaiu to be tried. A Co. of 9 having located ground. J. T McLean has purchased the Rongh and Ready gravel claim, in Tablo Mountain for $2,000.

P. H. Cosgrove & Co. found 2 fine nuggets in their claim, in Main Gulch, last week—one 4 and the other 1 oz. in weight. Hugh Gaffeny fonnd a piece which weighed 7 ozs.

MINES EAST OF SONORA.—Lewis & Bros. have been rewarded in their last clean np; the quartz prospected at a rate of $90 per ton, with plenty more in sight.

RICH CHISPA.—A miner, while at work, last week, on his claim in Blue Gnlch, near Algerine, found a chispa weighing 3½ ozs. valued at ahout $60.

STREET MINING.—Hart, Wooters and Clarke, mining in Washington street are making it pay well. The gold is coarse and heavy.

APP MINE.—The mine is down to the 650 ft. level, where the rock is thickly studded with the preoious metal. The mill is running day and night, with good results.

AULA QUARTZ MINE.—Frank Aula & Co. have commenced runniug a tunnel on a lode they had disoovered, 30 miles from Big Oak Flat, which prospects at the rate of $40 per ton. The lode is 16 ft. wide. They are bnilding an arastra to work the rock.

Nevada.

ELKO COUNTY.

RAILROAD DIST.—Elko *Independent*, April 20: The Supt. of the Highland S. M. Co. showed us yesterday some very rich specimens of ore from the Humholdt mine, assaying as high as $500 per ton. The explorations have reached 100 ft. from the surface, showing a regular and well defined ledge. The Elko Co. has also struck a large hody of fiue ore in its tunnel.

EUREKA DISTRICT.

MAGNOLIA CO.—Eureka *Sentinel*, April 16: The shaft of Newport No. 1 is down 135 ft. following a perfect foot wall, ore permeating the entire shaft. A drift has been commenced, starting at the, hottom of thie shaft with a view of running across the ledge, and its course is about 9¼ ft. from the the foot-wall, going in the direction of the hauging wall. There is a quantity of first class ore on the dump. The Newport No. 2 is showing a fine hody and is being vigorously worked. The Astor, another mine helonging to this Co. has a shaft down 60 ft. in magnificent ore.

DIAMOND DIST.—The developments recently made in the Champion series of mines show splendid hodiee of ore, and the workings are all in rich rock. The drift heing run from the main shaft will soon he made to intersect the tunnel, and indications are strong that ore will be encountered on the way hy cutting the regular vein.

WILL BE RESUMED.—Work will he resumed in a few days on several olaims that have heen idle during the winter.

ARRIVED.—The engine, hoilers and other machinery for the Richmond Co. are all lying at Palisade awaiting shipment.

RICHMOND.—These works will he started up early next month.

STARTED UP.—The furnaces of the Eureka Cou. Co. have started up.

ELY DISTRICT.

BULLION.—Pioche *Record*, April 11: W. F. & Co. shipped to-day hullion valued at $20,-807.48.

CHIEF DIST.—This dist. is 15 miles south from Pioche. There are ahout 80 miners in the dist. The Chief was the first location made, and of the principal we can mention the Silver Wave, Eagle, Black Hawk, Gen. Grant, Vermillion, Muchacho, and Tahor. The first named has a ledge 4 ft. in width of fine chloride ore, rich in horn silver, and has on the dump ahout 50 tons of ore that will work well.

HUHN & HUNT.—Work is heing carried on hy a full force of men; the incline is down 60 ft. below the level of the tunnel; the ledge shows hetter and larger the deeper work extends. The ledge at the lower level is full 4 ft. wide. The ore is of a very fine character and there are over 250 tons on the dump.

HUMBOLDT.

THE STARLIGHT CO.—This is one of the most active in the district. They are turning out good milling ore, with every prospect of striking a large hody of ore soon.

BULLION.—Unionville *Silver State*, April 20th: Amount shipped from the Arizona, eince our last issue, was $6,387.

MANITOWOO.—For some time past a force of men have heen at work. The developments made are most satisfactory. A drift is heing run to connect with the works of the old S. M. Co.

NATCHEZ.—The mine is looking better than at any time since the Twiss hrothers commenced work upon it.

BATTLE MOUNTAIN DIST.—The English Copper Co. is working quite a force of men, while many other small companies are taking out and shipping considerahle quantities of copper ore. Senator McBeth is pushing work on the Battle Mountain with very flattering prospects. The White mine has a limited numher of men at work. They are bringing to the surface considerahle quantities of shipping ore.

EAGLE.—This mine, in Indian Dist., is heing actively developed, 3 shifts of men heing employed in ginking a shaft. The ledge, 8 ft. wide, has clearly defined walls, and assays of ores taken from different parts give satisfactory results.

ARIZONA CONS.—An important strike was made at the extreme southern part of the works this week. For some distance the workmen have heen running in hroken up ground, where the ledge seemed to he pinched out, hut they have now reached a well defined ledge heyond this ground, demonstrating that it continues to the southward in that direction.

WASHOE.

BULLION.—Reno *Crescent*, April 20: Amount shipped for the first 19 days of April, was 43,-894 lbs.

Virginia *Enterprise*, April 18: Hale & Norcross Co. yesterday cut their lead on the 1,500 ft. level 48¾ ft. southeast of their incline. They tapped some water and cut into good ore. Ou the 1,400 ft. level they have drifted 33 ft. This ore is said to he equal in richness to Crown Point. There are streaks in the new body that go as high as $3,000 to $5,000 per ton.

The Caledonia Co. will soon-be taking out ore from 2 levels, and heeides have struck ore in their shaft.

The Knickerbocker, Globe, Caledonia and Utah and other Co.'e are all actively developing their mines.

During the past week 600 tons of ore was taken from the Savage, assaying $47.68 to the ton. Hale & Norcross yielded 540 tons for the same period.

The drifts south on the 1,100-ft. level of the Ophir are heing pushed steadily forward. The drift west from the shaft on the 1,300-ft. level being pushed night and day. When the drift on the lower level cuts the lead half a dozen cross-cuts will be made on the 1,100 ft. level.

The Eureka mill is working splendidly.

The water will he out of the Justice in ahout

2 days when the old east drift on the 410 ft. level will be pushed ahead.

All the mills on Six and Seven-mile Cañons are in active operation on Comstock ores.

The Lucerno Co. has commenced building its new hoisting works in Gold Cañon this side of the Devil's Gate.

The ore body on the 1,400-ft. level of the Hale & Norcross is improving.

The new development in the savage is looking well and is daily improving.

We yesterday saw at the bank of Cal. 22 bars worth $66,023.11 from the Belcher and Crown Point.

Local Summary.—Gold Hill *News*, April 13: Belcher.—Daily yield, 285 tons, from the 1,100 ft. level, assaying from $90 to $120 per ton. The ore has been stoped out 265 ft. south from the Crown Point line, and the breasts are still in splendid ore. Above this level the ore-body is being stoped out to the hight of 6 floors showing no deterioration of quality, and holding in width. At the track floor of the level mentioned the ore-body is 95 and 100 ft. wide, and at the fourth floor above it is worked to the width of 80 ft. and no east wall yet reached. The floors above are not worked so wide as yet. A continuous winze connection through from the 1,100 to the 900 ft. levels is made for air and for sending down ore and waste. At the 900 ft. level a cross-cut develops 32 ft. of good ore, showing a continuous body through to the lowest level. The south drift at the 1,100 ft. level is in 540 ft. from the Crown Point line, and the face is in porphyry. The drift from the bottom of the winze connecting the 1,100 and 1,200 ft. levels, 60 ft. south of the Crown Point line, is completed through to the Crown Point 1,200 ft. level, giving a good air circulation. In the old upper mine the main working incline is down 318 ft, below the 850 ft. level, and is being rapidly sunk deeper by 4 shifts of miners working 6 hours each. The foundations for the two new 90 horse power hoisting engines are being prepared, the pump engine is in place ready to work, and the pumps are about all placed. All the machinery will be ready to run in about a month of 6 weeks.

Savage.—Owing to lack of milling facilities, is producing but a few tons of ore per day. There is at least 2,500 tons in the dumps awiting transportation and milling. The drift south from the incline, at the 1,500 ft. level is in 80 ft. and has 40 ft. further to run to reach a point directly beneath the good body of ore found in the level above. It progresses at the rate of 4 or 5 ft. a day. The winze connecting the 1,300 and 1,400 ft. levels is 350 ft. south of the incline and 80 ft. north of the Hale & Norcroes line.

Hale & Norcross.—The main incline is 50 ft. below the tenth station, or 1,500 ft. level, and to-day the pump is being put in place below the level. The excavation for the station at this point is completed, and a drift is being run to cut the vein directly east of the incline. This drift will reach the vein within 3 or 4 days At the next etation above (the ninth) they are running a drift north in the west wall, cloee to the vein, which it touches in some places.

Daney.—The shaft is down 524 ft. and still sinking wit good progrees for the 600 ft. level. The drift on the 500 ft. level is in 160 ft. north on the vein, with favorable indications. The work done at present is confined principally to drifting on the 500 and sinking the main shaft. At 650 ft. the expect to encounter the vein in the main shaft.

Crown Point.—The daily yield continuee unabated. All the ore breasts are looking splendidly. The yield for March wae 10,753 tons, of the milling value of $630,848.01, averaging $58.67 to the ton.

Virginia.—The drift being run from the Gould & Curry to prospect the Cons. at a depth of 1,167 ft. hae euddenly been discontinued.

Kentuck.—From 38 to 40 tons of ore per day is the present yield, gleaned from the old workings about the 500, 600 and 700-ft. levels. This keeps the Devil'e Gate mill running steadily. The drift through the 1,300-ft. level being run from each side by the Crown Point and Yellow Jacket Co. for air connection, is progressing fast.

Ophir.—The drift west, toward the vein, at the 1,300-ft. level, ie in 42 ft., and is expected to intersect the vein in 3 weeks. At the 1,100-ft. level the south drift ie in 145 ft. from the shaft, cutting through several streaks of quartz and developing very encouraging indications of ore, the quartz giving small assays of eilver and gold. The north drift ie in 117 ft. with less favorable indications.

Buckeye produces abont 35 tons of ore per day—all gold ore.

Sutro Tunnel.—The sinking of the air shafts along the line of the tunnel is progeesing favorably. The tunnel is in 2,832 ft., the face being in very hard blasting rock, no very fast progress can be made. There are 225 men employed in running this tunnel and einking the air shafts.

Justice.—The water in the shaft will be all pumped out by the middle of next week, when the drift eaet at the 500-ft. level will be cleaned out and finished through to the ledge. It is in 90 ft., about 30 ft. further will reach the ledge, when good ore is expected to be found.

Yellow Jacket.—The main incline is 40 ft. below Sntro Tunnel level, encountering no water yet.

Imperial Empire.—The incline from the bottom of the ehaft is being sunk at a satisfactory rate, in hard blaeting rock. The etation at the 1,600-ft. level will soon be opencd. No water is found in the incline.

Knickerbocker.—New shaft down 180 ft. The new hoisting works are ready for operation.

Overman.—New shaft 712 ft. deep and the bottom is hard porphyry, which blasts well.

Succor.—The new shaft was commenced this week, and will he sunk rapidly.

Chollar Potosi.—Daily yield, 150 tons, all from the old workings. Average assays $41.50 per tou.

Globe.—About 4 ft. of very good oro is reported found in the old upper workings. At other points the Globe is being actively prospected and developed.

Gould & Curry.—The uew hoisting works will be completed in ahout a week, when operations will be resnmed.

Sierra Nevada.—Daily yield, 50 tons, from the uew ledge, keeping the Co.'s first mill steadily running.

WHITE PINE.

Bullion.—White Pine *News*, April 13: W., F. & Co. shipped to S. F., for Bowery M. & M. Co., Pioche, 7 bars, 421 lbs., valued at $7,265.43.

Treasure Hill Mines—Ward Beecher.—Siuking winze from bottom of Philpotts chamber to connect with east drift from Lady's chamber.

North Aurora.—Working to the south. Making fair headway. The tunnel running from the South Aurora to connect with the Risdale chamber progresses rapidly.

East Sheboygan.—Breasting out in ore chamber. Ore improving in grade.

Copper Glance.—The drift running ahead to find the extent of the ore body is pushed rapidly.

San Juan del Rio.—There is one shift employed sinkiug the shaft. Hoistiug ore and piling on the dump.

Arizona.

Mines and Mining—Yavapai Co.—Prescott *Miner*, April 6: Wm. Linu, owner of a claim in the Tiger, Bradshaw, informed ue this week that richer rock than any yet shipped to S. F. was being raised. Other ledges in the Dist. were producing plenty of rich rock.

A note from the Supt. of the Del Pasco mill and mine, assures us that work was progressing very favorably. The mine was yielding a great deal of high-grade milling ore. The mill (4-stamps) was being run from 12 to 14 hours each day, with a result of about $260 for said work. The Supt. is making arastras which will be ready for work eoon.

Vulture.—The famons mine and mill at Wickenburg, are yielding plenty of gold.

Benjamin.—Abont 5 tons of ore are on the dump, ready for shipment.

The mill which Frederick & Hammond are setting up on the Hassayampa, will soon be ready for crushing.

The newe from Walnut Grove and Weaver Dist. continues good.

Mr. Kerr, of Fort Rock, informs us that some ledges near his place were being prospected.

Joe Voshay and othere talk of striking ont, soon, on a big proepect.

There is talk of raising a Co. to prospect Diamond river.

Ex-Lient. Wm. McK. Owen, found, one day last week, near the Benjamin, a fine looking ledge of very rich silver rock.

Mohave Co.—E. M. Smith has invested about $30,000 in mines, and is still engaged buying more.

Several mines have changed hande. The Empire, Schuyler and Schenectady have been sold, and to-day the Seventy-Two, No. 2, is reported sold.

Coover'e furnace, at Chloride, and Edgar's at Cerhat, are going up fast. The mill etarts in the morning on Lone Star rock.

Yuma Co.—Many mines of Castle Dome and other diste., bordering the Colorado, are being worked up.

Colorado Riven Placers.—There is considerable talk abont the placer diggings recently discovered on bars of the Colorado, near Black Cañon. All the accounte seen by us, state that the bars contain sufficient gold to remunerate miners for working them.

Colorado.

Items.—Colorado *Miner*, April 11: Siuce ont last report, Baily & Nott have shipped 19 tons of the 250 tons of ore on hand.

The Baker Mill will be rebuilt this spring. The Matilda Fletcher lode, Bard Creek Dist., Republican Mt. It is a sulphuret lode and has had pay in sight from the discovery. It is opened by a tunnel at the discovery on the vein, 147 ft in length.

Georgetown.—Cor. same: The work of constructing smelting works at Swansea, about 3 milee below Georgetown, has commenced. Work will be resumed in a short time on the Burleigh tunnel.

The owners of the Pelican are driving a long tunnel to strike their mine at a reepectable depth from the surface.

The Zephyr is eitnated a short distance below the Pelican. The pay ore vein ie large and continuous. In one place we noted a breadth of nearly 3 ft of solid ore, of great richness. The ore ie high grade and the mine a broad gange one.

The Eagle Bird is a short distance below the Zephyr. The mine is being placed in complete working order. The ore taken out, up to-date, has paid all expenses of work done, and left a handsome profit.

The Corry City vein shows a breadth between walls of about 25 ft. A tunnel cuts the vein at about 40 or 50 ft. from the enrface. At present there are from 3 to 4 ft. of pay vein matter in sight, that yields by mill treatment 50 ozs. per ton.

Golden.—Central *Register*, April 10th: The Jefferson C. and M. Co. have their mine well opened, and 4,000 tons of coal broken and ready for delivery.

Excavations for the foundation of the blast furnace are being made on the grounds of the B. & C. S. Co., for the treatment of silver-lead ores. During three days of the past week this Co. paid out over $8,000 for silver ore from Clear Creek.

The Ophir mine on the Kansas lode, as worked by Roberts & Co., is yielding a handsome profit. The shaft—350 ft. in depth—has been securely timbered from top to bottom. On each side at the bottom two drifts are being driven, both of which disclose a handsome vein that will average nearly 3 ft. of solid ore.

Canton.—Cor. same: The Wahash lode is looking fine. Geo. C. Corning & Co. have organized a large Co. in the East, for the purpose of working the mine, and to erect reductiou works at some suitable place in this county.

We were shown a letter from Pattersou & Mullen, who have formed a Co. with $140,000 capital, for the purpoeo of erecting smelting works at this place.

Idaho.

Local Record.—Silver City *Avalanche*, April 13: The 5th level cross-cut, after being run east 20 ft. interscted the ledge which has a very fine appearance, 18 inches in width, with ore that will mill $60 per ton. The quartz is of a soft nature; and on the casings each side, very rich silver and gold hearing rock is found. At the 4th level, 15 ft. from the cross-cut south, a winze is heiug sunk in which there is a ledge of first grade ore, 16 inches wide, showing that the chute of ore runs clear through the 5th level. In the south drift, 4th level, the ledge is small and split up, so that it has been found necessary to run in the west wall in order to keep on the vein.

South Chariot.—As many men as can profitably he worked are employed in straightening the shaft from the 2d to the 4th level. The foreman will commence sinking on the vein below the 4th level in connection with straightening the shaft above. The ledge in the 4th level drift is large but not of sufficient quality to save for milling.

Minnesota.—The stopes between the first and second levels, both north and south of the shaft, continue good, sending out 14 tons of good grade ore every 24 hours, which is figured on at abont $55 per ton. Working force, 32 men.

Golden Chariot.—The work of straightening the shaft is being carried on in the most expeditious manner.

Elmore.—The shaft is once more on its downward course. A large tank has been put in at the 7th level, and all the water at this point is taken into it. The 7th level drift north has improved during the week, showing a ledge 2½ ft. in width of ore worth from $40 to $45 per ton. The ore is not of very high grade, but there seems to he an abundance of it.

Empire.—The contractors are at work sinking the new shaft below the adit level. The ledge looke well thronghont and varies in size from 1 to 2 ft. The ore is high grade.

War Eagle.—Thie claim is turning out well, and shows an abundance of good ore all throngh.

Lower California.

McKeane Mill.—San Diego *Union*, April 11: The machinery has all heen put up, and the work of crnshing will commence the first of next week. The Co. have a large amount of low-grade ore which it is expected will yield about $20 per ton.

Montana.

Blackfoot.—Deer Lodge *Independent*, April 13: Four Co.'e have been working all winter near the head of Upper Ophir gulch, drifting and washing with good results. Pat. Carr & Co., on Illinois gulch are engaged ground-eluicing, and all other miners are making extensive preparations for a prosperons season's work.

German.—Work is going on on all the claims in German gulch, from the California Co. down to the cañon.

Utah.

Bullion.—S. L. *Tribune*, April 16: W., F. & Co., received on Sunday 13 bars, from the American Flag, worth $11,532.21, for shipment to New York.

Vallejo Tunnel.—This tunnel in Little Cottonwood, and completed 350 ft., hae led to a rich deposit of galena ore filling the whole face of the cut. The valne of the ore varies from $125 to $200 per ton, silver.

Illinois Tunnel.—This tunnel has been run about 440 ft. and a drift from it hae led into a drift from the Emma.

The Titne, a new mine in Little Cottonwood, is taking ont a large quantity of valnable ore.

Deep Creek.—The Grand Deposit is 150 ft. wide. J. F. Berry & Co. are running a furnace which is turning ont abont 2½ tons of bullion per day.

Columbia Dist.—There are 124 claims recorded, and in nearly every instance where assessment work has been done, Galena and Carbonate oree have been exposed.

Silven Cloud.—The main shaft is 55 ft., from which they have a tunnel of 165 ft. in which a remarkable sight of rich ore is to he seen.

At Stockton Jacohs & Co. are about erecting extensive smelters.

East Tintic.—Cor. same: The principal leads being worked are the Bowers, Alice, Jefferson, Rising Sun, Elephant and King Philip; all excellent leads.

An important work has just commenced here, the running of a tunnel through the Rising Sun Hill.

West Mt. Dist.—Cor. same: In Black Jack Gulch are mines that are yielding ores in sufficient qnautity that carry silver into the hundreds of ounces per ton, while the Winnamnck mine has been taking out ores that run from $1,000 to $1,200 per ton.

Many new and valuable discoveries have been made, among which is a splendid vein of galeua and chromate of lead 10 ft. wide, also some mines of gold bearing quartz. The placers are doing well.

The Winnamnck, in Bingham, is looking better than nsual, and opening out rich bodies of ore.

The famous galena lode near the head of the cañon is well developed and shows immeuse bodies of carbonate of lead.

The Saturn Co. have run a tunnel 125 ft., cutting the vein 115 ft. from the surface. At the end of this tunnel they have sunk a shaft which is down 80 ft., in mineral all the way.

North Tintic.—A drift has been run on an incline, to ascertain the width of the vein, for 20 ft. on the Black Crook mine, and still there is no indication of the opposite wall being near at haud. The drift has so far passed through solid ore without any interruptiou of outside or non-paying rock.

The next leading miue is the Metropolitan, It is a vein 4 ft. wide.

San Francisco Stock and Exchange Board.

San Francisco, April 25, 1872.

The sales at the Stock Board during the past few weeks have been enormous; for the week ending the 19th inst. they amounted to $8,494,400. The sessions are protracted and business heavy. There is no apparent abatement in the excitement and prices are nnparalelled. This has heen especially the case in Virginia and Gold Hill stocks. The number of new incorporations being placed on the market is unnsual and most of them find ready sale.

The Redington Quicksilver Company held a meeting on the 18th and elected John H. Redington, Horace P. Livermore and Geo. W. Cornwall Trustees. Chas M. Peck was continued as Secretary. Crown Point sold at $1,500 on Monday, cqnal to $30,000 per foot, the highest price ever paid for any mine in the United Statee. A nnmher of others have, during thie excitement, risen higher than ever before. The Mahogany mine has shipped this week $4,862. The Chollar Potosi mine yielded last week 824 tons of ore assayiug $42.52 per ton and the Crown Point yielded 2,700 tons, valued at $167,186. Abont 750 tons of ore were taken from the Hale & Norcross mine last week. The ore in the 1,200-ft. level of the Belcher assays $358 per ton.

The Trustees of the Home Ticket S. M. Co. have elected S. S. Tilton President, C. F. Balcom Secretary and P. H. Smith Superintendent. The Huhn and Hunt S. M. Co. have elected the following Trnstees: N. C. Fasset (President), L. A. Booth (Treaurer), E. Huhn, J. Clark, A. E. Head, Geo. D. Soberts, and E. B. Ball. Louis Kaplan is Secretary.

The Raymond & Ely mine has sent down $31,800, making $220,400 for the first 21 daye of the month. Between April 8th and the 24th $55,700 has come from the Meadow Valley mine.

The Hale & Norcrose Company, which recently doubled its capital stock, proposes to treble the recent increase. The Belcher Company also propose increasing their stock from $1,040,000 to $10,400,000. The Stock Board held no session this morning on account of the death of a member.

Comparative Prices—Extremes, Advance and Decline.—S. F. Stock and Ex. Board.

	April 18.	*Highest.*	*Lowest.*	April 25.	*Adv.*	*Dec.*
Alpha	$135	180	110	165	30	—
American Flag	18½	18½	17	17	—	1½
Belcher	1010	1450	980	1450	440	—
Buckeye	—	10½	6	10½	—	—
Chollar-Potosi	250	380	220	300	50	—
Caledonia	80	110	84	110	30	—
Cons. Virginia	130	152½	107½	152½	22½	—
Crown Point	1350	1500	1350	—	25	—
Daney	8¼	8¼	6¾	6¾	—	3¾
Eureka Cons.	37	37	30	36	—	1
Eureka	—	16¾	16	—	—	—
Exchequer	55	65	40	55	—	—
Gould & Curry	530	545	440	510	—	20
Golden Chariot	—	20	20	—	—	—
Hale & Norcross	710	760	390	410	—	300
Ida Elmore	—	22½	18½	19	—	—
Imperial	360	400	310	—	—	—
Kentuck	450	540	370	540	90	—
Mammoth	—	80c	75c	75c	—	—
Meadow Valley	25	26	18	20	—	5
Mahogany	—	22½	21	22½	—	—
Ophir	150	150	100	134	—	16
Orig. Hid. Treas.	—	13¾	12	13	—	—
Overman	150	280	130	230	80	—
Pioche	—	18	16	16½	—	3¾
Raymond & Ely	120	125	112	125	5	—
Savage	610	700	570	700	90	—
Sierra Nevada	58	65	40	48¾	—	7½
Succor	13	13½	10	—	—	—
Wash. & Oreole	6¼	7¾	6	7	¾	—
Yellow Jacket	195	270	167½	270	75	—
St. Patrick	—	25	22	—	—	—
Seg. Belcher	160	240	135	240	80	—

A bill granting pre-emption rights te settlers on the mountain lands in California has been eigned by the President.

The Big Mill of Nevada.

We, day before yesterday, paid a visit to the new Eureka mill, situatsd on Carson River, ahout half way hetween Empire City and Dayton. This mill is prohahly to-day the largest and best mill in the world for the reduction of silver ores. It is certainly the best mill in this State, where are located some of the hest mills now known for workiug ores hy the process at present in nse. The planning of the mill and all connected with it was done hy Mr. A. Edgington, Superintendent of the affairs of the Union Mining and Mill Company, though the particular points in the work were carried out by Mr. Fonntain, who took hold of it as sketched out and hrought ths whole to its presant state of perfection. Our hest plan of describing the grand works we have named appears to he to follow the course of the ores from the Comstock lode. These, then, we may say are shipped over the Virginia and Trnckee Railroad to a point ahont one and three-quarter miles ahove the mill, where there is a switch made for the accommodation of the cars carrying ores to this particular mill. Being run off on this switch or side track the cars are dumpsd into

The Chute.

This chute is 350 feet in length and 14 feet 3 inches in width. It is divided throughout its whole length hy a central partition of two-inch planks, and its hottom is lined with iron, in order to facilitate the sliding down of the ore and to guard against wear. The chute stands at an angle to the horizon of 36 degrees, and it is found that the ore very freely passes through it to

Ths Dump,

Which is situated at its hottom, and which is 36 feet wide, 18 feet deep and 16 feet high. This dump is also divided through the centre by a strong partition. The object of these divisions in the chute and dump is that two kinds of ore may he sent down and kept separate. The dump and chute are capable of holding 1,000 tons of ore, and both are most suhstantially constructed. From this dump the ore is taken into the cars which run upon

The Narrow Guage Railroad,

And over it is conveyed to the mill helow. There are now in nse on the railroad ten iron ore cars, each capahle of holding four tons of ore. The grade of the road is 30 inches (down) to the mile, and the distance from tho dump to the mill is one mile and three-quarters. The cars are loaded in a few minutes hy means of gates fixed in the lower part of the dump, and raissd and lowered hy means of wheels working into proper gearing. Horses are used to haul the empty oars up from the mill, hut when filled they travel the down grade to the dam without any further attention than that of the hrakeman, who mnst he on the lookout to prevent their running too rapidly. They generally go down abont as swift as anyone would care to travel over any railroad. The road follows tho northern hank of the river, and, passing over the dam, continues thence to the mill over the flume which carries to the mill the water hy which it is driven. In company with Mr. Edgington, Mr. Fountain and Mr. King, Superintendent of the mill, we took a ride from the mill to the dump and hack over the flnme to the mill—nsing horses in going up and coming hack the greater part of the way without any other aid than that of gravitation. It is wonderfnl to sse how docile and well-behaved are all the horses in passing along the narrow track on the top of the flnme. They all seem to know that it is hetter to keep to the track than to jump off, and in this they exhihit good "horse sense." In passing, we may say of

Ths Dam,

That it is probahly the largest and most suhstantial in the State. It is constrncted of 14-inch square timhsrs, cribbed—first, a tier down the river, thsn one across and thus alternating to the hight of 26 feet. The dam is 200 feet in length and built arching up the river. The cross-section is triangular with the lougest side for hase. The up-stream side of the dam is ou an angle of 60 degress, aud the down-stream side on an angle of 45 degress with the perpendioular. It backs the water up the river hed for about one mile, and in its construotion there was used ahout 400,000 feet of timher.

The Flume

Is 12 feet wide, four feet four iuches high and three-fourths of a mile in length. For thie whole distancs it is set upon a trestle-work which averages 12 feet in hight. It is capahle of carrying no less than 60,000 gallons of water per minnte. After the ore comes down over the narrow-gauge road to the mill, it is necessary to elevate it from the track to the hight of 50 feet, to hring it to the proper hight ahove the hatteries. This is done hy means of an

Inclined Tramway.

Up this tramway the cars are hauled three at a time. It is 250 feet in length, and the cars are hanled up hy means of a steel wire rope seven-eighths of an inch in diameter and 370 feet in length. This cahle is reeled around a hoisting drum which is situated at the extreme end of the ore-house on the top of the mill. In planning this hoisting arrangement Mr. Fountain had several diffioulties to overcome, and he has done it very cleverly. To make this understood we may say that, where the rope enters the mill, it has to change its direction in two different ways. This is done hy a series of pulleys, one succeeding another to the nnmber of six. These pulleys had to he so constructed so as to allow the cars to pass over them, and at the same time allow the rope to he perfectly free from them before the cars reach them, and to receive it again when the cars have passed them on the down trip. When the cars have hsen hauled up to the

Ore Houss

They are dumped by removing a catch which throws open a door in the bottom and the oro drops npon an inclined screen constructed of 1¼ inches round iron bars, set ahout 2¼ inches apart. This scresn allows the rock, which is suitable to enter the mortars, without breaking, to drop hetween the hars and in a convenient position in front of the hatteriss. The rock which is too large to go through the soreen is deposited hy the side of the rock-hreaker, and after heing put through it drops in front of

The Batteries.

In all there are in the mill sixty stamps, weighing 940 pounds each. They are so arranged that there are five stamps to each mortar. The stamps drop ninety times per minute and each series of five stamps is run hy an independent belt and regulated by an independent tightener. The faces of the came are all of chilled iron, and all connected with the hatteries is of the most suhstantial and approved character. Below the hatteries are placed

Ths Tanks.

Of these thore are sixteen of a large size for use in settling the sand and elum. The final discharge from the series of tanks is of water almost as clear as that entering the batteries. The sand tanks are located in two rows through the centre of the panroom, at right angles to the hatteries, and the slum tanks are at the extreme end of the mill, parallel with the stamps.

Pans, Settlers, etc.

There are in the mill 24 pans for grinding the saud, placed in two rows of 12 each on either side of the tanks. The capacity of the pans is eight tons each, every 24 honrs, and they are rnn at the rate of 95 revolutions per minute. There are 6 settlers, each 9 feet in diameter, to each row of pans; also two "agitators" and a clean-np pan. The slum tanks are huilt so as to he self-discharging. They discharge the slum through gates constructed for the pnrpose and attached to the outstde of the tanks at the hottom. The slum after heing amalgamated, passes out into the slum settlsrs, two in nnmher, and thence down into the agitators and ont of tho mill, where, together with the sand, it is colleoted in an immense reservoir for future working. This reservoir is situated on the flat helow ths mill, and is capable of holding no less than 860,000 tons.

Ths Water Wheel.

The whole immense mass of machinery of which we have been speaking is driven hy a Leffel turbine wheel, hut 52 inohes in diameter. The fall of the water is 36 feet, and under this head the wheel takes through it 6,800 cuhic feet per minute, giving ont over 400-horse power. The wheel is put in in a manner never hefore attsmpted. Instead of heing fastened to the bottom of the penstock, as is generally the case, thersby making it necessary to transmit the power at right angles hy msaus of bevel gearing, (which occasions an irumense amount of friction and an occasional hreakage of gearing,) this wheel is boltsd directly to the side of the penstock eo that the main shaft ruus horizontally through the opposite side of the penstock and carries the two main driving pulleys. These pulleys are teu fest iu diameter, aud run at tho rate of 155 revolutione per minute. Over these pulleys run helts 30 inches in width, which transmit the power each way to the line ehaft, under each row of pans. After passing through the wheel the water is discharged through the side of the penstock and down through a large petticoat made of hoiler iron, and in the shape of an elhow, into the tail-race hslow, whence it returns to the river. This tail-race is 800 feet in length, and of an average depth of 10 fset, and a width of 12 feet. Through its whole length there are stone walls on both eides. By extending the tail-race to the distance named, the water is disoharged considerahly helow the level of that in the river opposite the mill, and ahout two feet fall is gained.

Heating and Retorting.

Under the roof of a wing of the main huilding is placed a large steam hoilsr, where the water used in the pans is heated, and here also is the retorting furnace, where all the amalgam is retorted. Above the whole huilding is an immense water-tank, kept full hy means of a powerful force pump, and from this comes the supply of water nsed in the hatteries and the whole lower part of the mill. A building, situated a short distance from the mill, has been erected solely for the purpose of storing kerosene and other oils, and for cleaning and filling lamps. Thus is avoided one great source of danger to all mills. Ahout the whole of the works there is nothing that has not been thought of and provided for, and in looking at all that has been done one cannot but admire the genius of those who have planned and executed all. Although our article in regard to these immense works has extended to a great length, we find that we have left out many things worthy of mention and but little less interesting than what has heen described.—*Virginia Enterprise, April 9th.*

Water Rights.

The followiug are the provisions of the Code relating to water rights, and the Act to put the same into effect approved March 27, 1872:

Sec. 1410. The right to the use of running water flowing in a river or stream or down a cañon or ravine may be acquiredhy appropriation.

Sec. 1411. The appropriation must be for some useful or heneficial purpose, aud when the appropriator or his successor in interest ceases to use it for such a purpose, the right ceases.

Sec. 1412. The person entitled to the use may change the place of diversion if others are not injured by the change, and may extend the ditch flume, pipe, or aqueduct by which the diversion is made to places beyond that where the first use was made.

Sec. 1413. The water appropriated may be turned into tbe cbannel of another stream and mingled with its water and then reclaimed, but in reclaiming it the water already appropriated hy another must not be diminished.

Sec. 1414. As between appropriators, the one first in time is the first in right.

Sec. 1415. A person desiring to appropriate water must post a notice, in writing, in a conspicuous place at the point of intended diversion, stating therein:

1. That he claims the water there flowing to the extent of (giving tbs number) inches, measured under a four-inch pressure.

2. The purpose for which he claims it, and place of the intended nse;

3. The means by which he intends to divert it and the size of the flume, ditch, pipe or aqueduct in which he intends to divert it;

A copy of the notice mnst within ten days after it is posted be recorded in the office of the Recorder of the county in which it is posted.

Sec. 1416. Within twenty days after the notice is posted, the claimant must commence the excavation or construction of ths works in which he intends to divert the water, and must prosecute the work diligently and uninterruptedly to completion, unless temporarily interrupted by snow or rain.

Sec. 1417. By "completion" is meant conducting the waters to the place of intended use.

Sec. 1418. By a compliance with the above rules the claimant's right to the use of the water relates back to the time the notice was posted.

Sec. 1419. A failnre to comply with such rules deprives the claimants of the right to the use of the water as against a subsequent claimant who complies therewith.

Sec. 1420. Persons who have heretofore claimed the right to water, and who have not constructed works in which to divert it, and who have not diverted or applied it to some usefnl purpose, must, after this Title takes effect, aud within twenty days thereafter, proceed as in this Title provided, or their right ceases.

Sec. 1421. The Recorder of each county must keep a book, in which he must record the notices provided for in this Title.

Sec. 1422. The rights of riparian proprietors are not effected hy the provisions of this Title.

An Act to put iuto effect the provisions of the Civil Code, relative to water rights.

[Approved March 27, 1872.]

Sec. 1. Title VIII of Part IV of Division Second of the Civil Code of the State of California shall be in full force and effect from aud after the first day of May, eighteen hundred and seventy-two.

Sec. 2. The Revision Commissiou are hereby authorized to cause to be printed and certified by their Chairman, twelve hundred copies of Tittle VIII, in pamphlet form, and to distribute them to the members of the Legislature and county officers of the several counties.

Sec. 3. This act shall be in forco from and after its passage.

The Use of Earthquakes.

The usefulness of earthquakes was a favorite subject with the late Sir John Herschel. Were it not for the changes in the earth's crust which ars constantly being effected by the action of suhterranean forces, of which the earthquake is the most active manifestation, there can bo no doubt that the action of the sea boating upon the land, together with the denuding power of rain, would inevitably cover the entire earth with one vast ocean. "Had the primitive world been constrncted as it now exists," says Sir John Herschel, "time enough has elapsed, and force enough directed to that end has been in activity, to have long ago destroyed every vestige of land." Mr. Proctor shows most clearly the beneficial manner in which the restorative action of the earth's subterranean forces is arranged. Of course, every upheavel of the surface must be either accompanied or followod hy a depression elsewhere. "On a comparison of the various effects, it has been fonnd that the force of upheaval acts, (on the whole) more powerfully under coutineuts, while the forces of depression act most powerfully (on the whole) under the hed of the ocean. It seems as if Nature had provided against the iuroads of the oceau by seating the earth's upheaving forces just where they are wauted."—*Scientific American.*

A New Ditch Enterprise.—Surveyor Keddie, in company with Col. Rockwell, left town on Thursday last for the purpose of making a preliminary survey to ascertain the practicability of briuging the waters of the Middle Fork of the Feather through the low gap at Willow Ranch, near Nelson Point, from whence the ditch could hs extended so as to cover the highest points of the Hnngarian Hill country, and, if necessary, to furnish wator to several other mining localitiss. It is thonght hy those who have studied the topography of the country that it will only be necessary to run up to "the Notch," a very narrow place on the Middle Fork, somewhere in the vicinity of Poplar Bar where the water could hs easily taken out and, should this surmise prove corrsct, the ditch would not he over fifteen milos in lsngth—not a very formidahle entsrprise in these days of gigantic mining undertakings. We shall await with some interest the resnlt of the survey, for if successful, it wonld open up an immense field of paying lahor. As soon as the survey is completed we shall endeavor to give the full particulars.—*Quincy National.*

Mineralogical Cabinet.—The Commissioners, consisting of George Cadwalader, Gsorge Rowland and W. R. Waters, appointed hy the Governor, under Act of the Lsgislature, to examine and appraise the cabinet of Dr. J. M. Frey, and ascertain whether the same is worth $13,000, and if so to recommend its pnrohase hy the State, commenced their labors last week; and for the pnrpose of hsing hstter informed as to the full valne of said cahinet, examined a number of mineralogists and scientific men, both here and ahroad, who have seen this cahinet, as to the value theroof. They recommend its pnrchase. The collection includss minerals and precious stones colleoted in Europe, as well as a remarkahly complete cahinet from California, Arizona, Mexico, Utah, Oregon, Idaho, Montana, etc. One of the specimens alone of crystallized gold, was estimatsd to he worth $1,000, and the whole are deserving of heing the property of the State, and to serve as the nucleus of a grand collection.

Smothering a Burning Mine.—Some mouths ago a coal mine at Manch Chunk, Pa., caught fire. The ordinary appliances for extinguishing such fires failing, the company has adopted the plan of a chemist, who has undertaken to extinguish it with ammoniacal gas. The entrance to the mine has been closed up, and in front of it works have been constructed for generating the gas and forcing it into the mines. Two barrels of sal-ammoniac per day are used, and it is helieved that the experiment will be a complete success, and that in a very short time the fire will be completely extinct. Such success will he most important, in fnture cases of fire in coal mines; for there are cases where the fire has lasted for many years, as in the mine at Summit Hill.—*Ex.*

Education, to accomplish the ends of good government should he universally diffused. Open the doors of the school-house to all the children in the land. Let no man have the excuse of poverty for not educating his offspring. Place the means of education within his reach, and if he remains in ignorance, be it his own reproach.

Useful Information.

How to Varnish in Cold Weather.

When varnish is laid on a piece of cold furniture or a cold carriage-body, even after it has been spread evenly and with dispatch, it will sometimes "crawl," and roll this way and that way as if it were a liquid possessing vitality and the power of locomotion. It is sometimes utterly impossible to varnish an article at all satisfactorily during cold weather and in a cold department. In cold and damp weather, a carriage, chair or any other article to be varnished, should be kept in a clean and warm apartment where there is no dust flying, until the entire wood-work and iron-work have been warmed through and through, to a temperature equal to that of summer heat—say eighty degrees. That temperature should be maintained day and night. If a fire is kept for only eight or ten hours during the day, the furniture will be cold even in a warm paint-room. Before any varnish is applied, some parts of the surface which may have been handled frequently, should be rubbed with a woolen cloth dipped in spirits of turpentine, so as to remove any greasy, oleaginous matter which may have accumulated. Table-beds, backs of chairs, and fronts of bureau drawers, are sometimes so thoroughly glazed over that varnish will not adhere to the surface, any more than water will lie smoothly on recently painted casings. The varnish should also be warm—not hot—and it should be spread quickly and evenly. As soon as it flows from the brush and spreads evenly, and before it commences to set, let the rubbing or brushing cease. One can always do a better job by laying on a coat of medium heaviness, rather than a very light coat or a covering so heavy that the varnish will hang down in ridges. Varnish must be of the proper consistency in order to flow just right and to set with a smooth surface. If it is either too thick or too thin one cannot do a neat job.

Insect Wonders.

The recent very general introduction of the microscope is adding largely to the number of explorers into the *minutiæ* of Nature, and new and interesting facts are constantly being brought to light, especially in the insect world. We have here a case in point, which if not absolutely new, will certainly be both new and interesting to most of our readers. We copy from the *Pupils' Gazette*—:

A few days ago, while we sat down under a wide spreading oak, to enjoy its cool shades, and soon were much interested in watching the process of the "Measuring Worm," with which the bushes and trees were covered.

Every few minutes one would suddenly drop from a leaf above, letting itself down by a fine silken web, or thread; but would, invariably, after exploring a little on the ground, return, by its thread, to the same leaf, drawing itself up by it.

After seeing this performed by a number of them, and noticing that they left the coiled web on the leaf, we examined it with a strong magnifying glass, and found by getting hold of the two ends, we could pull it all out into one straight thread. We then examined and unraveled another, and found it to be looped up into a *perfect chain stitch*, precisely such as is made by a single thread sewing machine.

This led us to watch with our glass, the process of this wonderful mechanic in drawing itself up. It would catch the thread with its feet, then stretch up its head, catching the thread still higher up, pulling itself up, forming a slack; then with its feet, put through a loop, which it would hold with one of its numerous feet, till it again grasped the thread above, pulled itself up again, looping up its thread, till it returned to the leaf to which it was attached. It then deposited the coil and left for other parts.

How wonderful and how perfect are all the works of nature. Even the worm teaches us, and many animals, birds and tiny insects manifest more skill than is ever attained by the most skillful human mind.

Transmission of Sound.—The transmission of sound through solid metallic tubes is so perfect that conversation has been maintained in a low tone between the ends of one of the Paris water pipes, 3,120 feet long. The velocity of the transmission of sound is greater, by four to sixteen times, in metal, than air, and in wood, as computed by Chaldini, from ten to sixteen times greater, which is not commonly known. Rock conveys sound so much faster than air that the ear, applied to a stratum of rock in which blasting is being done at a distance, will perceive two distinct reports; that conveyed through the rock first, and afterward the ordinary report in the atmosphere. It has been found that the velocity is also proportioned to the loudness of the report, other things being equal. With 2,000 pounds of powder a report traveled 967 feet in a second; with 12,000 pounds, 1,210 feet.

New Zealand Wood.—There are many woods in the Islands of New Zealand well suited to the highest productions of the cabinet maker. Amongst others is one called by the natives, *Totere*. It is of a peculiar knotted grain of singular beauty, and varied in its character in a remarkable manner. The color is no less rich and effective than the grain, and this wood besides being ornamental in the highest degree is also easily worked and very durable.

Oil Among the Ancients.

The ancients knew no method of refining oil. As a great luxury, they mixed it with perfumes, such as essence of roses and sandal wood; but this rather detracted from than added to the burning properties of the liquid, and all that was obtained by the process was an increase of fragrance and a diminution of light. The dwellings of wealthy men who expended extravagant sums upon scented oils would not have borne comparison in point of lighting with the grimiest top-room of a gas-lit public house. The gold and silver lamps, hung by slender, well wrought chains to marble pilasters, only yielded at their best a lurid tapering flame, that gave out an enormous deal of smoke, fluttered in the slight breeze, and went out altogether at a gust of wind. Neither was it possible to steady the light by closing the apertures through which the air came; for, had Roman or Grecian houses been possessed of glass windows, they would soon have become uninhabitable.

The fresco paintings of Pompeiian villas, the delicate colors on the walls of urban palaces, would in less than a month have been hopelessly coated with lamp soot. At the end of an hour's conference of an evening, a party of noble Romans would have resembled a congregation of chimney-sweeps. A tunic-dyed in Tyrian purple would have acquired a mourning hue in no time.—*All the Year Round.*

Soap Powders; Washing Powders, Day Soaps, Etc.—Under these and similar names, a vast variety of articles are now offered for sale which are said to possess wonderful detergent powers. They are all "old friends with a new face," consisting of soap, soda, either caustic or carbonated, and in some cases, ammonia. The dry soap is not, as its name would imply, an ordinary soap simply freed from the quantity of water with which it is ordinarily accompanied. It consists of a palm-oil soap, saponified in the usual manner with caustic soda, and freed from moisture by treatment with strong brine. In this manner it is rendered so hard and dry that it is capable of being ground to powder. It is then mixed up with caustic and carbonated soda in various proportions, according to the fancy of the manufacturer. Washing pastes are caustic soda lye, thickened with farina. Extract of soap is simply carbonate of soda, reduced to a fine powder without expelling its water of crystallization, and mixed with a little soap and palm-oil. The value of these articles may be easily determined by an ordinary alkalimetrical operation.

Sulphate of Quinine Better than Carbolic Acid.—Solutions of gum arabic and paste made from flour soon mould and sour, and finally lose their adhesive property. To prevent this, carbolic acid has been used; but the odor of the preventive is so exceedingly unpleasant that it is seldom used. It is said that sulphate of quinine is equally as effective, while it imparts no bad odor of its own; and by analogy it is safe to suppose that the same salt could be used to equal advantage in writing ink, mucilage and glue.

Chemical Changes.—The addition of an atom of water to starch converts it into sugar; the substraction of an atom from alcohol converts it into ether. But perhaps the most curious change produced by the removal of an atom of water from a body has been recently discovered by Dr. Matthieson, of London. Morphia, the well-known active principle of opium, is commonly used to allay vomiting, and very often performs the duty very effectually. But when morphia has been heated with hydrochloric acid, and an atom of water has been thereby removed, it is changed into the most active emetic known. It is not necessary to swallow it to produce the effect; a very small quantity introduced under the skin, or even, it seems, spilt upon the hand, is quite sufficient to produce vomiting, which, however, soon subsides, and leaves no nausea afterwards.

Willow Wood.—In England there is no wood in greater demand than sound willow; it is light, smooth, soft, tough, will take a good polish, and does not easily burn. It will bear more pounding and hard knocks without splinter or injury than any known wood, and hence it is used for cricket bats, and, whenever it can be obtained, for the floats of paddle steamers, "strouds" of water wheels, brake-blocks for luggage and coal trucks, the sides and bottoms of carts and barrows, where wear and tear are greatest. To the wood-turner it is invaluable, and were it grown as timber, and obtainable, it would be used for very many purposes to which foreign timber is now applied, and that, too, with considerable advantage both to producer and consumer.—*Cabinet Maker.*

Liquid Blue.—Take half a pound of the best double oil of vitriol, mix one ounce of Spanish indigo pounded very fine, scrape in a little chalk; have an iron pot half full of sand; set this on the fire when the sand is hot, put the bottle in, and let the vitriol, etc., boil gently for a quarter of an hour; take the whole off the fire, and let it stand for twenty-four hours, and then bottle it for use.

Polishing Oak.—Slightly oil the work with linseed oil, and then rub off; then make a paste of whiting and paraffin oil, colored with yellow ochre, or something darker if necessary for the color of wood. After the wood is well filled in with this paste, it must be well rubbed off clean, and let stand two or three hours before the polish is applied.

Good Health.

Open Windows at Night.

Very much has been written on this subject, and written unwisely; the facts are that whoever sleeps uncomfortably cool will get sick. To hoist a window sky-high when the mercury is at zero is an absurdity. The cooler a sleeping apartment is, the more unhealthy it becomes, because cold condenses the carbonic acid formed by the breathing of the sleeper. It settles near the floor and is rebreathed. Hence, we must be governed by circumstances; the first thing is, you must be comfortably warm during sleep, otherwise you are not refreshed, and inflammation of the lungs may be produced, and life destroyed within a few days. An open door and an open fire-place are sufficient for ordinary purposes in cold weather.

When outer windows are opened, it is well to have them down at the top two or three inches and up at the bottom for the same space. In miasmatic locations—and those are along water courses, beside mill-ponds, marshes, bayous, river bottoms, flat lands, and the like—it is important, from the first of August until several severe frosts have been noticed, to sleep with all external doors and windows closed, because the cool air of sunset causes the condensation of the emanations which were caused by the heat of the noon day sun to rise far above the earth; this condensation makes the air "heavy" at sundown, made heavy by the greater solidification of the emanations by cold; and resting on the surface of the earth in their more concentrated and malignant form, they are breathed into the lungs, and swallowed into the stomach, corrupting and poisoning the blood with great rapidity.

By daylight these condensations are made so compact by the protracted coolness of the night, that they are too near the surface of the earth to be breathed into the system; but as the sun begins to ascend, these heavy condensations, miasmas, begin to rise again to the hight of several feet above the ground, and are freely taken into the system by every breath and swallow; hence the hours of sunrise and sunset are the most unhealthful of the twenty-four in the localities named; and noontide, when the sun is hottest, is the most healthy portion of the day, because the miasma is so much rarefied that it ascends rapidly to the upper regions.

The general lessons are, 1st. Avoid exposure to the out-door air in miasmatic localities for the hours including sunrise and sunset. 2d. Have a blazing fire on the hearth of the family room at those hours, to rarify and send the miasma upwards. 3d. Take breakfast before going out of doors in the morning, and take tea before sundown; then being out after night is not injurious.

Exposed Arms.—A very distinguished Paris physician says: "I believe that, during the twenty years that I have practiced my profession, twenty thousand children have been carried to the cemeteries, a sacrifice to the absurd custom of exposing their arms. Put the bulb of a thermometer into a baby's mouth and the mercury rises to ninety degrees. Now carry the same to its little hand; if the arm be bare and even cool, the mercury will sink to fifty degrees. Of course, all the blood that flows through these arms must fall from ten to forty degrees below the temperature of the heart. Need I say, when these currents of the blood flow back to the chest, the child's vitality must be more are less compromised? And need I add that we ought not to be surprised at the frequent recurring affections of the tongue, throat, or stomach? I have seen more than one child, with habitual cough or hoarseness, entirely relieved by simply keeping the hands and arms warm."

Antidotes for Poison.—Commercial oil of turpentine is a good antidote to poisoning by phosphorus. The two substances form a compound in the stomach resembling spermaceti, and this can readily be removed from the system.

Laudanum or other anodyne is sometimes taken by mistake or otherwise in excess. Swallow strong coffee or the whites of several eggs instantly; all these things are to be done while the doctor is coming. Let every family remember that sweet oil, the whites of eggs and strong coffee antagonize a larger number of poisons than perhaps all other things together.

If laudanum, or any other poison not burning the throat, is taken and is promptly discovered, the best plan is to get it out of the stomach instantly, which is done by stirring a tablespoonful of ground mustard in a tumbler of water, and drinking it down at once; almost before it is down the whole contents of the stomach begin to be ejected.

Vegetable Spores in the Blood.—Prof. Richardson, of Philadelphia, several years ago, in the course of his experiments to determine whether bacteria (vegetable spores) pass from the stomach into the blood, swallowed 4 ounces of water which contained, according to his estimate, 27,000,000,000 of these minute organisms. In half an hour he discovered them in abundance in a drop of blood taken from the end of his finger. To swallow at a single gulp twenty times as many vegetable spores as there are human inhabitants on the earth, is but a small exploit for a modern scientist.

How to Prevent Spring Diseases.

From Dr. Hall's new work, "Health by Good Living," we extract the following valuable hint: It is an indisputable, physiological truth that if the instincts of nature were yielded to in the spring; were cherished in her desire to take less and less food as the weather grows warmer, as they are yielded in the autumn in taking more, a very large amount of the disease of spring and summer would be avoided. The great practical lesson to be learned in reference to the subject, a question of health and disease, yes, in multitudes of cases, a question of life and death, simply this: As the winter passes, and the balmy spring time comes on, do nothing to increase the appetite; eat no more than is called for; do not be uneasy because you have little or no relish for your food; eat less and less every day. The very best way to increase your pleasure of eating is to change the quality of food; use articles less carbonaceous, less warming; send from your table the pork and bacon, and fat meats, oils, and sugars, starches and sago, and the tapioca pudding, and the dumpling, and the rich pastries; get hold of the early "greens," the spinach, the salads, the turnip-top, the radish, the early berry and the daily fruit, and lean meats; pay increasing attention to the cleanliness of the skin; be more in the air; sleep in better ventilated rooms; let your windows be raised high at night, your inner door be left wide open.

Summer Clothing.—For all persons, especially invalids, and those who take cold easily, a thin material of woolen gauze next to the skin is safest and best, because—

First, it is a non-conductor, carries heat from the body more slowly than cotton, linen or silk; all colds are caused by the body becoming colder than natural, especially if it is made colder rapidly, and woolen material next the skin is the best thing known to prevent this rapid cooling, especially after exercise which has caused perspiration, and does not cause that disagreeable nephritis dampness which wet linen does when it comes in contact with the skin.

The warmer the weather the more need for woolen next the skin; hence British sailors are required to wear woolen next their skin in tropical latitudes, in summer, as the best observed precaution against disease.

All garments worn next to the skin during the day should be removed at night and spread out for thorough airing and drying.

Cotton is the best material to be worn next the skin at night. All changes from a heavier to a lighter clothing in summer, should be made by putting on the lighter clothing at the first dressing in the morning.

It is greatly safer for children, for invalids, and for old persons, to have too much clothing than too little.

Fat People.—Not long ago, a gentleman of threescore, who had scarcely ever been sick in his life, thought he was too fleshy and began to Bantamize. He succeeded famously, and boasted to his friends that he had got rid of ten pounds in a few weeks. A little later he was attacked with a painful and dangerous malady, from which he has been suffering more than a year.

If a man can sleep soundly, has a good appetite, with no unpleasant reminders after meals, the bodily habits being regular every day, he had better leave himself alone, whether he is big as a hogshead or as thin and dry as a fence rail.

Several cases of Bright's disease have been reported by medical men of reputation as a direct result of practicing Bantam's plan for getting lean. The very best and safest way to get rid of fat is to work it off. This may be aided by eating food which contains a large amount of nitrogen and a small amount of carbon.

Nitrogen food is that which gives strength, power to work, as lean meats; carbonaceous foods are those which make fat, such as cheese, potatoes, rice, corn, peas, beans, tapioca, arrowroot, cornstarch, milk, sugar, syrup, and all oily and fat food. Raw fruit and berries largely eaten are great aids to reducing weight.

But, after all, the great reliance should be on exercise and work in the open air. Barclay, the great English pedestrian, who performed greater feats than Weston, lost ten pounds in two or three days' walking, and was never the worse for it.—*Hall's Journal of Health.*

New Preservative Fluid.—The following are the ingredients of a liquid by means of which the organs of the body that have become absolutely offensive, from decay, may be treated so that they can be examined for marks of injury or signs of disease. The fluid consists of a mixture of iodine one drachm, methylated ether (of specific gravity .720) ten fluid ounces, absolute alcohol one fluid ounce, and strong sulphuric acid four fluid drachms. The action of the solution seems to be that the iodine deodorizes, while the sulphuric acid engages the water and the alkaline products of decomposition and produces the necessary firmness of structure. The other escapes, being simply the fluid dissolvent for the other agents.

Liebig on Alcohol.—As Professor Liebig is so often quoted in this connection in favor of drinking alcoholic beverages, we will close by by adding a quotation from the same great chemist. Says he: "Of spirits, he who drinks them draws a bill on his health which must always be renewed, because, for want of means, he cannot take it up. He consumes his capital instead of his interest, and the result is the bankruptcy of the body.

Scientific Press.

W. B. EWER.....SENIOR EDITOR.

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San Francisco:

Saturday Morning, April 27, 1872.

Gold and Legal Tender Rates.

SAN FRANCISCO, Wednesday, April 24, 1872.—Legal Tenders buying, 89⅜; selling, 90⅜. Gold in New York to-day, 111⅞.

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THE PRECIOUS METALS IN ALASKA.—The steamer Gussie Tolfair recently brought intelligence of the discovery of both gold and silver in Alaska, but nothing very definite is given. The climate and geographical position of our newly-acquired territority is unfavorable for prospecting parties from here, and it is not likely that any one will think of starting until more authentic reports are received. A sore temptation this will be, however, to many, for the mines are so far away, that they ought to be rich if they are not. If further proofs are given of the existence of the precious metals in any quantity in Alaska, some enterprising steamboat man will doubtless put on a line of "cheap" steamers for the benefit of would-be millionaires.

PLACER DISCOVERIES.—Placer mines have been discovered near Richmond, about three miles west of Susanville, in Nevada. The Nevada *State Journal* says that the first discovery was made in a cañon about one half mile east of Richmond, in a gravel deposit containing coarse washed gold, where they are now rocking out from $3 to $5 per day to the hand. Further up the same cañon richer placers have been found, which, according to the same paper, pay about $25 per day with sluices. A rich quartz ledge has been found in the same vicinity. The discoverers have for some time kept "shady" about their strike, but it has come out, and it is said the mines give evidence of permanence.

New placers are also reported in about 200 miles above Hardyville on the Colorado river. The miners are said to be making $5 per day.

THE BOARD of State Harbor Commissioners have reduced the rates of dockage, tolls, wharfage, etc., for the city of San Francisco, one half, and have adopted new rules and regulations concerning wharves and docks.

THERE is said to be great activity in mining matters in Schell Creek district, Nevada.

Our Home Industries.

The Foundries.

Business at the foundries is more brisk than it has been for the past two years. They have all got as much work as they can do, and the long prevailing dull times are at last over. Large and heavy orders do not seem to be very plenty, but the amount of work on hand is satisfactory and all are doing well. The scarcity of iron affects the trade considerably, for purchasers of course have to pay a proportionately higher price to have their orders filled. In the matter of mining machinery especially this scarcity exerts an important influence. Miners generally calculate on building a 5-stamp mill for so much, and a 10-stamp for so much, taking other mills as a precedent, and when they come to find an advance of about $35 per ton over last year on 100 or 150 tons of machinery, it makes quite a serious difference in their calculations, and hinders developments. Some of the reasons for this scarcity of iron were given in the last issue of the SCIENTIFIC PRESS and it is asserted that the probable supply of the coming two years is already engaged and there is no surplus stock on hand in the great iron markets of the world.

A great scarcity of first-class mechanics is reported by the foundrymen and there is no need of any of them being idle for they can obtain employment readily at good wages. The majority of the mechanics seem to be foreigners and in one establishment out of 54 in the machine and blacksmith shops alone 40 were foreigners and 14 natives, the latter including the boys who are nearly all natives. The laborers are as a general thing all foreigners. Engineers were also foreigners as were the majority of those in the moulding room. In the boiler shops 90 per cent. were foreigners. Taking this one foundry as a criterion it may be assumed that a large majority of the men employed were born under a foreign flag. The English mechanics are now having fine times working only 51 hours a week and at good wages, machinists getting £2 per week; no inducement for them to leave home. The bad times in this city for the past two years has compelled those who were here to leave and the railroads building throughout the Coast have absorbed quite a number causing a scarcity here with no fresh supply. The wages for good mechanics in this city are from $3.50 to $4 per pay according to their capacity.

The Pacific Iron Works.

Corner of First and Fremont streets, have just completed the machinery for a propeller freight boat for Owen's Lake. The boat is intended to carry wood, merchandise, etc., to supply the Cerro Gordo District. They are making a 10-stamp mill and mining machinery for the Silver Peak mine in Pioche District, Nevada, and carrying on extensive repairs to the lighthouse steamer Fern. They are turning out a lot of vacuum pans and sugar-house machinery for the California sugar refinery and are also furnishing some smelting works machinery for the Canton Mining Co. at Mineral Hill, Nevada, turning out the usual amount of small work.

The Miners Foundry,

First street, between Howard and Folsom, (Co-operative), are making an engine and boiler and hoisting works machinery to go to Ely District, Nevada, and have just shipped one of Paul's Electro-chemical dry amalgamating mills to Calaveras county. They are making the machinery for Boschke's tule-ditching machine and a large, heavy punch for the Pacific Rolling mills. Some hydraulic mining machinery is being turned out to go to Stanislaus county; just shipped a pony-gang sawmill up the Coast. The Saratoga paper mills, in Santa Clara county, have had some paper mill machinery made here which has just been shipped. A new pump, called the Goodwin pump, of which Mr. S. A. West is the inventor, is being made at this foundry. They are doing a variety of small jobs. At the

Fulton Foundry,

Corner of Tehama and Fremont streets, they are building two engines, 16 inch bore, 5 feet stroke, for the Colorado Steam Navigation Co., and an engine 8x16 feet with shafting and machinery for a tannery to go to Japan. They are making an engine 12x24, and boiler 48x16, with a 10-inch plunger pump, 6-foot stroke and a set of hoisting works for the Yuba Gravel Mining Co., at North Bloomfield. Are getting up two of Hoskin's Little Giant hydraulic nozzles, to throw respectively 8 and 9 inch streams. Also some large logging cars for Towle Bros. at Dutch Flat, and some for Ellsworth & Co. Making silver amalgam retorts for the Estaca mine in Mexico and doing considerable jobbing and repairing work.

The Risdon Iron and Locomotive Works,

Corner of Howard and Beale streets, have been doing a good deal of engine work of late and have built a number of large engines. At work on machinery for a large ice manufacturing establishment in this city and on a surface condenser for S. L. Mastick, supposed to be the first regular surface condenser ever made here. An engine, 20-inch cylinder and hoisting gear is being made for the Belcher mine, and two 18-inch engines for the Crown Point mine. A large contract has just been finished for the Pacific Mail Co., consisting of overhead railways and steam hoists for coaling vessels, which will be in operation in a week or so. They are making 50 iron cars for the California Sugar Refinery, to run by hand on a planked way. Business with them as with others is brisk and a good deal of small work is being done.

Golden State Iron Works,

No. 19 First street, are making furnace irons for Eureka, Nev., water pipe for the North Star mine, Nevada Co., and doing some iron work for the Oakland Paving Company. Windmill irons are being made for Suisun and a large amount of angle blocks and washers for the Pacific Bridge Co. They are turning out a 10-stamp mill for the Talc Mining Co., at Quincy, Plumas Co., and Stevenson pans for the Boston mill at Gold Hill; also a battery and Stevenson pans and settlers for the Belmont Mining Co., at Havilah, Kern County; making stamp shoes and dies for different parts of the country, and doing considerable small work. At the

Aetna Iron Works,

Corner of Fremont and Tehama streets, they are building house fronts for Petaluma and Oakland and have just cast a 7,000-lb. propellor for steamer Idaho; and a 10,000-lb. one for the Ajax. Making propellor shafting, etc., for a steamboat for Renton Smith & Co., and shafting, machinery, etc., for pulverizing mill. Have just completed two of White's Rotary Furnaces for the Lemon Mill and Mining Co.; building mixers, pumps, pump-valves and some other machinery for Bay Sugar Refinery, and repairing a lot of old machinery for Flint, Peabody & Co.'s stave factory; doing considerable small work.

The San Francisco Boiler Works,

Nos. 123 and 125 Beale street, are at work on a boiler 83x17-9 for steamer Cyrus Walker, and one 66x16 for the Portland Water Co., Oregon. Two boilers are being built, 42x12, for the Meadow Valley Mining Co., and a 42 inch boiler for Ohlandt & Co.'s bone factory. Have just finished a boiler 42x14 for N. B. Hick's sawmill in Santa Cruz, and a large tank 44 feet long, 20 wide and 8 deep, for a reservoir for the Stockton water works. Making a locomotive-shaped boiler 17 feet by 6 in diameter for the Colorado Steam Navigation Co., and a 54x16 boiler for the Silver Peak mine at Pioche. Making buckets for a dredging machine for the Miners' Foundry, and curbs for settlers, and Hepburn pans for latter named mine. Have all the work they can do.

The Union Iron Works,

Corner of First and Mission streets, are running a full force on full time, and doing more than the usual amount of business. They, like the rest, complain of a scarcity of good mechanics. Times is lively with them and likely to continue so for some time to come.

Pracy's Machine Works,

109 and 111 Mission street, present the neatest appearance of any shop in the city; though small the works have a fine assortment of tools, and are able to turn out any kind of work required. Just now they are making horse-power machinery, wood-turners' lathes, etc. The proprietor makes a specialty of grist-mills, and is at work on quite a number of them at present. The establishment is very neat and complete.

Our National Park.

We have received a number of maps and documents in relation to the Great National Park in the Yellowstone Reservation in Montana and Wyoming Territories. The land reserved lies near the head waters of the Yellowstone river, commencing at the junction of Gardiner's river and the Yellowstone, and running east to the meridian passing ten miles to the eastward of the most easterly point of Yellowstone Lake; thence south along that meridian to the parallel of latitude passing ten miles south of the most southern point of Yellowstone Lake; thence west along that parallel to the meridian passing fifteen miles west of the most western point of Madison Lake; thence north along the meridian to the latitude of the junction of the Yellowstone and Gardiner's rivers; and thence east to the place of beginning.

This area of land has been reserved and withdrawn from settlement or sale, and set apart as a public park or pleasure ground, for the benefit of the people of the United States. It is to be under the control of the Secretary of the Interior, who is to make such rules and regulations as he may think proper for its care and management. All timbers, mineral deposits, natural curiosities or wonders are to be preserved in their natural condition, and remain undisturbed. The Secretary may, if he sees fit, grant leases for building purposes, for terms not to exceed ten years, of small parcels of land, at such places as may require houses for the accommodation of visitors. All the revenue from this source is to be expended in building roads, bridle-paths, etc., in the park. The Secretary is to provide against wanton destruction of game and fish in the reservation, and against their capture for the purpose of profit.

The land is, as a general thing, not susceptable of cultivation, and the entire area within the limits of the reservation is over 6,000 feet above sea level. The Yellowstone Lake, which occupies an area 15 by 22 miles, or 330 square miles, is 7,427 feet. The range of mountains that hem the valleys in rise to a hight of from 10,000 to 12,000 feet, and are covered with snow all the year round. These mountains are all of volcanic origin, and it is not probable that any mines will ever be discovered there. During the months of June, July and August the climate is most invigorating, with scarcely any rain or storms of any kind. There is frost every month of the year. This whole region was, in comparatively recent time, the scene of the most wonderful volcanic activity of any portion of our country. We have given, at different times, detailed descriptions of some of the wonders of this region, which will in a few years be a place of resort for all classes of people from all parts of the world.

The project of establishing a Grand National Park in such a locality is worthy of the age and the nation which has originated the idea. It will become, in future ages, a place for the world's resort, where the grandeurs of nature and all her wonderful displays of power and energy, as put forth in the tempest, the earthquake and the volcano may be seen, studied and admired in the great laboratory within which the fires have been, as it were, but just extinguished.

Mining Stocks.

The question of the day in San Francisco is, "How are Stocks?" and the vernacular of the Stock Exchange is as familiar as household words. The excitement in mining stocks for the past few weeks has surpassed all former ones, and everybody is buying who has any money to buy with. The names of a few are mentioned who have made fortunes in the sudden rise in value of their stock, but of the unfortunate we hear nothing, in fact their turn has not come yet but everybody expects it will. Till the fall comes, people will continue to speculate wildly and take their chances. The present excitement is, however, no mere stock bubble, but is founded upon *bona fide* developments in the deepest levels of the Comstock mines. Some descriptions there are, of course, which are inflated above their real value, by reason of the rise in others, while on the other hand, some are not as high as their merits deserve.

Money is plenty and mining investments take precedence at present, and with a good reason. The immense actual values of some of the Comstock mines seem almost fabulous, but they are founded upon the amount of ore in sight in the ore bodies in the deep levels such as have never before been developed. Cool, business men are purchasing the stock of those mines for the legitimate purpose of drawing dividends from them as an investment which will pay them a higher percentage on the capital invested than any other enterprise. No such bodies of gold and silver bearing ore have ever been found before, in any part of the world, and the consequent large increase in value of the mines in which they are situated is not therefore to be wondered at. The developments in the Crown Point and Belcher have given a new basis in value to all the mines on the lode, and the Savage, Hale & Norcross, Chollar and others are expected to come in for their share of the ore as soon as they shall have been sufficiently explored. The ore that has been discovered during the past year in the Comstock lode will probably exceed in amount, all that has heretofore been taken from it, and the value of the mines embraced within the area, on the surface, of a quarter of a mile in width by two and a half miles in length, can scarcely be calculated.

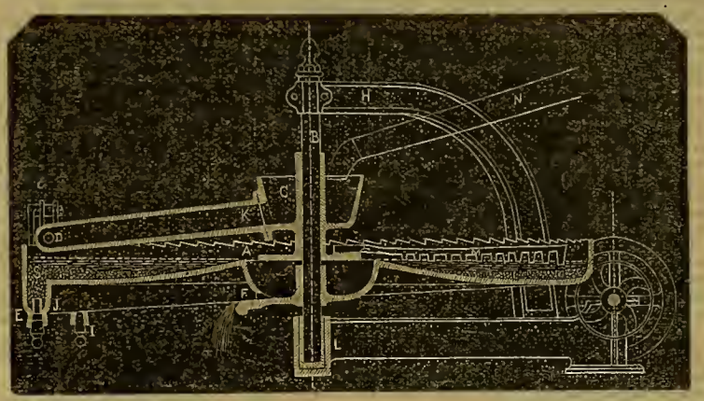
The effect that these wonderful developments have exerted upon the mining interests of this Coast is very gratifying. Mines in all quarters will now have the benefit of capital, for capitalists who have been wont to look upon mining as a rather hap-hazard kind of business will view it in a better light. Foreigners particularly will be enlightened as to the richness of our mines and be more likely to invest here than heretofore.

We hear of bright prospects all over the Coast, and mining matters and our bullion yield will doubtless be greater this year than ever before. The following table will show the number of feet and shares in the principal mines dealt in at the San Francisco Stock and exchange Board which will be of interest just now. By reference to another column the prices of today may be seen:

NAME OF COMPANY.	No. ft. in Mine.	Sh's Ass't.	No. of Sh's.	inc'd val'e.
California Mines:—				
Amador	1,850	2	3,700	$100
Eureka	1,680	....	20,000	100
Oriental	1,800	10	18,000	....
St. Patrick G. M Co	1,800	....	5,000	....
Independent G. M. Co	1,800	....	25,000	....
Bellevue	20,000	....	8,000	....
Yuba Gravel	....	....	10,000	100
Peter Walter	1,800	....	8,000	50
Washoe Mines:—				
Alpha	300	20	6,000	250
American	2,900	4	11,600	....
Belcher	1,040	10	10,400	100
Caledonia	5,000	4	20,000	....
Chollar-Potosi	2,800	10	28,000	100
Confidence	130	12	1,560	500
Cons. Virginia	1,160	10	11,600	500
Crown Point	600	20	12,000	670
Daney	2,000	12	24,000	100
Empire Mill	75	16	1,200	100
Exchequer	400	20	8,000	100
Gould & Curry	1,200	....	4,800	500
Hale & Norcross	400	40	16,000	100
Imperial	184	....	4,000	500
Julia	2,000	5	10,000	100
Justice	21,000	....	....	....
Kentuck	95	2	2,000	....
Ophir	1,400	12	16,800	300
Overman	1,200	10	12,800	500
Savage	800	20	16,000	248
Seg. Belcher	160	40	64,000	300
Sierra Nevada	3,000	5	20,000	100
Succor M. & M. Co	7,600	3	22,800	....
Yellow Jacket	1,200	20	24,000	....
White Pine:—				
Hidden Treasure Cons	600	20	12,000	....
Mammoth	1,800	20	36,000	100
Metropolitan M. & M. Co	4,000	2½	10,000	....
Orig. Hidden Treasure	....	....	21,333	....
Silver Wave	1,600	10½	20,000	....
Silver Vault	3,000	10	30,000	100
Virginia	800	....	21,333	....
General Lee	1,000	20	20,000	....
Idaho Mines:—				
Golden Chariot	750	13	10,000	100
Ida Elmore	....	....	10,000	100
Mahogany	720	....	10,000	100
Rising Star	1,200	10	12,000	300
South Chariot	600	....	20,000	100
War Eagle	1,000	10	10,000	100
Minnesota	1,070	....	20,000	100
Virtue	2,600	....	10,000	100
North Ore Fino	600	....	19,000	100
Ely District:—				
Meadow Valley	....	....	60,000	....
Raymond & Ely	4,000	....	30,000	....
Meadow Val. W. Ex	200	30	6,000	....
Ploche	1,000	....	20,000	....
Washington & Creole	200	150	30,000	....
Lillian Hall	1,000	15	15,000	....
Excelsior	12,000	....	.....	....
Alps	30,000	100	.....	....
Eureka District:—				
Eureka Cons	....	....	50,000	....
Jackson	....	....	50,000	....
Mineral Hill	....	....	50,000	....
Phenix	....	....	50,000	....
Utah:—				
Monitor and Magnet	2,400	10	2,400	100

Hendy's Improved Concentrator.

Gold and silver gleaners are becoming in more active demand, a fact which shows an increased disposition among miners to work their ores more closely and with the greatest possible economy. Various devices and modifications have been invented and tested, for saving sulphurets, and fine gold, with results more or less



HENDY'S IMPROVED CONCENTRAOR.

favorable, and nearly every one of which has furnished cumulative evidence that our workings heretofore have been wasteful in the extreme. The wonder is that this fact has not been sooner recognized and supplemented with a more general introduction of improved saving appliances.

We are led to these remarks at this time, more particularly from hearing that there has lately been an increased demand for Hendy's ore concentrators. Among other recent orders we hear of six for the St. Patrick mill, near Newcastle; six for the Julian mill, same place; two for the Keystone, Amador County; four for the St. Lawrence Mill, Georgetown, El Dorado county, and one for the Virtue mine, Oregon.

These machines have been well tested, and are fast gaining in favor among our miners generally—over 400 having been already put in use, some of which have been in constant operation for upwards of four years. Their construction has been improved from time to time, as experience and observation has warranted. So great has become the demand for them that Mr. Hendy has recently established machine works at 32 Fremont street, in this city, in large part for their especial manufacture, whereby all the work upon them will be done under his personal supervision, and in the most thorough manner.

We have before described the main features of this patented invention, but will for the benefit of many new readers give a short description of its operation. The sulphurets and water are received through the spout, *N*, into the bowl, *C*, and distributed through the pipe, *K*, this pipe is rotated by means of a pawl and the notched rim of the concentrator as the body of the concentrator oscillates backward and forward. The sulphurets being heavier are worked into the annular pocket, *S*, and drawn off from the hole, *E*. The water, sand and lighter particles are discharged at the centre, *A*. This machine is somewhat of an improvement on that which has heretofore been illustrated in our columns.

In Henry county, Kentucky, a report of silver ore is said to have been recently discovered, which yields 54 per cent. of silver.

A Pittsburg firm have recently shipped two steam pumps to New Castle, England.

More About Glass Bearings.

Since our reference, last week, to the introduction of glass bearings, at the East, we have received a call from Mr. D. Brannan, proprietor of the Pottery Works at Brooklyn, Alameda county, who informs us that he has been appointed general agent for the sale and manufacture of these bearings in California, and that he is prepared to furnish circulars, give any required information with regard to them, and to exhibit specimens of the manner in which they are prepared, to any person desirous of more particular information with regard to them. The inventor of the device is Mr. John Harden, 48 Broad street, N. Y., by whom it was patented Jan. 14, 1868. The bearings have already been extensively introduced for locomotives and other machinery, as we learn from a large number of names of railway superintendents and master mechanics to whom the inventor is allowed to refer.

From a circular which has been placed in our hands by Mr. Brannan, the California Agent, we learn that the bearings have been in constant use, in the Atlantic States, on a great number of engines—locomotive, stationary and marine—for over three years, and that they have given very general satisfaction.

It is well known that the harder and smoother the material which is used for bearings the less will be the friction. Now glass is very hard and extremely smooth, and by the device employed by Mr. Harden for introducing it into bearing surfaces, it is manifestly very secure from breakage and capable of sustaining any

weight required for bearings in every class of machinery. Moreover glass is a non-conductor of heat and electricity, and is uniform in hardness, unlike any metallic bearing and being neither porous nor fibrous it does not use up oil as fast as ordinary bearings. Various parties who have used these bearings assure the inventor that they do not use more than one-half, and in some instances not more than one-quarter the oil required by metallic bearings—a matter of no small consideration in running machinery.

The small engraving herewith presented, if examined in connection with the description we gave last week will give a very intelligible idea of the manner in which the glass is employed in the bearings. The light round spots in the figure represent cylinders of glass firmly imbedded within the metal, which constitute the chief part of the bearing. The glass is set even with the metal, but as the latter yields to attrition, the glass soon becomes the actual bearing surface and takes the entire weight imposed. It is said that glass which has been so used for several years shows no signs of wear, while the journal or guide resting upon the glass assumes as smooth and bright a surface as the glass itself, and with as little wear.

Of course friction must thereby be greatly reduced, with a corresponding decrease in the power required, while the machinery itself is longer lived. The glass can be moulded to any required form or surface—plane, convex or concave—and there are few working parts of machinery where it is inapplicable. We understand that it has been successfully used in packing rings, on an engine making 150 revolutions a minute, as severe a test, perhaps, as would probably be required in any ordinary use. The cost is very reasonable, as we are assured that 50 pieces of glass can be inserted for a locomotive for only about $25.

A New Mining Enterprise.—As we remarked last week, unusual attention is being turned to the working of the auriferous sands of our sea coast, and a large company is now going to Gold Bluff, Klamath county, to start a somewhat novel enterprise. The Pacific Submarine Exploring Company, of New York, propose to get at the sand by means of a diving bell. The gold can only be reached at low water, and the time is so short that the miners find trouble in making it pay to work their claims. Then the wet sand has to be carted over the sandy roads for some distance, causing more loss of time. It has been found that the sands grow richer the further they could penetrate into the breakers, and soundings in six and ten fathoms of water revealed the fact that they were yet richer in remarkably pure gold. It seems as if the gold were washed up from the submarine banks.

Parties who have been using the diving bell in removing the rocks at Hell Gate, in New York Harbor, have gone into this enterprise with considerable zeal, and hope to make a success of it. A large bell is now being made in this city. It is divided into chambers, in one of which air condensed to three atmospheres is to be stored for the use of the operators. A schooner will be provided with a steam vacuum pump, and elastic rubber tubing, by means of which, when a rich deposit is found, the sand is to be elevated on board. It is estimated that 100 tons per hour can be raised by this means. The sands will flow upwards in a steady stream, carrying water enough to give them mobility. This is placed in lighters and carried ashore for chlorination. The state of the ocean in the locality mentioned, will permit the work to last from the 1st of May to September, and after that date the company sails with its appointments to the pearl fishery of the Gulf of California. We shall look with interest to the results accomplished by the company, and think that their enterprise warrants success.

Utah Mines.—Wagon communication with the mines in Little Cottonwood Cañon is open and the mines are once more accessible. Immense quantities of ore, that have been accumulating on the dumps since the road was blocked up, are now being brought to Salt Lake City. Most of the other districts that were troubled with "snow blockades" are now free, and the snow though deep is melting fast. General news from the mines is favorable and a number of rich strikes are reported. The tunnel enterprises are proving successful in Little Cottonwood and a large amount of capital is said to be engaged for the erection of mills and furnaces the coming season. Experts and capitalists are plenty at Salt Lake, a pretty sure indication as to the estimation in which the mines are held by non-residents.

Earthquakes Underground.—It is worthy of note that, although the miners at work underground at Cerro Gordo during the recent severe earthquakes, did not feel the shocks, that a late earthquake in Germany is said to have been felt with great force underground, and the miners hurried out with all possible haste.

The amount of bullion shipped for the first 19 days in april, through Wells, Fargo & Co's office at Reno, was 43,894 pounds.

Domestic Economy.

Good Bread and How to Make It.

Holy Writ assures us that bread ie the staff of life; and our daily experience fully proves the truth of the assertion. But it is not enough to procure this staff of life in sufficient quantity; the excelleuce of its quality is also of great importance. The strong, healthy man may perhaps eat poor bread without experiencing any inconvenience; but the delicate child or invalid, whose impaired digestion requires great carefulness in diet, cannot pay too much attention to the quality; bread is indeed to them the staff of life. The superior nutritious properties of bread have been disputed, but the douht has been dispelled by some chemical researches made iu France testing the comparative nutriment of various edibles.

The word bread is derived from brayed grain, from the verb to hray or pound; indicative of the old method of preparing the flour. Dough comes from the Anglo-Saxon word *deavian* to wet, to moisten. Loaf is from the Anglo-Saxon *lif-ian*, to raiso, to lift up, as raised bread. Leaven is derived from the Freuch verh *levee*, to raise, as the Saxon word *lif-ian*.

The superiority of good home-made bread has long heen acknowledged, yet how few families really make good bread. All bakers use alum, which is injurious to the health, and causes indigestion iu delicate persons. But the alum benefits the haker in several ways; it causes his loaves to separate evenly and without trouble, and increases the weight of the loaf, as it makes the flour absorb more water; therefore, a four-pound loaf of baker's hread will contain less nourishment than a loaf of home-made bread of equal weight.

Ecouomy should make every woman her own bread-maker. The alum also imparts a better color to the flour, aud conceals any unpleasant odor arising from damaged flour. Baker's hread dries much quicker than home-made. The reason is, that alum is what chemists call and efflorescent salt, that is, it dries by exposure to the air; common salt is delinquescent, that is, it attracts moisture from the air; therefore, bread which contains salt only, will keep moist much longer than that which coutains alum. These are certainly reasons why every woman should make her own bread, or have it made in her kitchen.

How to Make Good Bread.

We propose to give a few receipts for bread making which will not fail. First we will give a receipt for making yeast. The yeast bought at the door is not always of good quality. The recipe for hop yeast given has been tested for twenty years, and rarely fails; never, if the yeast jug is perfectly sweet and the yeast properly made: Boil in a porcelain or copper-tinned kettle, two large handfuls of hops, tied in a cloth, six large potatoes sliced thin, in six qnarts of water. When the potatoes are very soft skim them out, and either rub through a colander or mash fine on a plate. Take ont the hops; squeeze dry, and hang away for another time, as they can be used twice. Keep the watar boiling, mix one and one-half pints of wheat flower to a smooth batter with cold water, and one tablespoonful of vinegar, two of brown sugar, and one teaspoonful of salt; mix in the mashed potatoes, stir all into the hoiling water, aud boil ten minutes. Turn into a six-quart tin pau. When milk-warm to the touch add ono teacup of yeast. Let it rise over night, then put into a stone jug.

This yeast will keep in a cellar, perfectly good for six weeks. A large teacup full will make two large loaves of hread. Be sure to reserve a teacnpful to rise the yeast with the next time. Always scald the jug thoroughly and keep water in it over night, with a tablespoonful of saleratus stirred into it. This will sweeten the jug. It takes a larger quantity of this yoast to rise hread, biscuit, or muffins than of distillery yeast, hut the effect is quite as good.

To make hread of first-rate quality, the sponge should be made over night. Bread that has been raised three times is mnch the best. It is of a firm, even texture, has no fiesures or oracks, and the slice presents an even surface. Here is a recipe that rarely fails: Take one quart of new milk, and add boiling water sufficient to make it warm to the touch. (Water can he euhstituted for the milk, but bread made without milk dries more rapidly.) Add one teaspoonful of salt, stir in three quarts of flour and one tea-cup of home-made yeaet, or three tablespoonfule of dietillery yeast. Mix well together, then sprinkle flour all around the edgee of the batter or sponge, leaving a small spacc in the middle uncovered. Set in a warm place to rise, covering with a pan. In summer the sponge will he ready to mold over before breakfast. Mix it up thick so that it can ho kneaded well, and knead it half an hour or more. Chopping it with a chopping knife adds to its lightness and poroeity. When well kneaded, sprinkle flour on the bottom of the pan thickly, put in the dough, and set it away for half an hour or more, but watch it closely. (Bread making should he most carefully tended, as any neglect ruine the whole. If allowod to rise too much its sweetuess is gone, and though saleratus will take away the acidity, its aroma and flavor are destroyed.) When light enough turn out on the molding-hoard and knead thoroughly; divide into two loaves, reserving a portiou for hiscuit, so that the new-made loaves may not be ent that day. Mold well, put into the pans, let it rise iu a warm place fifteen minutes, then hake in a hot oven. If the oven be hot, the bread will lose less weight in haking than when the oven is slack. The batter can he haked in the morning in muffin rings, and makes delicious hreakfast cakes, hetter than hot biscuit.

Bread made with potatoes is very nice: Boil three large potatoes, well pared, or six good sized ones; rub them through a colander into your bread pan. Rinse them through the colander with a pint of hoiling water; add one quart of milk. Stir in half a pint of flour, and when the liquor is cool enough add a teacup of home-made yeast; set it in a warm place. If thie is done after dinner—using the potatoes left from the table—the sponge will he ready for moro flour hy eight or nine o'clock in the evening. Now mix to a stiff batter, sprinkle flour over it, set to rise. In the morning knead into a stiff dough, let it rise well, then knead again, put into pans, let it rise fifteen or twenty miunutes, and hake in a hot oven.

All bread, biscuit or doughnuts raised with yeast should rise after bcing kneaded hefore they are baked. If put in the oven or fried directly they are never light. The dough has had no opportunity to recover its elasticity, and cannot he as good. Common sized loaves of bread will hako in three-quarters of an hour, provided the oven is of proper heat.

Palatahle as good wheat bread is, there is no doubt that eating it entirely is not conducive to health. Rye, Indian meal and coarse flour make hread that is better adapted to the development of the muscles. Boston hrown bread is much used, and is far better for young children than hread made of superfine flour. It is easily made: Take two qnarts of Indian meal, sifted, one quart of rye meal or Graham flour, one large spoonful of salt, one teacup of molasses, one teacup of home-made yeast, or half the quantity of hrewers' yeast. Mix with hot water as stiff as one can stir it, let it rise oue hour, hake in deep earthen or iron pots, which are made purposely. To avoid the thick crust produced by haking so long, boil it four hours and bake one, removing the cover before setting it fiito the oven.

Good bread and hutter cannot be made without some experieuce and intelligence. Upon their quality depends half the comfort of the table, and yet full half the people in this country never taste them in perfection.—*Ex.*

Economical Cooking in Oregon.—There is a place in Oregon, says an exchange, called the Smoky Valley, where the people have a very curious way of cooking. They do not have the trouble of making a fire every morning when they wish to get hreakfast. They just walk out with their kettles, coffee-pots, and whatever else they need, and cook at the boiling spring. The water seems a great deal better than common hoiling water, and all they need to do is to have their kettles in it for a ehort time, and their food is nicely cooked. They are able even to bake in it. The bread is put into a tight saucepan and lowered into the boiling flood for an hour or two, and then drawn up most exquisitely baked, with but a thin rim on the crust over it. Meat is cooked here, and heans, which are the miner's great luxury. It takes but a minute to cook eggs, or to make a pot of coffee or tea; hnt if there should chance to be a "slip hetweeu the cup aud the lip," the food would be gone heyond recovery.

Pickled Eogs.—At the season of the year when the stock of eggs is plentiful, cause some four or six dozen to he hoiled in a capacious saucepan until they become quite hard. Then, after removing the shells, lay them carefully in large monthed jars, and pour over them scalding vinegar well seasoned with whole pepper, allspice, a few races of ginger and a few cloves of garlic. When cold they are bunged down close, and in a month are fit for use. Where eggs are plentiful the above pickle is by no means expensive, and as an accompaniment to cold meat it cannot he outrivaled.

Ants and Moles.—For ants, place a fresh meat bone where the ants can get atit, and they will flock to it in large numbers. When they are on it, dip it in hot water; repeat it a few times and the ants will have disappeared. For moles, dig a hole like a post hole across one of the mole holes, and in the bottom, place some rags previously dipped in sulphur. Set fire to them, and, when once well on fire, cover up close with a board, and the mole hole acts as a pipe. The mole leaves.

Bohemian Cream.—Take four ounces of any fruit you choose, which has been stoued, soft and sweetened. Pass the fruit through a sieve, and add one and a half ounces of melted or disolved isinglass to a half-pint of fruit; mix it well together; then whip a pint of rich cream, and add the fruit and isinglase gradually to it. Then pour it all into a mould; set it on ice or in a cool place, and when hardened or set, dip the mould a moment in warm water, and turn it out ready for the table.

To Cook Cod Fish, says a writer in *Western Rural*, never freshen it, but pick it up fine and put it in a frying pan with a large piece of butter and one quart of milk. Let it come to a hoil, then pour in a teacup of cold milk with a tablespoon of flour stirred in it. Season with pepper to taste. The fish will salt it sufficiently.

To Brown Potatoes Under Meat.—Boil some fine, large, mealy potatoes; take off the skins carefully, and about an hour before the meat is cooked put them in the dripping pan, having well dredged them with flour. Before serving, drain them from any grease, and serve them up hot.

Hang up Pictures.

Any observing person will notice a great difference in people in the matter of furnishing or decorating their houses with pictures. Nothing adds more to the general appearance of a room than a tasty adornment of the walls with articles of this kind, whether they he photographs, chromos, engravings or oil paintings. And yet how often do we find parlors furnished with the costliest of carpets, curtains and furniture, where the walls are as bare as a side-walk, and and ahout as suggestive in all that pertains to matters of art and refined taste. There is evidence of wealth, hut at the same time au utter lack of that appreciation of the way in which it should he used that it may render the greatest amount of return in all that redounds to culture and esthetic taste. It reminds one of the harbaric splendor and show; of a wish to astonish rather than to charm; of great opportunities with feeble realizations of the fact. On the other hand, many a humhle home, never guilty of entertaining a Brussels carpet or a marble top table, has such an attractive look, as one opens the door, that it seems like seeing the face of an old friend, and almost wholly because it is so tastily furnished with pictures, in appropriate positions, well fitted to tho general size and hight of the room. There is a cosy air about the surroundings which makes one seem at home, and a different feeling is imparted from that felt where there is more wealth exhibited, but less culture.

There is no excnse for a lack of picturcs of some sort, for the cheapness of engravings and chromos place them within the reach of the poorest. It is not necessary that they should bo oil paintings, or in expensive framcs; even the cheaper chromos, or an engraving, or perchanco a delicately tinted water sketch or crayon, may be more appropriate as compared with the furniture than one more expensive. But in these days when tho engraver aud lithographer have scattered the choice productions of their handicraft so cheaply all over the country, there is hardly any reasou why even the humhlest home may not have a variety of attractivo pictures hung upon the walls to break the dull monotony of white plaster, or the stereotyped figures of paper hangings. And in tho more luxurious furnished parlors, there is no excuse for a lack of pictures, save a want of proper taste in the occupants, which may be, let us charitably hopo, more their misfortune than their fault.—*Cabinet Maker.*

Our Beds.—Cousidering that ahout a third of our lives is passed in our beds, they deserve much more attention than they get. France has long been in advance of the rest of the civilized world in this respect, having really paid as careful attention in excellence in this respect as to that in cookery. The grand secret of the superiority of French bedding is to be found not merely in the existence of good spriugs and well-filled mattresses, but in the fact that these mattresses are pulled and re-made annually. This is the reason why beds in other countries are generally such a mockery of the Freuch beds, which they are intended to imitate. French houses usually have a court-yard behind, in which carpets are beateu and various other domestic business is transacted, and here in fine weather may be seen the practice of mattress etuffing. An old mattress, on which heavy bodies have lain for a series of years, hecomes, no matter how well filled with horse hair, nearly as springy as street-car cushions. If you want a comfortable bed, here is the unfailing receipt: First, very good springs; secondly, a thick hair mattress over them; thirdly, a thick wool mattress over that. Both mattresses should be remade every two years.

Poached Eogs.—These are often brought to the table sloppy with water, the yolks salvy and broken, and the whole in a mussy state. The right way to do is to have the water in the flat-hottomed dish or spider, boiling, and then place it on the top of the stove where it will keep at that heat hut not boil a particle. Break the eggs one by one and turn them into the water carefully, so as to keep them in nice form, the water being about an inch or two deep. Let the eggs remain two minutes, then lift each one out on a small skimmer and place them neatly side hy side on a platter or on toast; and they will be handsome on the table, as well as taste deliciously.

Wafer Gingerbread.—Half a pound of flour, and half a pound of the coarsest brown sugar, quarter of a pound of hutter, one desertspoonful of allspice, two ditto of ground ginger, the peel of half a lemon grated, and the whole of the juice; mix all these ingredients together, adding ahout half a pound of treacle, so as to make a paste sufficiently thin to spread upon sheet tins; heat it well, hutter the tins, and spread very thinly over them; hake it in rather a slow oven, and watch it till done. Withdraw the tins, cut it in squares with a knife the usual size of wafer biscuits, and roll each around the fingers as it is raised from the tin.

The Bedding of the Dutch workingman, says the *English Mechanic*, iu an interesting article on Dutch industry, is made up of kapok, a silky fibre from the tree gourd of a tree known in the Indies. From the seed is obtained oil, and cattle are fed with the refuse. Neither moths or vermin will attack this material, and hence the Dutch are helped by Nature in keeping their households wholesome.

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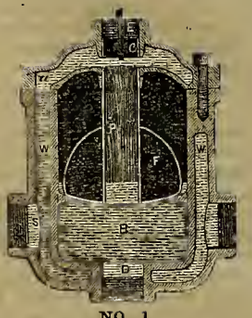

NO. 1.

The annoxed engravings represent a Condenser intended to he attached to the ordinary steam pump, therehy bringing it within the claas of low pressure, or more properly apeaking, of condensing engines; the steam, when it haa done its work in the cylinder, instead of hcing exhausted into the atmoephere, is conducted to the condenser, on its entry into which, it meets the watar drawn hy the pump, and ie immediately condensed.

The Cut No. 1 representa a vertical section of the Condenser, and No. 2 an elevation.

The flange D is bolted to the suction orifice of the pump, and the flange S to the pipe leading to the well, or whatever source of aupply the pump may have; W is a water jacket surrounding the main chamber of the condenaer, B, and with which the suction pipe, S, communicatea, permitting a free circulation of water within the jacket and into the hollow cover or top through the aeries of openinge, one of which is ehown at A, and from thence into the body of Condenser, B, through pipe P, carried hy float F; the pipe P also acts autom.atically as a valve to enlarge or contract the apace through which the water enters it, hy which means the possibility of the condenser being at any time flooded is avoided. The pipe P, it will he observed, also acts as guide to float F.

The valve, O, (shown in Cut No. 1), which is raised or lowered hy means of screwed stem—shown coming through olhow in Cut No. 2—is for the purpose of increasing or decreasing the flow of water according to the capacity of the pump to which it is attached.

NO. 2.

The exhaust pipe from steam cylindcr is screwed into cover at E; the exhaust steam is thus thrown directly into contact with the water entering the condenser on its way to water cylinder of pump through D. A vacuum being of course immediately formed, acts on the exhaust aide of the steam pieton, aiding it in its work. If at any time it ie desirable to run the pump without the condenser, it is only neceasary to turn the three-way cock, which ia placed in the exhaust pipe into euch a position aa to eause the steam cylinder to exhanst into the atmosphere; when this ia done the pump ia perfectly free from the condenser, and acts aa if it were not attached. Thia condenser ie specially useful for pumps running in mines, or any other position where trouhle is experienced in getting rid of the exhaust steam. Addresa H. L. BREVOORT,

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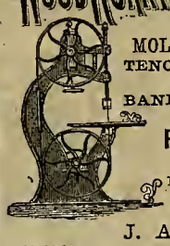

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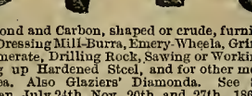
Fig. 1 *Fig. 2* *Fig. 3* *Fig. 4*



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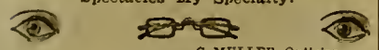
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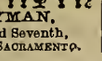
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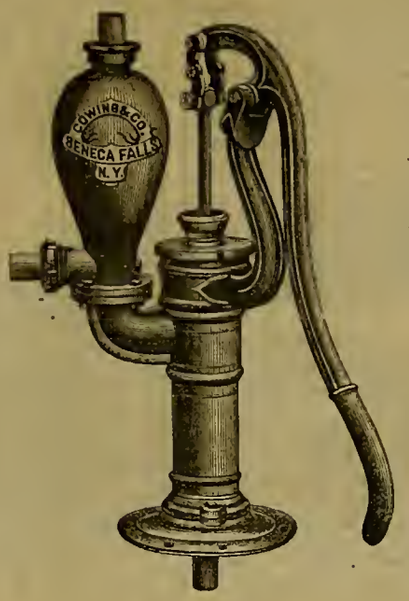

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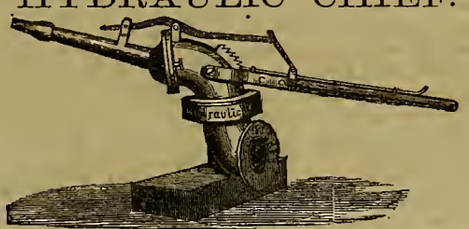
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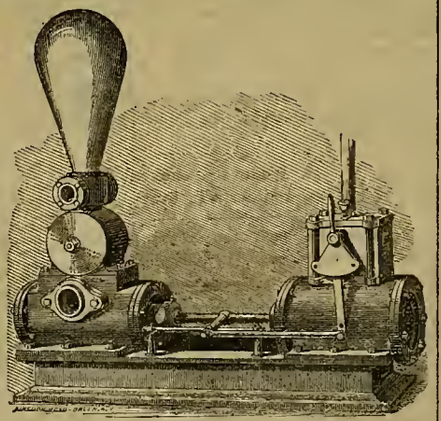
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FOR THE WEEK ENDING APRIL 16TH, 1872.

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LAMP BRACKET AND REFLECTOR.—Emil Boesch, S. F., Cal.

FORMING BLOCKS FOR PAVEMENTS.—George L. Eagan, S. F., Cal.

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A great deal of attention is being turned to the new African Diamond fields and numberless adventurers from all parts of the world are going there. We gave, in a recent issue a detailed description of the diamond fields, the proper route by which to go, expenses of living, transportation, etc., and now invite the attention of some genius to overcome a difficulty that exists there, in the matter of properly crushing the matrix of the diamond. The earth in which they are found, of which there are several specimens to be seen in this city, is a whitish cement like formation, which is easily redneed to a powder by a blow. It occurs in pockets of considerable superficial area which are scattered about at short distances apart all over the country. These deposits are enclosed in slaty rocks which sometimes "crop out."

The method of mining is by sinking a shaft as far as pay dirt is found, and some of the shafts have been sunk as deep as 70 feet. The cement is raised and carried to a sorting table where it is pulverized by hand, hy means of wooden mallets, care being taken not to injure the diamond in the operation. This pnlverized material is spread out and scanned carefully for the precious gems and the miner may consider himself fortunate if he finds one small one in a week. Sharp-sighted men have the best chance.

Now one of the inventions needed is a machine hy which this cement can he crushed to not less than one thirty-second of an inch in size, and that can he run by horso-power or hand. It must also effect the object desired without injury to the diamonds contained in the cemeut. The cement is a little more adhesive than dried mortar. The other invention wanted is a separating machine which shall require no water and at the same time he reliable. The river diggings have all been exhausted and the present fields are dry. Here is a chance for some of our California inventors to exercise their ingenuity and perpetuate their names. Who shall it he?

DEVIL'S INK.—We have received the following in a drop letter through the S. F. post office. It appears to be the handwriting of the eminent Boston scientist whose name is appended to it. The substance referred to, and of which the analysis is given, is what is popularly known as the "Devil's Ink," obtained at the Geysers near Calistoga, in Napa county:

One hundred grains of this ink yielded an analysis (per cent).

Water	84.3
Sulphuric acid and sulphur	1.3
Protosulphide of iron	2.8
Silica	10.3
Alumina	1.2
Soda, a little lime and loss	0.1
	100.0

The black color of this iuk is produced by precipitated protosulphide of iron, throwu down by an alkaline sulphide, probably of soda. C. T. JACKSON.

Boston, Fcb. 4th, 1872.

MINING intelligence from Trinity and Siskiyou counties is encouraging.

MINING SALES.—According to the Quincy *National*, it is again rumored that the Eureka mine has been sold to an English company for $1,000,000. The *National* puts little faith in the report, hut says that negotiations for some such trade are pending, and will probahly he perfected as soon as the title can he secured by patent.

The Conrad ditch property, at Jenny Lind, has been sold, it is said, to Craig & Co., of this city, and the ditch is to be enlarged to suit the increasing gravel mining interests of that locality.

The sum of $80,000 has been paid by Col. D. E. Buel, of Salt Lake, for a gold mine at San Gahriel, Lower California.

Jas. Southal has sold his interest in the Virginia mine, at Yankee Blade, for $2,000.

The Rattlesnake gulch claims have been sold to Richards, Yeates & Larison, and water will he put upon them from the Plumas ditch.

It is rumored that the Mammoth mine, at Jamison, has changed hands.

The Quincy *National* says that the Hungarian Hill claims aro ahout to be sold to capitalists in this city. No figures given.

PEACE RIVER MINES.—The Deer Lodge *Independent* has received a letter from a correspondent at Peace River in which he says that prospecting there is like looking for gold in the Arctic regions. The gold is scatered all over the country but thinly sown. Some few men are making money but the majority are not. The writer advises all who can make a living elsewhere not to go to Peace River. The old story of rash excitement on uo firm basis. Lots of gold till you get there and then it is "thinly sown." But prospecters will seldom listen to reason and advice but want to see for themselves; and they generally do see, often to their sorrow.

A CIRCULAR has been issued inviting subscriptions for 45,000 shares in the Great Western Telegraph Company, which proposes to lay telegraph cables direct from England to New York, and thence to the West Indies. Shares aro twenty pounds each. The total capital of the company is fixed at £1,350,000. The Messrs. Hooper will make and lay the cahles for £1,330,000.

THE contract for constructiug the Canadian North Shore Railroad has been awarded to Messrs. Dunlap, Smith & Keith, of Chicago, who competed with Canadian and English firms for the job. The road is to cost $7,000,000, and be completed in 1875.

CALIFORNIA MACHINERY FOR THE EAST.—Mr. J. Hendy, of this city, is now filling an order for one of his ore concentrators for a Cincinnati firm, to be used for concentratiug iron ore.

CAPTAIN HALL has been heard from. He was in Greeuland in the Polaris and all reported well.

MR. W. H. WEBB the eminent shipowuer and ship-builder is in town.

DURING the past ten years Montana mines produced over $120,000,000.

NEW AND VALUABLE BOOK ON MINING.—The "Explorers', Miners' and Metallurgists' Companion."—By J. S. Phillips, M. E., of SanFrancisco; Dewey & Co. This book has becu written especially for practical men, to supply a demand and meet their daily requirements for useful working purposes, in the exploration, mining and reduction operations of new countries; and for such men, it is by far the most comprehensive, preeminently practical and valuahlo work that we have seen. It is, however, just as useful to the mining capitalists as for those to whom it has been dedicated, for the author has so fully exposed the many errors of the past and present, (more especially those caused by the mere thereorist) with his fearless, practical pen, that consequent benent must result therefrom in the future mining operations of this country. The knowledge obtained from his long and thoughtful experience is consecutively well arranged, and every subject is treated in plain stylo with language familiar to ordinary readers; all the sections of mineralogy, exploration, assaying, mining and metallurgy aro teeming with appropriate originality, and contain vast quantities of useful information not found elsewhore; whilst the writer has shown an intimate knowledge of all the numerous subjects treated, and has fully sustained the title, by supplying a most efficient *companion* to the miner and metallurgist.—[S. F. Republican.

Daily Weather Record,

BY THE U. S. ARMY SIGNAL SERVICE, FOR THE WEEK ENDING WEDNESDAY, APRIL 24, 1872.

Place of Observation.	Date.	Observation taken at A. M.	Hight of Barometer.	Thermometer.	Rel. Humidity.	Direction of Wind.	Vel. of Wind, Miles per Hour.	Force of Wind, Scale in Beaufort's Scale.	Amount of Lower Cloud.	Rainfall since last Report.	State of Weather.
San Fran'co.	Thu...18		30.02	53	93	S. E.	14	Fresh			Cloudy
	Fri...19		30.04	54	86	W.	8	Fresh	4-4		Cloudy
	Sat...20		30.14	50	79	Calm					Clear
	Sun..21		30.14	50	79	Calm					Clear
	Mon..22		30.16	51	79	Calm					Hazy
	Tu...23		29.99	51	86	S. W.	18	Brisk			Clear
	Wed..24		29.97	47	82	W.	18	Brisk			Clear
San Diego.	Thu...18		30.15	46	92	E.	4	Light	1-4		Fair
	Fri...19		30.12	54	53	Calm					Clear
	Sat...20										
	Sun...21										
	Mon..22										
	Tu...23										
	Wed..24										
Virg's, M. T.	Thu...18										
	Fri...19										
	Sat...20										
	Sun...21		29.95	19	38	Calm					Clear
	Mon..22		29.84	34	98	N.W.	1	Light	4-4		Cloudy
	Tu...23		29.61	54	51	Calm			1-2		Cloudy
	Wed..24		29.44	29	50	E.	4	Gentle			Cloudy
Cornne.	Thu...18		30.10	24	79	N.W.		Gentle			Cloudy
	Fri...19		30.06	35	70	N.W.	3	Light			Cloudy
	Sat...20		30.11	36	51	W.	20	Brisk			Cloudy
	Sun..21		30.33	32	50	N.W.	6	Fresh			Fair
	Mon..22		30.23	32	70	N.W.	6	Fresh	4-4		Cloudy
	Tu...23		30.04	37	71	N.W.	6	Fresh			Fair.
	Wed..24		29.75	39	35	S.	15	Brisk			Cloudy
Cheyenne.	Thu...18		30.00	32	69	N.W.	4	Gentle	1-4		Clear
	Fri...19		29.92	37	83	W.	7	Fresh	1-2		Fair
	Sat...20		29.82	37	53	N.W.	13	Fresh			Fair
	Sun..21		30.21	20	60	N.W.	3	Light			Clear
	Mon..22		30.15	37	64	W.	2	Light	1-2		Clear
	Tu...23		29.94	44	37	N.W.	8	Fresh			Cloudy
	Wed..24		29.75	40	48	N.W.	3	Light			Cloudy
Denver.	Thu...18		30.04	36	55	Calm					Fair
	Fri...19		29.99	38	83	S.	5	Gentle			Clear
	Sat...20		29.86	37	53	N.	4	Gentle			Fair
	Sun..21		30.27	28	65	S. E.	6	Fresh	1-4		Fair
	Mon..22		30.19	30	63	S.	2	Light			Cloudy
	Tu...23		29.97	52	38	S. W.	7	Fresh	1-4		Fair
	Wed..24		29.72	50	32	Clear					Cloudy
Omaha.	Thu...18		29.89	41	91	N.W.	14	Fresh	4-4	.08	Cloudy
	Fri...19		29.77	60	77	Calm					Fair
	Sat...20		29.55	52	73	S. W	15	Brisk			Fair
	Sun..21		30.07	40	73	N.W.	20	Brisk	1-2		Cloudy
	Mon..22		30.25	38	63	S.W.					Clear
	Tu...23		29.72	52	38	S. W.	8	Fresh	1-4		Cloudy
	Wed..24		29.63	58	47	S. W.	7	Fresh	1-4		Fair
Davenport, I	Thu..18		29.77	42	91	N.	13	Fresh		.13	Cloudy
	Fri...19		29.86	46	68	S. W.	3	Light			Clear
	Sat...20		29.76	52	72	W.	1	Light			Clear
	Sun..21		29.84	47	53	N.W.	40	Gale		.18	Lt. Rain
	Mon..22		30.40	34	70	N.W.	3	Light			Clear
	Tu...23		29.95	47	55	S.	13	Fresh	1-4		Cloudy
	Wed..24		29.86	54	58	S.W.	4	Gentlo			Hazy

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

ASSESSMENTS.

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	DAY DELINQUENT.	DAY OF SALE.
Alpha S. M. Co., Nev., March 1, 75c.	....April 9	—April 30
Buckeye M. Co., Nev., Mar. 23, $1.25.	....April 26	—May 15
Cons. Virginia M. Co., Nev., Mar. 19, $3.	Apr. 24	—May 18
Daney M. Co., Lyon Co., April 3, $1.50.	..May 9	—May 27
Francis M. Co., Cal., April 5, $1.	.....May 14	—June 4*
Golden Chariot, Idaho T., April 12, $1.50.	May 22	—June 18
Grand Duke M. Co., U. T., Mar. 5, 25c.	.April 15	—May 15
Ida Elmore, Idaho, March 5, $3.	.....April 11	—May 10
Ingomar S. M. Co., Ely, April 2, 25c.	.... May 8	—May 31*
Hunh & Hunt S. M. Co., Nev., Mar. 20, 25c.	.Apr. 29	–May 27
Jackson M. Co., Nev., April 3, 25c.	.....May 6	—May 25
Julia G. & S. M. Co., Nev., April 22, $5.	May 25	—June 15
Kincaid Flat, W. P., April 23, $3.	.....May 27	—June 17*
Knickerbocker, M. Co. Nev., Mar. 23, 50c.	Apr. 27	—May 17
Lemon M. and M. Co., Eureka, Apr 1, $1.	May 7	—June 12
Louise M. Co., Nevada, April 6, 10c.	....May 14	—June 10
Lyons & Wheeler Co., A. T., April 6, 10c.	May 15	—June 3*
Magnolia S. M. Co., Nev., April 22, 25c.	May 25	—June 20
Mahogany M. Co., I. T., April 3, $1.50.	..May 11	—June 3
Marcelina S. M. Co. Mar. 8, 10c.	.....April 15	—May 7*
Mt. Jefferson M. Co., Cal., Apr. 3, 30c.	May 6	—May 22*
Nevada L. & M. Co., Nev., March 28, 4c.	.May 2	, May 24*
Nuestra Senora de Guadalupe, May 12, $2.	Ap 15	—May 8*
Ophir S. & G. M. Co. Cal. Mar. 18, 20c.	.April 20	—May 7
Ophir S. M. Co., Nev., April 17, $5.	.....May 22	—June 13
Overman S. M. Co, Gold Hill, Mar. 18, $4.	Apr. 13	—May 13
Page & Panaca, Nev. April 12, 50c.	.....May 20	—June 15
Peter Walker M. Co., Placer Co., Mar. 11, $1.	Apr. 18	—May 6
Phœnix S. M., Nev., Mar. 19, 75c.	.....April 24	—May 15
Piermont M. & M. Co., April 16, 40c.	.. May 20	—June 19*
Pocahontas G. M. Co., Cal., Feb. 25, $5.	.April 6	—May 6*
San Buenaventura Co. Cal., Jan. 19, $1.	Feb. 29	—Mar. 29
Siempre Viva Co., Mex., Mar. 25, 30c.	...May 2	—May 20*
S. Gold Hill M. Co., Nev., Apr 1, $2.50.	..May 6	—May 27
S. F. M. Co., Utah Ter., April 13, 25c.	..May 15	—Juoe 8*
Silver Wave, W. P., Nev. Apr. 10, 50c.	May 14	—June 13*
Spring Mt. Tunnel Co., April 11, 15c.	..May 20	—June 10*
Succor M. & M. Co., Nev., Mar. 20, $2.	April 23	—May 15
Sumner, Kern Co., April 11, $10.	.....May 22	—June 21
Tallulah M. Co., Nev., April 5, $1.50.	....May 7	—June 4
Tecumseh G.S. & C.M.Co. Cal. Mar. 20,	$3. Apr. 23	—May 14*
Union G. M. Co., Cal., April 11, $1.	.....May 13	—June 3*

MEETINGS TO BE HELD.

Adams Hill Con. M. Co.	.....Annual Meeting, May 6
Baltimore M. Co.	.....Annual Meeting, April 29
Belcher S. M. Co.	.....Special Meeting, May 24
Best & Belcher M. Co.	.....Meeting May 13
Cayuga Chief.	.....Annual Meeting, May 6
Central Coal M. Co.	.....Annual Meeting, May 6
Consolidated Virginia.	.....Special Meeting, May 20
Cotopaxi S. M. Co.	.....Annual Meeting, May 5
Empire M. Co.	.....Annual Meeting, May 13
Eureka M. Co.	.....Annual Meeting May 7
Golden Age & Empire M. Co.	...Annual Meeting, May 27
Grane M. Co.	.....Annual Meeting, April 27
Gold Canon Cons. M. Co.	.....Annual Meeting, April 29
Hale & Norcross.	.....Special Meeting, May 30
Independent G. M. Co.	.....Meeting May 8
Independence.	.....Annual Meeting, May 5
Noonday M. Co	.....Annual Meeting, April 29
Oncida M. Co.	.....Annual Meeting, May 6
Orient S. M. Co.	.....Annual Meeting, May 13
Original Hidden Treasure M Co.	...Annual Meet, May 7
Peavine S. M. Co.	.....Annual Meeting, May 13
Pioche S. M. Co.	.....Annual Meeting, May 6
Sierra Butto M. Co.	.....Annual Meeting, May 5
Spring Mountain Tunnel Co.	....Annual Meeting May 9

LARGEST DIVIDENDS—(Within Three Months).

Belcher, $20.	.....Payable April 10
Chollar Potosi, $1.	.....Payable Feb. 10
Crown Point, $25	.....Payable April 12
Eastport, Coose Bay, Coal M. Co.	1 per ct. Payable Feb. 12
Eureka Gold M. Co., $1.	.....Payable March 11
Keystone M. Co., $7.50.	.....Payable April 10.
Meadow Valley M. Co., $1.50.	.....Payable April 13
North Star G. M. Co., $7.	.....Payable April 9
Raymond & Ely, $5.	.....Payable March 8
Raymond & Ely M. Co., $7.	.....Payable April 9
Yule Gravel M. Co., 50c.	.....Payable April 10

—*Advertised in this journal.

State University.—The next term of the Preparatory Department will begin April 20th, 1872.

The course of study embraces the Ancient and the Modern Languages and the higher Mathematics, and is specially adapted to the University curriculum.

Terms, $12 a term. GEORGE TAIT, Oakland.
13v3bp-tf

San Francisco Metal Market.

Corrected weekly by Hooker & Co., 117 and 119 Cal. street

PRICES FOR INVOICES

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

THURSDAY, April 25, 1872

IRON.—			
Scotch and English Pig Iron, ₱ ton	35	00 @	60 00
White Pig, ₱ ton	52	00 @	— —
Refined Bar, bad assortment, ₱ lb	—	05½ @	— 06
Refined Bar, good assortment, ₱ lb	—	06 @	— 07
Boiler, No. 1 to 4	—	05 @	— 06
Plate, No. 5 to 9	—	06 @	— 09
Sheet, No. 10 to 13	—	06½ @	— 07
Sheet, No. 14 to 20	—	07 @	— 09
Sheet, No. 24 to 27	—	08 @	— —
Horse Shoes	8	00 @	— —
Nail Rod		11	— —
Norway Iron		9	— —
Rolled Iron		5	— —
Other Irons for Blacksmiths, Miners, etc.		6 @	7
COPPER.—			
Sheathing, ₱ lb	—	24 @	— 28
Sheathing, Yellow	—	24 @	— 25
Sheathing, Old Yellow	—	11 @	— 11½
Composition Nails	—	24	— —
Composition Bolts	—	24	— —
TIN PLATES.—			
Plates, Charcoal, IX ₱ box	12	00	— —
Plates, I C Charcoal	10	00	10 50
Roofing Plates	11	00	— —
Banca Tin, Slabs, ₱ lb	—		— 45
SPELTER.—English Cast, ₱ lb	—	16	— 17
Drill		16	17
Flat Bar		17	20
Plough Points	3	75	— —
Russia (for mould boards)		12½	— —
QUICKSILVER.—₱ lb	—	—	— 85
LEAD.—Pig, ₱ lb	—	06	— 05½
Sheet	—	08	— 8½
Pipe	—	9	— 10
Bar	—	08	— 09
ZINC.—Sheets, ₱ lb	—	10	— 10½
BORAX.—Refined	—	25.	30
Borax, crude	—	5	— —

Leather Market Report.

[Corrected weekly by Dolliver & Bro., No. 109 Post st.]

SAN FRANCISCO, Thursday, April 25, 1872.

SOLE LEATHER.—The demand is still equal to the supply, and prices still continue firm.

City Tanned Leather, ₱ lb	26@28
Santa Cruz Leather, ₱ lb	26@29
Country Leather, ₱ lb	25@28
Stockton Leather, ₱ lb	26@29

French skins are firmer with an advance in some grades. Heavy California skins are firm, with an upward tendency.

Jodot, 8 Kil., per doz	$80 00@
Jodot, 11 to 19 Kil., per doz	76 00@ 90 00
Jodot, second choice, 11 to 15 Kil. ₱ doz	60 00@ 76 00
Lemoine, 16 to 18 Kil. ₱ doz	75 00@ 77 50
Levin, 12 and 13 Kil., per doz	68 00@ 70 00
Cornellian, 16 Kil., per doz	70 00@
Cornellian, 12 to 14 Kil., per doz	60 00@ 68 00
Crown Calf, ₱ doz	84 00@
Simon, 18 Kil., ₱ doz	65 00
Simon, 20 Kil., ₱ doz	68 00
Simon, 24 Kil., ₱ doz	72 00
Robert Calf, 7 and 8 Kil	35 00@ 40 00
French Kips, ₱ lb	1 00@ 1 30
California Kip, ₱ doz	60 00 to 60 00
French Sheep, all colors, ₱ doz	15 00
Easterri Calf for Backs, ₱ lb	1 15@ 1 25
Sheep Roans for Topping, all colors, ₱ doz	9 00@ 13 00
Sheep Roans for Linings, ₱ doz	5 50@ 10 50
California Russett Sheep Linings	1 75@ 5 50
Best Jodot Calf Boot Legs, ₱ pair	5 25
Good French Calf Boot Legs, ₱ pair	4 50@ 5 00
French Calf Boot Legs, ₱ pair	4 00
Harness Leather, ₱ lb	30@ 37½
Fair Bridle Leather, ₱ doz	48 00@ 72 00
Skirting Leather, ₱ lb	34@ 37½
Welt Leather, ₱ doz	30 00@ 50 00
Buff Leather, ₱ foot	18@ 21
Wax Side Leather, ₱ foot	18@ 20

A NEW BOOK ON MINING.

The Explorers', Miners' and Metallurgists' Companion; Comprising a Practical Exposition of the Various Departments of Exploration, Mining, Engineering, Assaying, and Metallurgy. The Most Practical and Comprehensive Work on Mining Subjects Extant. Comprising 640 Pages and 81 Engravings. By J. S. Phillips, M. E. Price, bound in cloth, $10 (in coin); in leather, $12. Forwarded by mail, in cloth, $11.40, currency; in leather, $13.75. Issued and for sale by DEWEY & Co., Patent Agents and Publishers Scientific Press, S. F.

RICHARD H. BUEL, Consulting Mechanical Engineer, 7 Warren Street, New York. Advice and assistance given to those who desire to invest funds in meritorious and valuable Patent Rights. Machinery of all kinds bought and sold. Unusual facilities for testing engines, boilers and other machinery. I refer particularly to Professor R. H. Thurston, of the Stevens Institute of Technology, who has consented to associate himself with me in consultation on matters of special importance. 10v24-13t

$5 TO $20 PER DAY AND NO RISK.—Do you want a situation as salesman at or near home to introduce our new 7-strand White Wire Clothes Lines, to last forever. Don't miss this chance. Sample Free. Address Hudson River Wire Works, 75 William street, N. Y., or 1 Dearborn street, Chicago, Ill. 23v1-12mbp

LADIES DESIRING TO PROCURE A FIRST-CLASS SEWING Machine against easy monthly installments may apply to No. 294 Bowery, 157 E. 26th, 477 9th Ave., New York Good work at high prices if desired. 21v1-12mbp

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

FAIRBANK'S.

WEIGH

on

Wagons,

HAY,

ORE,

COAL,

Etc.

THE UNITED STATES

STANDARD.

6,000 to 40,000 Pounds Capacity.

THE SAME SCALE IS USED FOR WEIGHING CATTLE, HOGS, ETC.

Scales of every kind. Address

FAIRBANKS & HUTCHINSON,

125 California street, San Francisco.

Agents for MILES' ALARM MONEY DRAWERS. 17v3-cowbp5m

BUY BARBER'S BIT BRACE.

Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the Scientific Press we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

Francis Mining Company—Location of works, Mariposa County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 6th day of April, 1872, an assessment of one dollar per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary of the company, 409 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 14th day of May, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 4th day of June, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale.
By order of the Board of Trustees.
T. J. CRONISE, Secretary.
Office, 409 California street, San Francisco, Cal.

Ingomar Silver Mining Company—Location of works, Ely Mining District, Lincoln County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 2d day of April, 1872, an assessment of 25 cents per share was levied upon the capital stock of said company, payable immediately, in U. S. gold coin, to the Secretary, at the office of the company, Room 21, Hayward's Building, 419 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Wednesday, the 8th day of May, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Friday, the 31st day of May, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale.
By order of the Board of Trustees.
CHAS. S. NEAL, Secretary.
Office, Room 21, Hayward's Building, No 419 California street, San Francisco, California. ap8-tt

Kincaid Flat Mining Company—Location of works, Tuolumne County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 23d day of April, 1872, an assessment of Three Dollars per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, No. 220 Clay street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 27th day of May, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 17th day of June, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.
R. H. CORNELL, Secretary.
Office, No. 220 Clay street, San Francisco, Cal. ap27-4w

Lyons & Wheeler Mining Company—Location of works, Maynard Mining District, Mohave County, Arizona Territory.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 6th day of April, 1872, an assessment of Ten Cents per share was levied upon the capital stock of said Company, payable immediately, in United States coin, to the Secretary, at the office of the company, Room 3, No. 419 California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on Wednesday, the 15th day of May, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 3d day of June, 1872, to pay the delinquent assessment, together with the costs of advertising and expenses of sale. By order of the Board of Trustees.
T. W. COLBURN, Secretary.
Office, Room 3, No. 419 California street, San Francisco, California. ap13

Marcelina Silver Mining Company.—Location of Works: Eureka District, Lander County, Nevada.

Notice—There are delinquent upon the following described stock, on account of Assessment (No. 2) levied on the Eighth day of March, 1872, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Am't.
Cunningham, P. P.	22	200	$20 00
Cunningham, P. P.	23	100	10 00
Quinlan, P. B.	56	50	5 00
Worland, C. R.	58	1000	100 00

And in accordance with law, and an order of the Board of Trustees, made on the Eighth day of March, 1872, so many shares of each parcel of said Stock, as may be necessary, will be sold at public auction at the office of the company, Room 21 Haywards Building, 419 California Street, San Francisco, Cal., on the 7th day of May, 1872, at the hour of 2 o'clock, P. M., of said day, to pay said delinquent Assessment thereon, together with costs of advertising and expenses of sale.
CHAS. E. ELLIOT, Secretary.
Office, Room 21, Hayward's Building, 419 California street, San Francisco, California.

Mount Jefferson Milling and Mining Company—Location of works, First Garote, Tuolumne County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 3d day of April, A. D. 1872, an assessment of Thirty Cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company. Any stock upon which said assessment shall remain unpaid on Monday, the 6th day of May, A. D. 1872, shall be deemed delinquent, and will be duly advertised for sale, at public auction, and unless payment shall be made before, will be sold on Wednesday, the 22d day of May, A. D., 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale.
By order of the Board of Trustees. J.W. CLARK, Sec'y.
Office, 418 California St. San Francisco. ap13-4w.

Nevada Land and Mining Company—Location: Spruce Mountain, Antelope and Clifton Mining Districts, Elko County, State of Nevada

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 26th day of March, 1872, an assessment of four cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the Co.'s office, Room 5, No. 302 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Thursday the 2d day of May, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Friday the 24th day of May, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees
WM. H. WATSON, Secretary.
Office—Room 5, No. 302 Montgomery st., San Francisco, Calif. rnia. mar30-td

Nuestra Senora de Guadelupe Silver Mining Company.—Location of Works, Tayoltita, San Dimas District, Durango, Mexico.

NOTICE.—There are delinquent, upon the following described Stock, on account of Assessment levied on the 12th day of May, 1869, and re-levied on the 8th day of March, 1872, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No of certificate.	No. shares.	Amount.
Thomas Brennan	163	10	$20 00
Henry Beck	34	5	10 00
Henry Beck	81	5	10 00
Valentin Gassner	71	30	60 00
L. Rosenfelder	114	6	12 00
L. Rosenfeldor	184	10	20 00
H. Schumaker	84	5	10 00

And in accordance with law, and an order of the Board of Trustees, made on the 8th day of March, 1872, so many shares of each parcel of said Stock as may be necessary, will be sold at public auction at the salesroom of Maurice Dore & Co., No. 327 Montgomery St., on Wednesday the eighth day of May, 1872, at the hour of 11 o'clock, A. M., of said day, to pay said deliuquent assessment, thereon, together with costs of advertising and expenses of sale.
E. J. PFEIFFER, Secretary.
Office—No. 210 Post Street, San Francisco.

BONNEY'S PATENT HAY RAKE.

The only Rake that gathers all the hay upon the roughest as well as upon the smoothest ground, free from dust and dirt, and does not roll and wad it together. Has extension teeth to preserve its holding capacity, giving it a very great advantage over those of stationary teeth.

First Premium at the State Fair. Every Farmer Should Have One.

PATENT GRAIN LIFTERS,

For use on Headers in cutting Grain thrown down by the Wind or Rain.

The Cheapest and Best in the Market.

Are Light, Strong and Durable, and can be adjusted to run at any inclination to the ground, as at D in cut. A party can save more than the price of a set additional, in cutting grain that is down, in one day's run.

Manufactures also Draper Aprons, Grain Carriers, Straw Carriers and Farming Implements generally, all of the best material and workmanship.

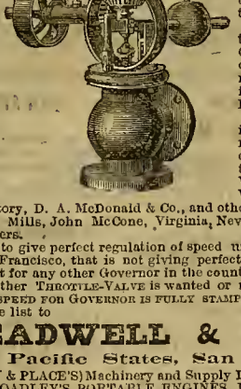
Also, Wood-working Machines, such as Band Saws, Circular and Jig Saws, Shaping Machines, etc.

Improved Pattern of Band Saws, equal to the high priced Eastern Saws, in work, at one-half the cost. Warranted to give satisfaction.

All orders to O. BONNEY, Jr., 221 Mission Street, San Francisco, Promptly attended to.
State and County Rights for Grain Lifter sold by WIESTER & CO.,
8v3-1am6m No. 17 New Montgomery street (under Grand Hotel), San Francisco.

THE GARDNER AUTOMATIC SAFETY-STOP GOVERNOR.

These Governors have now been sold in this market for several years, and wherever once introduced and made known, are invariably sought after. They are in the Eastern States fast displacing all other Steam Governors, and are regarded as *the perfect regulator*. They are manufactured by Messrs. Gorchur & Robertson, practical engineers, who have given many years time exclusively to their manufacture and perfection. The manufacturers say: After an experience of eleven years in the manufacture of the above Governor, during which time several important improvements have been made and two additional patents obtained, we feel justified in recommending it to all parties using Steam power, and warranting it to be the most perfect regulator in the market.



The Gardner Governor is so well known that we think it unnecessary to enter into a detailed explanation of the principles involved, or details in its construction, merely giving the leading objects realized by this important invention. The Governor combines with the greatest simplicity of construction, accurate regulation of speed, POSITIVE INSURANCE AGAINST ALL ACCIDENTS LIABLE TO OCCUR FROM SLIPPING OR PARTING THE GOVERNOR OR DRIVING BELTS, and a convenient arrangement for ADJUSTING THE SPEED OF THE ENGINE WHILE IN MOTION, without change of pulleys.

The construction of the Governor is extremely simple, having no springs, inside joints, swivels, or parts liable to disarrangement, all the several parts are duplicates of each other in the same series; the most skillful workmen are employed, the best material used and the machinery employed especially adapted to their manufacture. The valve is most PERFECTLY BALANCED, and the Governor is built with a view of securing the quickest and most sensitive action possibly attainable in a steam regulator. Thus with accurate machinery, and skilled labor, and devoting our WHOLE ATTENTION to the manufacture of THIS ONE ARTICLE, we are able to produce a perfect and reliable Governor at a low price.

We do not publish any letters of recommendations, but can give references to upwards of 5,000 PARTIES THROUGHOUT THE UNITED STATES, who are using the Gardner Governor.

We would especially invite the attention of steam Engine Builders to this Governor, feeling assured that they can purchase for less than they can make an inferior article, and thereby increase the value and sales of their Engines.

We respectfully refer to the following parties using the GARDNER GOVERNOR, and can speak understandingly of its merits: Oakland Cotton Mills, the Selby Lead and Silver Smelting Works, L. & E. Emanuel, Vulcan Iron Works, Fulton Foundry, Levison Bros., Cal. Jewelry Co., Pioneer Woolen Factory, D. A. McDonald & Co., and others in San Francisco; Ophir Co., Lady Bryan, and Sacramento and Meredith Mills, John McCone, Virginia, Nev.; Globe Iron Works, Stockton; A. F. Churry, Albany, Oregon, and many others.

☞WE WARRANT these Governors to give perfect regulation of speed under all circumstances; and if there is one within one thousand miles of San Francisco, that is not giving perfect satisfaction, it may be returned to us at our expense, and we will exchange it for any other Governor in the country, or refund its price.

☞When ordering please state whether THROTTLE-VALVE is wanted or not; and whether BLOCK OR FINISHED Governor is desired. **THE RATE OF SPEED FOR GOVERNOR IS FULLY STAMPED ON THE REVOLVING HEAD OF EVERY GOVERNOR. Send for circular and price list to

TREADWELL & CO.,

Agents for Pacific States, San Francisco.

☞At Treadwell & Co.'s (late BERRY & PLACE'S) Machinery and Supply Depot may be found in stock the above Governors, together with all sizes of HOADLEY'S PORTABLE ENGINES, BLAKE'S STEAM PUMPS, STURTEVANT BLOWERS, PORTABLE DRILLS, TAPS AND DIES, DREYFUS'S CYLINDER LUBRICATORS, Etc. Also a heavy stock of HARDWARE AND MINING TOOLS, LEATHER BELTING, LINEN HOSE, BOILER FELT (saves 25 per cent. of fuel), SELF OILERS, LACE LEATHER, STEAM PACKING (all kinds), BELT STUDS, Etc., Etc., embracing every description of Engineers' and Machinists' supplies and Millmen's findings. 7v24-tf

Piermont Milling and Mining Company—Location of works, Piermont Mining District, White Pine County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the sixteenth (16th) day of April, 1872, an assessment of Forty Cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company. Any stock upon which said assessment shall remain unpaid on Monday, the twentieth (20th) day of May, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the nineteenth (19th) day of June, 1872, at the hour of 2 o'clock P. M. at the office of the company, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.
J. W. CLARK, Secretary.
Office, 418 California street, San Francisco. ap27-4w

Silver Wave Mining Company—Location of works, White Pine Mining District, White Pine county, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the Tenth (10th) day of April A. D. 1872, an assessment of fifty (50) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of said company. Any stock upon which said assessment shall remain unpaid on Tuesday, the fourteenth day of May, A. D. 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the Thirteenth (13) day of June, A. D. 1872, at the office of the company, at 2 o'clock P. M., to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.
J. W. CLARK, Secretary.
Office, No. 418 California street, San Francisco, Cal. ap4w

Ophir Copper, Silver and G. M. Company.—Location of Works, Ophir, Placer County, Cal.

Notice.—There are delinquent upon the following described Stock, on account of assessment levied on the 18th day of March, 1872, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. shares.	Amount.
Allen, M W	336	25	$ 15 00
Brown, Chas. F	342	7½	4 50
Bunker, G F	341	220	132 00
Brush, R G	222	100	60 00
Brush, R G	289	65	39 00
Brush, R G	290	30	18 00
Brush, R G	229	50	30 00
Brush, R G	246	38	22 80
Brush, R G	288	62	37 20
Brush, R G	291	65	39 00
Bloomer, Theo. H	252	30	18 00
Braudt, Mrs. E	315	50	30 00
Bufford, H L	315½	5½	3 30
Baum, Chas	316	100	60 00
Brush, R G, Trustee	329	100	60 00
Brush, R G, Trustee	331	50	30 00
Everson, Wallace	338	200	120 00
Garniss, Jas. R	293	100	60 00
Garniss, Jas. R	337	40	24 00
Hinckley, Geo. E	334	50	30 00
Kip, Jr. W L	337	500	300 00
Meade, G	244	25	15 00
Purdy, G W	215	50	30 00
Quade, A	299	100	60 00
Reynolds, W O	210	19	11 40
Rogers, Geo P	321	25	15 40
Swain, H C	79	137	82 20
Swain, H C	80	137	82 20
Swain, H C	238	200	120 00
Swain, H C	245	100	60 00
Swain, H C	294	50	30 00
Swain, H C	295	50	30 00
Swain, H C	296	20	12 00
Swain, H C	303	50	30 00
Swain, H C	318	50	30 00
Swain, H C	319	50	30 00
Swain, H C	320	50	30 00
Swain, H C	326	50	30 00
Swain, H C	327	50	30 00
Swain, H C	340	2½	1 50
Swain, W B	11	5	3 00
Swain, W B	10	5	3 00
Stackpole Thos	335	25	15 00
Wightman James	——	400	240 00

And in accordance with law, and an order of the Board of Trustees, made on the 18th day of March, 1872, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the office of John Middleton & Co., No. 310 Montgomery Street, on the 17th day of May, 1872, at the hour of 1 o'clock P. M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.
R. G. BRUSH, Secretary.
Office: N. E. Cor. Sansome and Halleck Streets. Entrance on Halleck Street. apr27-3w

San Francisco Tunnel and Mining Company.—Location of Works, Little Cottonwood Mining District, Utah Territory.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the thirteenth (13th) day of April, A. D., 1872, an assessment of Twenty-five (25) cents per share was levied upon the assessable stock of said company, payable immediately to the Secretary at the office of the company. Any stock upon which said assessment shall remain unpaid on Thursday, the 16th day of May, A. D., 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday the eighth (8th) day of June, A. D., 1872, at the office of the company, at the hour of 2 o'clock, P. M., to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.
J. W. CLARK, Secretary.
Office—No. 418 California street, San Francisco, California. ap2j-4w

Siempre Viva Silver Mining Co.—Location of works, District of Zaragoza, Sinaloa, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 25th day of March 1872, an assessment of 25 cents per share was levied up n the capital stock of said company, payable immediately, in U. S. gold coin, to the Secretary, at the office of the company, No. 314 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Thursday, the 2d day of May, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 20th day of May, 1872, to pay the delinquent assessment together with costs of advertising and expenses of sale. By order of the Board of Trustees.
JOHN F. LOHSE, Secretary.
Office, No. 314 California street, San Francisco, Cal.

Spring Mountain Tunnel Company.—Location of Works, Ely Mining District, Pioche, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 11th day of April, 1872, an assessment of fifteen (15) cents per share was levied upon the capital stock of said company, payable immediately in United States gold and silver coin, to the Secretary, at the office of the company, Room 3, Merchants' Exchange, California St., City and County of San Francisco, State of California. Any stock upon which said assessment shall remain unpaid on Monday the 29th day of May, 1872, shall be deemed delinquent, and will be duly advertised for sale, at public auction, and unless payment shall be made before, will be sold on Monday the 10th day of June, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.
J. M. BUFFINGTON, Secretary.
Office, Room 37, New Merchants' Exchange, California Street, San Francisco, Cal. ap20-4w

Union Gold Mining Company.—Location of works, Howland Flat, Sierra county, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 11th day of April, 1872, an assessment of one dollar ($1.00) per share was levied upon the capital stock of said Company, payable immediately in United States gold coin, to the Secretary, at the office of the Company, Room No. 22, Merchants' Exchange Building, California street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the 13th day of May, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 3d day of June, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.
ALFRED K. DURBROW Secretary.
Office—Room No. 22, Merchants' Exchange Building, California street, San Francisco, California. ap13-td

Hemp, Soapstone and Rubber **Steam Packing**

THE GARDNER GOVERNORS, STEAM AND WATER Gauges, Tube Scrapers, Cylinder Cups and Self-Oilers, Boiler Felt, Leather Belting, Lace Leather, Linen and Rubber Hose, Belt Hooks and Studs, Sheet Packing, and a general stock of Engineers' and Mill Supplies, at the Machinery and Supply Depot of TREADWELL & CO., old stand, corner Market and Fremont streets, San Francisco. 13v24-eow

$1,000 REWARD! For any case of Blind, Bleeding, Itching, or Ulcerated Piles that Dr. Bing's Pile Remedy fails to cure. It is prepared expressly to cure the Piles and nothing else. Sold by all Druggists. Price $1.00.
C. F. RICHARDS & Co., Agents, corner Clay and Sansome streets, San Francisco, Cal. 8v24-1y

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Steam Engines and Boilers,

MARINE AND STATIONARY,

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Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

☞ Particular attention paid to Jobbing Work and Repairs.

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18v20-3m GODDARD & CO.

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MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

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GEORGE T. PRACY,
MACHINE WORKS,

109 and 111 Mission Street,

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These Works have lately been increased, by additional Tools, and we are now able to turn out any kind of work, equal to and cheaper than any establishment in the State; that is to say:—

STEAM ENGINES,

Flour and Saw Mills,

QUARTZ MACHINERY

Printing Presses,

AND MACHINERY MADE OF EVERY DESCRIPTION.

Improved Safety Store Hoists,

Fitted with Cutting's Patent Cams, unequaled for safety, convenience and cheapness. This Hoist can be built for about half the price of any other in use. To be seen at HAWLEY & CO.'S.

ALSO, MANUFACTURER AND SOLE AGENT FOR

Pracy's Celebrated Governor.

TURNING LATHES, Etc., constantly on hand.

4v23tf

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WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR

WILCOX'S PATENT WATER LIFTERS,

Dunbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,

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Rolling Mill Company,

SAN FRANCISCO, CAL.

Established for the Manufacture of

RAILROAD AND OTHER IRON

—AND—

Every Variety of Shafting,

Embracing ALL SIZES of

Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames

—ALSO—

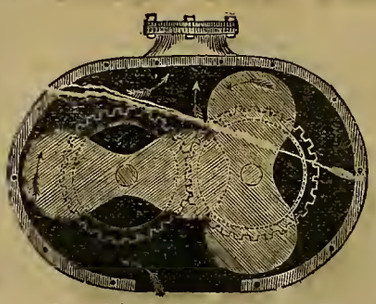
HAMMERED IRON

Of every description and size.

☞ Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention

☞ The highest price paid for Scrap Iron 9v14-3m

ROOT'S PATENT FORCE BLAST ROTARY BLOWER,



[Sectional view showing the pistons and gearing.]

MANUFACTURED AT THE

GLOBE IRON WORKS,

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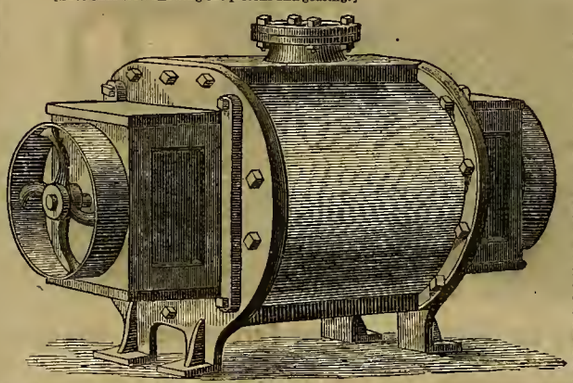
Awarded the First Premium at the Paris Exposition.—Patented November 1, 1864; July 24, 1866; and October 9, 1866.

Adapted for Smelting, Foundry, Mining and Steamships. Requires 50 Per Cent. less power than any Blower now in use.



One of these Blowers may be seen at W. T. Garratt & Co.'s Brass Foundry, San Francisco; Gould & Curry and Savage S. M. Co.'s, Nevada; and at C. P. R. R. Co.'s Works, Sacramento; and other places on this coast.

CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article. **Quartz, Saw and Grist Mill, Iron, Stationary and Steamboat Engines, Horse-Power and Pumps, of all Sizes.**

For Circulars and further information, Address

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CAMERON'S

STEAM PUMPS.

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Engine Regulators.

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Surface Condensers.

DAVID STODDART,

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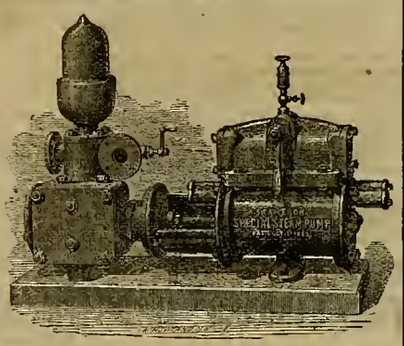

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F. I. CURRY (late Foreman of the Vulcan Iron Works), Proprietor.

High and Low Pressure

BOILERS

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Manufacturers of the

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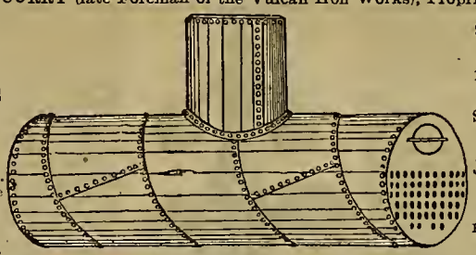
SPIRAL BOILER.



Sheet Iron Work of every DESCRIPTION done at the Shortest Notice.

All kinds of **JOBBING** and **Repairing** Promptly Attended to.

22v22-3m

THE RISDON
Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1868.
CAPITAL.....$1,000,000.

LOCATION OF WORKS:
Corner of Beale and Howard Streets,
SAN FRANCISCO.

Manufacturers of Steam Engines, Quartz and Flour Mill Machinery, Steam Boilers (Marine, Locomotive and Stationary), Marine Engines (High and Low Pressure). All kinds of light and heavy Castings at lowest prices. Cams and Tappets, with chilled faces, guaranteed 40 per cent. more durable than ordinary iron.

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James D. Walker.

WM. H. TAYLOR.....President.
C. E. McLANE.....Vice President.
JOSEPH MOORE.....Superintendent.
LEWIS R. MEAD.....Secretary.

24v17-qy

OCCIDENTAL FOUNDRY,

137 and 139 First st., near the Gas Works, San Francisco.

STEIGER & BOLAND,

IRON FOUNDERS.

IRON CASTINGS of all descriptions at short notice.

NOTICE.—Particular attention paid to the making of Superior Shoes and Dies. 3v24-3m

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Miners' Foundry and Machine Works,

CO-OPERATIVE,

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Machinery and Castings of all kinds.

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We have this day admitted Mr. William R. Eckart as a member of our firm, the business of which will be hereafter conducted under the firm name of Prescott, Scheidel & Co. PRESCOTT & SCHEIDEL.

Marysville, Jan. 8, 1872.

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Referring to the above, we respectfully solicit the patronage which has for the past twenty years been enjoyed by our predecessors, pledging our best attention to the wants of all who may so favor us.

Quartz and Amalgamating Machinery.

SAW AND GRIST MILLS,
STEAM ENGINES,
HYDRAULIC MACHINES,
HOUSE FRONTS, ETC.

Repairs upon all kinds of machinery promptly made and at moderate charges. Having unrivalled facilities, we are prepared to make to order, at short notice, everything required in our line.

Specimens of our work may be seen in all the mining regions on this coast.

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CALIFORNIA BRASS FOUNDRY,

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ALL KINDS of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch

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(The Oldest and most Extensive Foundry on the Pacific Coast).

Cor. First and Mission Sts.,

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Marine, Locomotive and Stationary Engines Quartz Crushing and Amalgamating Machines, Mill Irons and Brass and Iron Castings, of every description, made to order.

Steamboat Repairing, Boiler Making, Turning and Finishing,

EXECUTED WITH DISPATCH.

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A complete set of Machinery of our own design and patent for extracting oil from Castor Bean, dispensing with Hair Cloth. Also Machinery for Flax Seed Oil, Mustard Seed Oil, and Sun Flower Seed Oil.

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For sawing Marble of any thickness or size.

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PHELPS BROTHERS, Proprietors,

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FERRACUTE MACHINE WORKS,

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PRESSES, DIES and all FRUIT CANNERS TOOLS a specialty.

Improved 3-lb. Can Press for $65; Rotary Solder Cutter, $15, etc. 13v24-13t

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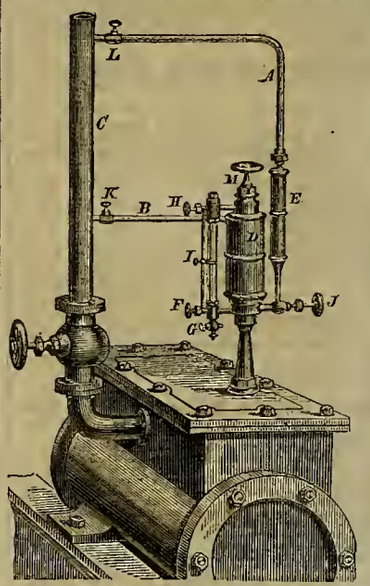
Machinery.

N. Seibert's Eureka Lubricators.



THE HIGHEST PREMIUM

Awarded by the Mechanics' Institute Fair, San Francisco, and State Fair, Sacramento, 1871.

These Lubricators are acknowledged by all engineers to be superior to any they have ever used; feed constantly by pressure of condensed water, supplied by pipe A, regulated under the oil by valve J, and forced out through check valve and pipe B into the steam pipe C; it then becomes greasy steam, passes to all the valves and cylinder at every stroke of the engine; glass tube I indicates amount used per hour. Packing on rods and stems lasts longer, and the rings on the piston will not corrode. One pint of oil will last from three to six days, according to speed and size of engine; I, sliding gauge; K, valve to shut off when engine stopps; H, F, valves to shut off in case of frost; steam does not enter the cup; it is always cool; warranted to give satisfaction. Patented February 14, 1871. Manufactured by California Brass Works, 125 First street, S. F. 24v23tf

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POWER, TAINTER & CO.,

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WOOD-WORKING MACHINERY,

3003 Chestnut street (West end Chestnut street Bridge) PHILADELPHIA.

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BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco.

Notice is hereby given, that the copartnership heretofore existing between A. J. Severance, Charles W. Randall and J. Gus. Burt, under the firm name of "Severance, Holt & Co.," is this day dissolved by mutual consent. A. J. Severance, having purchased all the interest of his late partners, will continue the business of manufactnring and selling Diamond Drills, as before, under the style of A. J. Severance & Co.

Dated San Francisco, Nov. 24, 1871.

Office, 315 California street. A. J. SEVERANCE,
CHAS. H. RANDALL.
22-v23-tf J. GUS. BURT.

WM. M. BETTS & BROTHER,

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LOCOMOTIVE, CAR,

And all kinds of Carriage and Wagon Springs made to Order and Warranted.

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CALDWELL'S

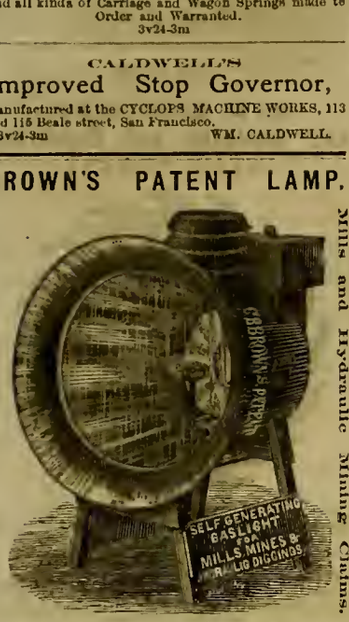
Improved Stop Governor,

Manufactured at the CYCLOPS MACHINE WORKS, 113 and 115 Beale street, San Francisco.

3v24-3m WM. CALDWELL.

BROWN'S PATENT LAMP.

BROWN'S PATENT LAMP, FOR Mills and Hydraulic Mining Claims.



One of these Lamps, when placed at a distance of 200 feet from the bank, will light up a bank surface 250 feet in length and 100 feet high, and to a much better advantage than any other light heretofore tried, and at an expense not to exceed five cents per hour. Lamps furnished at short notice.

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Varney's Patent Amalgamator.

These Machines Stand Unrivaled.

For rapidity pulverizing and amalgamating ores, they have no equal. No effort has been, or will ho spared, to havo thom constructed in the most perfect manner; and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pnlp, or with steam bottoms, as desired.

This Amalgamator Opsrates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the apperture and between the grinding surfaces.—Thence it is thrown to the periphery into the quicksilver. Tho curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into tho quicksilver, nntil the ore is reduced to an impalpable powder, and the metal amalgamated.

Setlers made on the samo principle excel all others They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill-men are invited to examine these pans and setlers for themselves, at the office, 229 Fremont Street, San Francisco.

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AGENTS FOR

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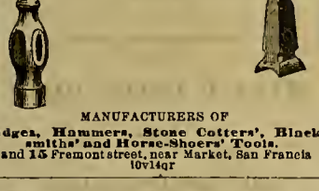

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All kinds of CAR WHEELS, AXLES and RAILROAD WORK made to order. Standard sizes of Wheels constantly on hand. Wheels bored and pressed on, Axles turned, etc., at Reasonable Rates.

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Manufacturer of

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BLAKE'S PATENT STEAM PUMP.

From the Report of the Committee on Steam Pumps, at the Seventh Industrial Exhibition of the Mechanics' Institute, San Francisco :

BLAKE'S STEAM PUMP.—This Pump yielded the best results as to the quantity of water discharged as compared with its measured capacity. The valves are of brass, and well arranged. The steam valves are well arranged for operating the pumps, either fast or slow.

We recommend that a Medal be awarded to it, as THE BEST STEAM PUMP. [Awarded a SILVER MEDAL, the first premium.] (Signed) JAS. SPIERS,
WM. H. BIRCH.

From the Report of the Committee on Steam Pumps, at the Eighth (or *last*) Industrial Exhibition of the Mechanics' Institute, San Francisco :

BLAKE'S MINING PUMP.—This is an excellent Pump, well made, and gives a high per cent. of duty. We recommend a Diploma for this Pump. (Signed by the Committee.)

G. W. DICKIE, H. B. ANGEL, CHAS. R. STEIGER,
W. EPPELSHEIMER, MELVILLE ATWOOD.

[No other Steam Pnmp received other than a Diploma or honorable mention at the LAST Mechanics' Exhibition, *all other assertions to the contrary notwithstanding.* Hooker's Hand Pump was the *only* Pump, of any kind whatsoever, that received a MEDAL and FIRST PREMIUM (highest award to pumps) at the *last* Exhibition, for which we are also selling agents.—*See official Report of the above Committee.*]

The trial of Steam Pnmps at the Eighth Industrial Fair in San Francisco, by a committee of five of the most thoroughly practical mechanics on this coast (as above named), showed that the Blake Pump gave 86 per cent. of utilized power, while others gave hut 60 per cent., showing great difference in ecouomy.

The Blake Pump is the ONLY *Steam Pump that* EVER RECEIVED A SILVER MEDAL *at any Exhibition of the Mechanics' Institute ever held in San Francisco or California.*

☞ A complete stock of all sizes constantly on hand at the Machinery Warehouse of the Agents,

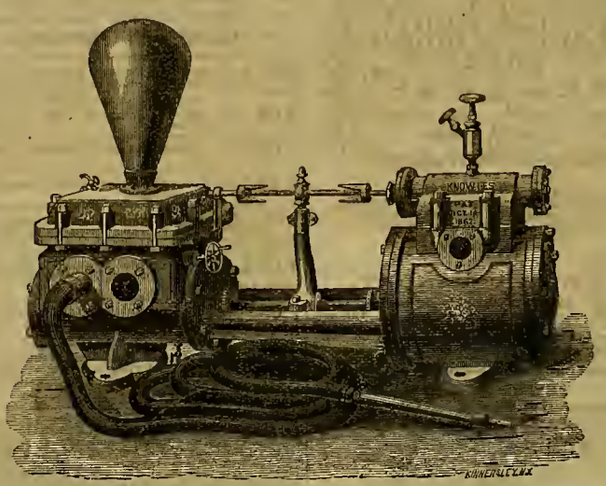
TREADWELL & CO.,

12v3-awbp Market street, corner of Fremont, SAN FRANCISCO.

KNOWLES' PATENT STEAM PUMP.

Received the Highest Award---A Diploma---

Over all Steam Pump Competitors, at Mechanics' Institute Fair of San Francisco, 1871; also Special Medal and Diploma at State Fair.



It has no Cranks or Fly-Wheel, and has no dead points where it will stop, consequently it is always ready to start without nsing a starting-bar, and does not require hand-work to get it past the center. Will always start when the steam cylinder is filled with cold water of condensation.

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CENTRAL PACIFIC R. R., OFFICE OF THE GEN'L MASTER MECHANIC,
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A. L. FISH, Esq., Agent of the Knowles' Steam Pump, San Francisco—Dear Sir: In reply to yonr inquiry as to the merits of the Knowles' Steam Pump, in use upon this road, I will say that we have nineteen of them in use on this road as fire engines, and pumping water for shop and station nse. I consider the Knowles Steam Pump the best in nse, and prefer it to any other. Yours truly, A. J. STEVENS, General Master Mechanic.

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A. L. FISH, Agent.

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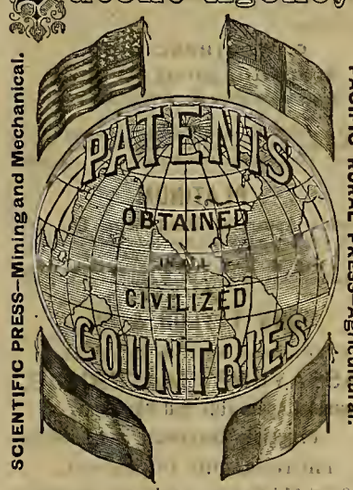

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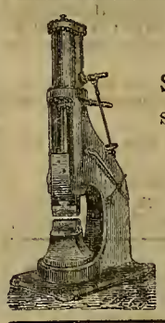

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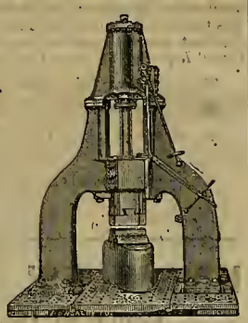

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C. P. R. R.

COMMENCING

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7.00 A. M. Overland Express Train for Sacramento, Marysville, Red Bluff, Colfax, Reno, Ogden and Omaha.

3.00 P. M. San Jose Passenger Train, stopping at all way Stations.

4.00 P. M.* Passenger Train for Stockton, Merced and Sacramento.

6.30 P. M. Overland Emigrant Train, Through Freight and Accommodation.

7.30 A. M. Steamer New World (from Broadway Wharf) —Connecting at Vallejo with Trains of California Pacific Railroad.

4.00 P. M.* Sacramento Steamer (from Broadway Wharf). Connecting at Vallejo with trains of California Pacific Railroad.

2.00 P. M.* Steamer Antelope, from Broadway Wharf, connecting at Donahue with Trains of S. F. and North Pacific Railroad.

8.00 A. M. Excursion Boat (Sundays only) from Broadway Wharf, connecting with Special Train of S. F. & N. P. R. R. for Cloverdale and intermediate points, returning to San Francisco by 7 P. M.

OAKLAND BRANCH.—LEAVE SAN FRANCISCO, 7 00 8 10, 9 20, 10 10 and 11 20 a. m., 12 10, 1 50, 3 00, 4 00, 5 15, 6 30, 8 00 9.20 and *11 30 p. m. (9 20, 11 20 and 3 00 to Oakland only).
LEAVE BROOKLYN, *5 30, 6 40, 7 50, 9 00 and 11 00 a. m., 1 30, 2 40, 4 55, 6 10, 7.40 and 10 10 p. m.
LEAVE OAKLAND, *5 40, 6 50, 8 00, 9 10, 10 00, and 11 10 a. m., 12 00, 1 40, 2 50, 3 50, 5 05, 6 20, 7.50 and 10 20 p. m.
ALAMEDA BRANCH.—LEAVE SAN FRANCISCO, 7 20, 9 00, and 11 15 a. m., 1 30, 4 00, 5 30, and 7 00 p. m. (7 20, 11 15, and 5 30 to Fruit Vale only).
LEAVE HAYWARDS, *4 30, 7 00 and 10 45 a. m., and 3 30 p. m.
LEAVE FRUIT VALE, *5 25, 7 35, 9 00 and 11 20 a. m., 1 30, 3 05 and 5 30 p. m. *Except Sundays.

T. H. GOODMAN, Gen'l Pass'r and Ticket Agt. A. N. TOWNE, Gen'l Supt.

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SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,

Mining, Mechanic Arts and Inventions.

BY DEWEY & CO., Patent Solicitors.

SAN FRANCISCO, SATURDAY, MAY 4, 1872.

VOLUME XXIV. Number 18.

Mining Stocks.

The mining shars market has reached a point little expected a few weeks ago, and many believe that it will yet go higher. The business of the San Francisco Stock and Exchange Board has become so large that the Board, at a meeting on Saturday evening, decided that henceforth the Board Room shall be open from 9 A. M. until 5 P. M. These hours will be disposed of as follows: From 9 to 10:30 there will be an informal session; from 10:30 to 12 the regular sessions will he held; from 12 to 3 informal sessions, and from 3 to 5 the Board will be in regular session. All street transactions are to he strictly prohibited. This is a good move and will do away with the evils of making sales and transacting business in general on the streets. The example is not only had hut the brokers are a great inconvenience to pedestrians who are compelled to pass where they "most do congregate." A proposition was also considered but no definite action taken as to the propriety of adding 20 new seats to the Board, at a fixed price of $5,000 each. There is little doubt hut that they could be immediately disposed of if they were added.

The excitement in stocks still continues with little abatement, although on Wednesday there was a general reaction which, however, recovered somewhat on Thursday. The number of newly incorporated mining companies is increasing wonderfully. The great excitement in mining matters on the coast, has no doubt, led to this, and many long-neglected veine will be opened. The new mining law by which the stockholders may remove the trustees under certain circumstances, has also had a beneficial effect in drawing out capital that would have otherwise been placed in some other channel. It has given increased confidence in mining metters to the public and now when they are assessed they can call some one to account for the money if they desire.

Some of the Comstock mines have sold at higher rates than ever before; Crown Point selling at $1,700, buyer 30. The high rates of some of these mines have induced the trustees to call meetings of the companies with a view of increasing their capital stock and numher of shares, so as to place them within reach of all. A number of people are mentioned who have made fortunes in the present rise, and of course, everybody wants to invest. The excitement has at least called the attention of many to our mining interests, who otherwise would never have thought of buying and will douhtless have the effect of causing many of our mines to be explored with more vigor and more success.

DIAMOND DRILL.—The Sutro Tunnel Company have purchased the right for manufacturing and using the Diamoud Drill in their tunnel and all its branches. After a trial, which was completed to their satisfaction, they purchased the trial drill and this right. They expect soon to be using from 8 to 14 of these drills and complete the work in one half the time which it would have taken in working by hand, and at a much less cost. This drill is destined to exercise an important influence in large operations in the mineral developments of the Coast, doing more labor at lees cost and trouble than by any other means. The Sutro Tunnel Company ehow their real enterprise in employing this apparatue, since they will get into tho Comstock mines much quicker than they would have done without it and save money in the bergain. Its capacity will no doubt be well tested in the work it has before it.

Petersen's Patent Bee Hive.

Our cut is illnstrative of a new bee hive, recently patented by Peter O. Petersen, and is claimed to possess merit over the ordinary hive. Among the paramount objects secured by this hive are the facility it affords of examining at all times the stores of the bees, and the taking away of any surplus, or supplying whatever may be wanting. Also the presence and state of health of the queen bee, in fact of the whole hive. It enables the keeper to interfere in all sorts of emergencies; increasiug the number of becs, by artificially creating young swarms; and what is of especial importanco to tho progress of bee science, can be thoroughly examined with reference to the behavior and habits of the different bees, queens, drones and workers.

Persons familiar with the habits of hees know that one of their most necessary and freqnent employments is the expulsion of the overheated and foul air from the hive. To do this, the bees station themselves at or near the opening n the hive, turning their heads inward, take ihold with their feet and move their wings with such rapidity as to cause a considerable current

PETERSEN'S PATENT BEE HIVE.

of air, frequently causiug a draft strong enough to be perceptibly felt outside the hive. The improvements in this hive consist in providing it with suitable openings both above and below by means of which the necessary ventilation can be secured and regulated.

The hive has a gable roof, and at intervals in the upper edge of the side walls saw cuts or kerfs are provided which will be sufficiently wide to afford a passage for the air. A strip is secured between the projecting eaves and side of the hive so as to leave a triangular space extending from end to end of the hive and thus provide a passage for the air. By stopping up the ends of this passage the ventilation is shut off. Near the bottom of the hive is a false bottom, the side edges of which are also provided with saw cuts or kerfs. At short intervals and in the lower edge of the sides of the hives other kerfs are cut so as to break joints with the first mentioned.

In the lower corners of the hive are narrow wooden strips which cover the side kerfs when in place and shut off the draft from below entirely. As soon as the queen commences to lay eggs and the weather is favorable, the top ventilator may be opened. The constant, rapid motion of the wings of the bees in the hive will then expel all foul air which may be generated from the great quantity of pollen which the bees gather for the consumption of the young broode in the cells. If the weather ie eteady and the warmth increases, one side of the bottom of the hive is opened and if the weather is very hot, all the ventilation possible is given.

In very changeable weather it will be necessary to regulate the ventilation by the bottom slides entirely, and they should only be allowed to remain open when the weather ia favorable and constant. The top ventilator may, however, he left open during summer, no matter what kind of weather may occur. The hive is thus thoroughly ventilated, and at the same time daylight will be excluded. This hive has been pateated through the the SCIENTIFIC PRESS Patent Agency, hy P. O. Petersen, who may be addressed corner of Twelfth and Clay streets, Oakland, Alameda County.

Ball's Water Elevator.

Our illustration represents a novel device for drawing water from wells, the invention of Mr. Jno. A. Ball, of Grass Valley, in this State. An ordinary curb or box is used over the well across the upper open end of which a shaft which is turned by a crank in the usual way, passes. This shaft carries two chain pulleys a short distance apart and around each of these pulleys a linked endless chain passes. The buckets are secured to these chains at various points, as many beiug used as desired. Each of these

BALL'S IMPROVED WATER ELEVATOR.

buckets have a hole in its bottom which is covered by a clapper valve of ordinary construction. The huckets are connected with the chains at a point below their middle line, and a link connects their upper end with a cross bar which connects the chain so that when they are being lifted by the chains they haug vertically. A lever passes down into the bucket and is connected with a cross rod near its lower end. The lower end or short arm of this lever is attached to the clapper valve above mentioned, while the upper end or long arm is secured to a cross-rod which connects the chains above the bucket. Now it is plain that as soon as the bucket arrives at the pulleys the links as they strike the circle keep the buckets in a perpendicular position until they begin to draw downward upon the reverse side of the pulley, and the same movement causes the lever to lift the clapper valve andallow the water to pass down through the spout, seen beneath the bucket, and into the curb-spout while the bucket is held in the vertical position, after which it is carried over the pulley and down into the well again.

By this means the water is delivered without waste. The inventor claims that the water from welle cen be drawn cooler for the reason that the buckets take it from the bottom. The action of the chain and buckets keep the well ventilated properly, and the whole apparatue can be moved from one well to another easily, there being no pulley or other machinery below. Thie obvietes all necessity of going down the well to make repairs or putting in machinery, as such labor can be performed at the surface. The hucket can be lowered backwards into the well so as to allow the water to rise through the valve into the bucket, thus permitting of a quarter or a half of a bucket full being raised as desired. The whole arrangement is simple and effective. All of the good qualities of the "Old Oaken Bucket" are preserved and its bad qualities made good. As a means of drawing water from an open well itis certainly valuahle. Mr. Ball has a United States Patent upon this elevator which he is now reissuing through the SCIENTIFIC PRESS Patent Agency.

NEW METHOD OF PROSPECTING.—The North Bloomfield Gravel Mining Company have, according to the Nevada *Transcript*, withdrawn their property in Nevada county from the market, and will immediately commence to thoroughly prospect their claims. A tunnel 9,000 feet long, is to be run from Humbug Creek so as to drain the North Bloomfield Basin. They are going to try a new plan in opening the shafts. Three shafts are to be snnk on the line, and when they are down to bed rock the tunnel will be worked each way. In opening these shafts a hole is to be bored the full depth to which the shafts are intended to be sunk, that is, till they strike the tunnel level. The hole is to be filled with sand, and when they wish to put in a blast, as much sand will be taken out as will be necessary to leave a hole of the proper depth. By this means as soon as they commence work, they expect to be able to hlast and sink as fast as sand and dirt can be dug out. Great confidence is felt in the favorable results of this plau, and it is shortly to he put into execution. It seems to us, however, that unless more than one hole were bored the plan would not work very well, since the men would still have to drill others by hand in the corners. If one hole were bored in the middle of the shaft and four more around it and then all the blast fired simultaneously there might he some advantage in it; for boring the holes first by machinery, as proposed above, would assuredly cause a saving of time and the shafts would go down rapidly after blasting once began. It is likely, however, that the question will be practically tested by the parties mentioned above.

PATENT DECISION.—In a late decision of the Commissioners of Patents in the case of Armistead vs. Blackwell, concerning an interference in the well known trade mark of the Durham smoking tobacco, the Patent Office decided in favor of Armisteed. The decision was to the effect that Wright, the assignor of Armistead, had a legal title to the word "Durham" as a trade-mark for smoking tobacco, and that Armistead acquired title to it from bim. That the word was not originally adopted as the distinctive name of a locality, or to show that it was manufactured or sold at a place called Durham; but that it was purely a fancy designation, adopted as an arbitrary symbol to denote that peculiar product.

SIME'S BANK.—In the failure of John Simes & Co., recently, the real estate only paid depositore 50 cent on the dollar, but among the assets was a quantity of mining etock which the recent advance has appreciated so much that the bank will pay dollar for dollar and it is said leave a surplus of upwards of $20,000. Mining stocks are not always a bad investment by any means ae the creditore of thie institution will no doubt now allow. It ie seldom we hear of a broken bank coming to life especially after the banker's death.

CORRESPONDENCE.

Vein Phenomena.

[Written for the PRESS by A. J. BROWN.]

Influence of Enclosing Rocks on the Character of True Veins.

EDITORS PRESS:—Two of the late numbers of the SCIENTIFIC PRESS, March 9th and 16th, contain interesting extracts from a lecture by Professor Smythe, wherein reference is made to the effect the "country or enclosing rocks produce on the metallic character of true veins."

The subject is certainly of the utmost importance to every mining engineer, and almost equally so to all persons engaged in mining enterprises, and is well worthy of a careful investigation. Furthermore, the study of the subject, aside from its importance in a practical sense is highly interesting.

That some such theory has generally obtained credence among miners we may infer from the fact that they have for a long time laid particular stress upon the character of the formation in which veins occur, and have accepted or condemned new districts according to their preconceived notions of the favorable or unfavorable character of the enclosing rocks. But, many of the popular theories in regard to veins, have been proven to be popular fallacies. For instance, about the time of the discovery of the Reese River mines, it was the generally accepted theory that veins invariably grew richer in depth until water was reached and sulphuret ore found. Still later, at the time of the discovery of Reveille Hot Creek, and other limestone, mineral bearing formations, the theory was promulgated that silver could not exist in limestone, (however favorable it might be for the development of lead ores); but the discovery of White Pine and its extensive deposits of free silver ore of unequalled richness, proved too much for the theory, and it gradually yielded to the pressure of circumstances, only to be replaced by another, far more pernicious in its effects on mining industry. To-wit: That deposits in limestone were not permanent in depth. But this, like the others named, is certainly and surely being disproved by the stern logic of the pick and drill. Limestone deposits are quite as likely to continue in depth as those are in other kinds of country, with this difference—that true veins are a sure guide to the miner in his search for deeper ore bodies, while in limestone there if often nothing but a stained seam or slip (and sometimes not even that) to guide him in his further search.

Perhaps this theory of the enclosing rocks influencing the "metallic contents of veins," may not be able to stand the test of a rigid investigation; but apparently the weight of evidence, so far, strongly tends to its support, particularly as regards such metals as are usually found in nature as chemical compounds—such as silver, copper, lead, antimony, etc., and perhaps in a lesser degree gold also—lead ores appear to have a marked affinity for limestone in all countries and under nearly all circumstances, and here we may find the explanation of the cause of the "complicated association of base metals found in eastern Nevada and Utah," by far the largest portion of the mining districts being situated wholly in limestone. To fully establish this theory careful and extended observations must be made over a wide extent of mineral country, not only of the physical characteristics of the enclosing rocks, but of their chemical composition also. From present appearances

The Eastern Part of the "Great Basin"

Will in the future furnish excellent facilities for the study of vein phenomena. In most of the noted mining localities the veins or deposits occur in stratified rocks, either limestone or slate, mainly in the former. In some of the districts the upper mineral bearing strata are fully exposed, and are known to be of limited thickness to another underlying formation very different in character and composition. In such cases it will be interesting to note the change, if any, that occur in the mineral character of such veins or deposits with the change in the formation. Evidences of the influence of the enclosing rocks on the "metallic contents of veins," are apparently not entirely wanting in eastern Nevada; but owing to the almost undeveloped condition of the country, and the total absence of deep works such evidence is merely superficial, and perhaps by no means conclusive, yet the most superficial observer must necessarily note the great difference in the type of minerals occuring even in limited localities, sometimes even in different parts of the same vein, and that every such change is accompanied by a considerable change in the lithological character of the formation. Furthermore, whenever the minerals are identical, even in localities remote from each other, a remarkable similarity in the enclosing rocks is plainly observable.

Reveille and Schell Creek are two hundred miles distant from each other, yet the minerals are almost identical, both yielding silver glance, copper, silver, glance and chloride or horn silver, with occasional traces of metallic silver, and the Schell Creek ores contain in addition, traces of antimony. Dolomite in both cases is the prevailing formation. The same formation occupies the free metal portion of Treasure Hill, and probably the original mineral was mainly silver glance, and the present combination of silver with chlorine, is the result of the complete decomposition of the original compound. Nearly every district situated in the stratified rock of the eastern part of the State, furnishes examples illustrative of this theory, and some of them will be referred to further on; but, first I propose to consider

The Relations that Limestone Deposits Bear to true Veins.

Apparently the country rocks not only influence the mineral contents of veins, but in some cases determine the vein character also. Instances are not wanting of true veins in slate, granite, etc., losing their vein character on passing into a limestone formation, and again assuming it on passing into another formation favorable for vein developments.

Eastern Nevada and Utah contain an almost unlimited number of limestone mineral-bearing localities. Fully three out of every five districts so far discovered are situated in limestone, varying in geological age from the lower Silurian to the Upper Devonian. In fact, in almost every instance where limestone has been discovered older than the Carboniferous, valuable minerals have been found associated with it. But few of the districts have as yet attained to much importance as mining centres; yet the majority of them are of fair promise, and their future worth is only a question of time and capital. Hence the vast extent of country occupied by limestone and the great number of important districts already found exclusively in that formation, render the study of its peculiar mineral system of the utmost practical importance. True fissure veins are said not to exist in limestone. To a certain extent this is probably true. True veins in the general acceptance of the term, are probably rarely or never found in genuine limestone; and even those veins inclosed in calcareous shales and schists are apparently intermediate between deposits and true veins, and partake to a certain extent of the character of both. Nevertheless, fissures do exist in limestone, but various causes prevent their being classed as true veins, the most important of which are the absence of well defined walls, and the extreme irregularity often exhibited by the vein itself, sometimes pinching to a mere seam, then gradually expanding into deposits frequently of vast extent; and, such indeed is the condition of affairs to be expected when we take into consideration the soluble character of this formation in the presence of carbonic acid, a substance common to all natural waters. Consequently whenever the thermal waters have had free access to the walls of the fissure, chambers often of large dimensions would be hollowed out and afterwards, or perhaps simultaneously filled with ore bearing material, while the dissolved lime held by the water would be deposited as calcite, whcrever the conditions were favorable, which would probably often happen to be in parts of the same fissure. Thus we would have deposits of varying dimensions in those parts of the vein exposed to the eroding action of the water, alternating with narrow and perhaps barren seams in other parts that were by some means protected from its action. In veins having considerable underlie, so that the foot wall would support the solid impurities deposited from the water, thereby protecting it from its eroding action, we would naturally expect to find that wall comparatively smooth, while the hanging wall, having no such protection, would be eroded into irregular chambers. And such indeed we find to be the condition of affairs observable along the main ore channel of Treasure Hill. For there while the west or foot wall is fairly defined and smooth, the eastern or hanging wall is very irregular and is penetrated by all the large deposits on that line. This class of veins are often vertical, or nearly so, seldom having much underlie, and are designated by English mining engineers as "pipe and rake veins." There are two other classes of deposits found in limestone formations, that are more difficult of classification, as both alike appear to be but mere arbitrary deposits having no connection with any vein system whatever. One of these is in reality what it appears to be, nothing but superficial deposits, without order or arrangement in their mode of occurrence. They are generally confined to the bedding of certain horizontal strata, and are evidently formed by the mineral waters percolating through the strata from some adjacent "ore channel," dissolving the limestone and depositing silver and ore of silver or other metals in its place.

The other class is far more important from a practical standpoint, as its minerals are evidently derived from a deeper source, and therefore may reasonably be expected to show greater permanency in depth. The deposits of this class penetrate the underlying strata to considerable depths. They likewise show a considerable degree of order in their mode of arrangement. They are mostly found within well defined limits, frequently forming a continuous chain of deposits several miles in length. In their course they generally coincide with the anticlinal axis of an extensive upheaval of the country rocks; but in some cases they appear to lie nearly or quite over such axial lines.

The main belt of Treasure Hill, has a length north and south of more than four miles, corresponding throughout with the axial line of the upheaval. It is also accompanied by a large vein of spar or calcite, which in all cases marks its western boundary. The strata overlying the belt is considerably faulted for the greater part of its length, thus furnishing conclusive evidence of the fractured and disturbed condition of the underlying strata. The same phenomena also occurs in Schell Creek. There the main belt follows the axis of the range for something like twenty miles. It is accompanied by unmistakable evidence of the violent action of mechanical and chemical forces,—such as the fracture and faulting of strata, and the alteration of the stratified rocks. A series of volcanic outflows along the west side of the range has deluged that part with volcanic rocks. There is also a strong presumption that the slight upheaval accompanying them has fractured the strata underlying the main belt. In short, all the circumstances attending both the great mineral belts above noticed, as well as others of the same class, tend to produce the impression that they overlie great rents or fissures in the deep underlying strata, which gave vent to the solfataras that formed the deposits; or in other words that the fissure veins in the deeper strata have been changed into deposits in passing through the limestone.

Treasure City, Nev., April, 1872.

[To be continued.]

Mining, the Great Pursuit of the Pacific States.

Written for the PRESS by A. B. PAUL.

When the vast area of mineral lands, comprising California, Nevada, Arizona, Montana and Idaho, are considered, and the immensity in numbers of mineral bearing lodes are realized by observation, the question will arise, what pursuit equals mining in extent? It is all idle to talk about manufacturing as being the leading interest of the Pacific States, with labor at its standard. That farming is to rule, with season so uncertain, or that either are more legitimate than mining. I do not propose to deprecate either; all are necessities, and should have the fostering care of capital and industry; but when it comes to that pursuit which is to absorb the largest amount of brains and capital, to be the leading branch of industry of the Pacific States, it is mining, and the sooner it is an admitted fact the better will it be for all branches of industry, as well as mining itself. As miners and business men, more or less connected with mining and its results, all are getting their brains wonderfully pried open to what they were years ago. Who then could realize the fact that 12 inches of any mining ground could be sold for $25,000 cash? that any one mine could produce 500 tons of ore in one day, and yield more than a half a million dollars in a single month. And yet all this has been *exceeded*. Who will say that it is impossible, after what has been done within the past year, to double our bullion product in the next. What are Sutro Tunnel enterprises in comparison with the operations now going on on the Comstock? And yet that has been viewed as such a gigantic undertaking.

Large ideas lessen when larger ones present themselves, and it is in this sense that we are only learning to mine, and in proportion as we enlarge our ideas, and accept mining as a legitimate pursuit, will our prosperity increase. That a brighter day is opening for the Pacific coast, no one can question; that prosperity is based on our attention to mining.

The whole business history of this coast shows that when we mined most all branches of business were more prosperous; that when we deserted it, we deserted our own interest. Mining now is in the advance, but not so much so as it is to be.

The future seems clear to my mind, but I will not predict. Let us have some care for others as well as ourselves; give English, Eastern or any capital legitimate mines for their coin; eschew "wild cat" mining, and by so doing mining not only becomes a legitimate pursuit, but the great leading interest of the Pacific States. With it comes population, manufactures and commerce.

DANGER OF MINING.—Two hundred and seventy-two miners were killed and 622 wounded in the Pennsylvania anthracite coal region last year, making 220 widows, and 500 or 600 orphans. The Scranton *Republican* says that about one-third of the whole number of the killed met their death on account of neglect of operators to make second openings to their mines. Another third were killed by the explosion of gases, which would have been averted, if the law required every mine to be examined by an experienced miner with a safety-lamp, before the workmen enter it, had been complied with.

The Countries Where Gold Goes.

In the reign of Darius gold was thirteen times more valuable, weight for weight, than silver. In the time of Plato it was twelve times more valuable. In the time of Julius Cæsar gold was only nine times more valuable, owing, perhaps, to the enormous quantities of gold seized by him in the wars. It is a natural question to ask: What became of all the gold and silver? A paper read before the Polytechnic Association by Dr. Stephens is calculated to meet this inquiry. Dr. Stephens says of our annual gold product, fully fifteen per cent. is melted down for manufacturing; thirty-five per cent. goes to Europe; twenty-five per cent. to Cuba; fifteen per cent. to Brazil; five per cent. directly to Japan, China and the Indies; leaving but five per cent. for circulation in this country.

Of the gold which goes to Cuba, the West Indies and Brazil, fully fifty per cent. finds its way to Europe, where, after deducting a large percentage used in manufacturing, four-fifths of the remainder is exported to India.

Here the transit of the precious metal is at an end. Here the supply is absorbed, and never returns to the civilized world. The Orientals consume but little, while their productions have ever been in demand among the Western nations. As mere recipients these nations have acquired the desire and habits of accumulating and hoarding, a habit common alike to all classes among the Egyptians, Chinese and Persians. A French economist says, in his opinion the former nation alone can hide away $20,000,000 of gold and silver annually, and the present Emperor of Morocco is so addicted to this avaricious mania that he has filled seventeen large chambers with the precious metal. The passion of princes, it is not surprising that the same spirit is shared by their subjects, and it is in this predeliction that we discover the solution of the problem as the ultimate disposition of the precious metals.

This absorption by the Eastern nations has been uninterruptedly going on since the most remote historical period. According to Pliny, as much as $100,000,000 in gold was in his day, annually exported to the East. The balance of trade in favor of those nations is now given as $80,000,000.

An American Iron Steamship.

Philadelphia expects to be able to present to the commercial world in a few days the novel spectacle, in American waters, of the launch of an American iron steamship built of American materials, owned by American capital and to be manned by American seamen. The craft is the pioneer of the American Steamship Company of that city. She is 3,016 tons burden, old measurement, 355 feet in length, 43 feet beam, and will be furnished with independent compound, vertical, direct acting, surface-condensing, propeller engines. The steamships of this line are to be arranged to carry 75 first-class and 854 steerage passengers, the total cost of the four to be $2,080,000, and they are to be named respectively the "Pennsylvania," to be completed September 1st, 1872; "Ohio," to be completed November 1st, 1872; "Indiana," to be completed December 1st, 1872; and "Illinois," to be completed January 1st, 1873.

ACCIDENT AT THE NEW EUREKA MILL.—Yesterday one of the two large line shafts which run the pans at the Eureka mill, Carson River, suddenly broke in two. The only noticeable effect of the break in the mill was the sudden stoppage of one whole row of pans. But for a governor, very similar to those used on steam engines, the powerful water wheel would have made things very lively in the mill; but, as it was, the governor instantly shut off about half the supply of water going into the wheel, and instead of a storm the usual calm continued. The shaft broken was five inches in diameter. To guard against similar accidents in future, Abe Edgington, Superintendent of the mills of the Union Mill Company, seeing this accident, at once telegraphed to San Francisco to have sent here, 8-inch shafts. The 5-inch shafts were quite large enough had the mill been running at the calculated speed, but having concluded to rush matters, the speed at which they were running was too much for even five inches of solid wrought iron.—*Virginia Enterprise, April 21st.*

FOUR new steel guys have been put in position on the New Suspension Bridge, at Niagara Falls. These guys are considered one-third stronger than the common ones in use.

MECHANICAL PROGRESS.

REMARKABLE TESTING MACHINE.—The *Engineer*, in an article on the strength of materials, speaks of the wonderful testing machine of Mr. Kirkaldy, in London, and of the results obtained thereby. The machine is capable of breaking a heavy girder or a half-inch bar, of pulling asunder a thin wire or the shank of a bolt down anchor, or crushing a great cube of cast iron or a common brick, and yet in all cases giving results strictly comparable and accurate. It has been in constant operation for over six years, and is now thought to have been brought to the limit of perfection. It can exert either a compressing or a tensional strain of over 350 tons with perfect safety. It will take in bars or columns of greater length than are generally used in construction, and it will test girders for transverse strain of any depth, and any length up to 30 feet, provided they are not more than 13 inches wide, measured across the flanges, the length between the supports while under test being 26 feet. The arrangements for measuring and recording the stretch and load on any specimen are extremely simple and ingenious, and heavy as the machinery is, the finish is so good, the knife edges so accurate, and the motion of the more massive portions so slow and so easy, that practically perfect accuracy is obtained. Mr. Kirkaldy has made most valuable and interesting experiments in iron, steel, building materials, alloys, springs, India rubber, tubes, belting, ropes, etc.

PRIVATE GAS MANUFACTURE.—Mr. Symes, of England, has lately patented a portable gas apparatus for small consumers, for which important claims are made and which is described in the *Jour. Soc. Arts*. It consists of a circular box or iron retort with a cover fitting into place like a valve so that no luting is necessary. In this is placed the gas-making material, which may consist of coal, wood, peat, in fact of any solid combustible house refuse. The retort may be placed and heated in an ordinary stove or kitchen range. The gas formed passes first into a tank of water, where it is deprived of certain impurities. This tank or main is ingeniously constructed with a safety valve, means of regulating the amount of water and hence the pressure, etc. Thence the gas enters a condenser, at the foot of which is a purifier, and from this passes into a gasholder and thence to the burners. The construction is said to be remarkably ingenious and simple. The apparatus requires very little attention. The first cost of the apparatus for 25 to 30 lights is given as 20 and 25 shillings ($5 and $6) per light, the rate decreasing with every increase of light. Made from "slack," the cost of the gas is estimated at 25 cents, from coal at $4¼ per ton with 10 per cent. cannel at 45 cents, per 1,000 feet. The illuminating power is reported as equal to 18 candles or more, while the purity of the gas is stated to be perfect.

COPYING PRESS.—A clever application of science to commercial purposes has been made by an Italian gentleman, M. Eugenio de Zuccato, of Padua. By means of the invention any number of copies of a manuscript or design, traced upon a varnished metal plate, may be produced in an ordinary copying press. The *modus operandi* is very simple. To the bed and upper plate of a press are attached wires leading from a small battery, so that when the top of the instrument is screwed down the two metal surfaces come into contact, and an electric current passes. An iron plate resting upon the bed of the press is coated with varnish, and upon this surface is written with a steel point any communication it is desired to copy. The letters having thus been formed in bare metal, a few sheets of copying paper are impregnated with an acid solution of prussiate of potash, and placed upon the scratched plate, which is then subjected to pressure in the copying press. An electric current passes wherever the metal has been left bare, (where the writing is therefore,) and the prussiate solution acting upon the iron, there is found prussiate of iron or Prussian blue characters, corresponding to those scratched upon the plate. The number of copies that may be produced by this electro-chemical action is almost unlimited, and the formation of the Prussian blue lines, is, of course, instantaneous.—*Nature*.

MECHANICAL IMPROVEMENTS.—The substantial growth and prosperity of every town or city is based upon its mechanical improvements and industrial resources. Wherever the hum of machinery is heard, and the manufacture for any article is established, there, it may be safely asserted, are the true elements of thrift and progress; because production is the life of trade, and through the channels of trade flows the life-blood of the civilized and commercial world. Hence, the vital importance to all sections of establishing manufactories. Too long, alas! have they relied upon the workshops of New and Old England to supply them with cloths for raiment and implements for labor. Too long have they looked elsewhere for articles of daily use which might have been easily produced at home, by the proper application of a little capital, enterprise and labor. It is to this suicidal policy on the part of the people, that may be attributed to their present poverty and dependence.—*N. J. Mechanic*.

INFLUENCE OF INTENSE COLD ON STEEL AND IRON.—The correctness of the popular idea (strongly encouraged by railroad companies) that intense cold renders iron and steel more brittle, and may hence occasion the fracture of the tires of wheels during severe frost, which has caused many deplorable railway accidents, has long been doubted by practical physicists. The subject has now been again investigated; and from some papers read at a recent meeting of the Manchester Literary and Philosophical Society, (and published in *Nature*, No. 65, Jan. 26) by Sir W. Fairbairn, Dr. Joules and Mr. Spence, it would appear to be satisfactorily determined that a low temperature has no effect in rendering iron more brittle. Dr. Joule's experiments were particularly decisive, and consisted of applying weights suspended from the middle of steel needles at different temperatures, and letting the blunt edge of a steel chisel fall on cast-iron nails under similar circumstances. His general conclusion is that frost does not make either iron (cast or wrought) or steel brittle; and that accidents arise from the neglect of the railway companies to submit wheels, axles, and all other parts of their rolling stock, to a practical and sufficient test before using them.—*Eclectic Magazine*.

SHEATHING IRON VESSELS WITH WOOD.—Notwithstanding the acknowledged superiority of iron over wooden vessels for general service and durability, we have seen it stated that experience has shown the necessity for giving the former a protective sheathing of wood. At least this is the case on our great northern lakes.

The reason of this is, that touching at so many ports where the entrance is through narrow, rock-bound channels, there is much danger of striking a jagged point or the loose boulders on the bottom. In either case there is danger of puncturing a hole through the unyielding iron plates, which cannot be easily stopped or repaired without going into dry-dock. Wooden vessels, however, frequently strike even harder without receiving serious injury, the wood of the hulls being sufficiently elastic to receive the shock without the breakage of the shell sufficient to admit water, or so little as not to injure the cargo, nor require dry-docking, the damage being repaired from the inside, or a liberal use of pitch or oakum.

THE DANKS FURNACE—AN INVENTOR REWARDED.—It is stated that an agreement has been entered into between Mr. Danks, the inventor of a new puddling machine, and a combination of iron manufacturers representing the different iron districts in England, whereby the latter undertake to have 200 furnaces on his plan put up within six months, and, in consideration of his permission to do so, to pay him $250,000 at that time, whether the furnaces are in operation or not.

It is intended, on payment of a further sum, to erect 260 more, which with the 50 before arranged for, will make something like 450 furnaces in England alone. This is such a revolution as has never before occurred in the history of perhaps any industry, and the more is it to be wondered at when it is remembered that, till July last, it was thought that hand-puddling must for ever continue, every machine to do away with it having, before that, entirely failed.

COPYING DRAWINGS BY THE AID OF THE INDUCTION COIL.—All draftsmen are acquainted with the device of puncturing holes through a drawing for the purpose of obtaining an outline and afterwards transferring the outline, by sifting fine plumbago or other powder through the small holes. The fatigue of making the holes by hand is great, and M. Cauderay, of Lausanne, proposes to employ the induction coil for this purpose. A table covered with tin foil is connected with the negative pole, on it may be placed as many sheets of paper as the spark will pass through. The positive pole, consisting of a metal bar, insulated with gutta-percha, can serve as a pencil for copying the tracings. The metal point of the pencil being moved about on the contour and outline of the engraving, electric sparks spring across every time a connection is made, and puncture fine holes through the paper.—*Scientific American*

PHOTOGRAPHIC INVENTION.—Among the most remarkable of discoveries in photography is that claimed by one Johnson, an Englishman. The invention is a panoramic camera, which, by ingenius mechanism, sweeps the whole landscape and takes it on a plane surface embracing on one negative one-third of the circle. The exactitude of its operation is as singular as the beauty of the results. The pantoscope begins at one end of the view desired and goes round the horizon as one sweeps the telescope, the plate moving with a corresponding motion through the arc, which might be a circle if it were desirable.

STEEL RAILS.—Although we have no full statistics of the production and introduction of steel rails, it is still well known that their use is rapidly increasing. The follow figures are quite reliable:—8,500 tons in 1868; 12,000 tons in 1869; 45,000 tons in 1870 and 60,000 in 1871. It is very generally conceded that steel rails are to supercede iron in all the great railroads, turn-outs, sidings, etc., almost everywhere. Their first cost is about 50 per cent. greater than iron; but they last so much longer that there can be no doubt of their economy. No steel rail has yet been worn out.

SCIENTIFIC PROGRESS.

CURIOUS PHENOMENON OF RECURRENT VISION. In the course of some experiments with a new double-plate Holtz machine, says Prof. Young of Dartmouth College in the *Amer. Jour. Science*, I have come upon a very curious phenomenon which I do not remember ever to have seen noticed. The machine gives easily intense Leyden jar sparks from 7 to 9 inches in length, and of most dazzling brilliance, when, in a darkened room, the eye is screened from the direct light of the spark, the illumination produced is sufficient to render everything in the apartment visible; and what is remarkable, every conspicuous object is seen *twice* at least, with an interval of a little less than one-quarter of a second—the first time vividly, the second time faintly; often it is seen a third, and sometimes, but only with great difficulty, seen a fourth time. The appearance is precisely as if the object had been suddenly illuminated by a light at first bright, but rapidly fading to extinction, and as if, while the illumination lasted, the observer were winking as fast as possible.

I see it best by setting up in front of the machine, at a distance of 8 or 10 feet, a white screen having upon it a black cross with arms about 3 feet long and 1 foot wide. That the phenomenon is really subjective, and not due to a succession of sparks, is easily shown by swinging the screen from side to side. The black cross, at all periods of visibility, occupies the same place and is apparently stationary. The same is true of a stroboscopic disc in rapid revolution; it is seen several times by each spark, but each time in the same position. The is no apparent multiplication of a moving object of any sort.

Measuring roughly the interval between the succession instants of visibilty, in my own case the mean of 12 experiments gave 0.22 sec. as the interval between the first and second seeing of the cross upon the screen; separate results varying from 0.17 to 0.30 sec. Another observer found a mean interval of 0.24 sec.

Whatever the true explanation may turn out to be, the phenomenon at least suggests the idea of a *reflection of the nervous impulse* at the nerve extremities — as if intense impression upon the retina, after being the first time propagated to the brain, were there reflected, returned to the retina and from the retina traveling again to the brain renewed the sensation. I have ventured to call the phenomenon "recurrent vision."

It may be seen, with some difficulty, by the help of an induction coil and Leyden jar, or even by simply charging a Leyden jar with an old-fashioned electrical machine, and discharging it in a darkened room. The spark must be at least an inch in length.

NEW METHOD OF MEASURING THE VELOCITY OF ROTATION.—Prof. Dolbrae describes in the *Amer. Jour. of Science* a simple and exact way of doing this, which can be applied to measuring the velocity of wheels of any size, and every possible speed, without inconvenience or expense. The revolving disc is smoked on one side and a tuning fork, with a cone of india rubber fastened to one branch, made to vibrate while the disc is rotating. The point of the cone is touched to the disc. The number of undulations thus made once around the disc is counted. By this number the known number of vibrations made per second by the fork is divided and the result is the rate per second of the velocity. Thus if the fork makes 100 vibrations per second and there are two undulations in a single revolution, the disc turns 50 times per second. A single wave, or even half of one, is sufficient for the determination if the length be measured in degrees, in this case the velocity being equal to the number of vibrations of the fork per second, multiplied by the length of one wave in degrees, and the result divided by 360.

THE PROJECTED AUSTRIAN POLAR EXPEDITION. The results of the Austrian expedition of last summer have given rise to a strong attempt on the part of the Austrians to send another and larger expedition, the general plan of which was stated last December before the Vienna Academy of Science by Lieut. Weyprecht. The expedition is to be prepared for three summers and two winters as soon as the north coast of Nova Zembla is free from ice. A start will be made in order to reach the Siberian Islands the first summer if possible. The first winter is to be spent here and the second on the land which has been seen (but never reached) to the east of the New Siberian Islands. The objective point of the third summer is Behring Straits. If New Siberia cannot be reached the first summer, the expedition will winter the first time on Cape Tscheljnskin, the most northerly point of Asia, and reach New Siberia the second summer. The cost of the expedition is estimated at 175,000 gulden (about $80,000) of which some 45,000 gulden have been subscribed already. The building of a ship for the purpose has been commenced.

ROTATION OF THE SUN.—Zöllner and Vogel have succeeded in applying the spectroscope to the measurement of the velocity of the sun's rotation. Vogel found for the motion of a point on the sun's equator a velocity of 1.96 miles per second in one series of observations, and 1.64 miles in a second series. These velocities are greater than those at present admitted, and Vogel considers the observations at present as simply demonstrating the fact of the sun's rotation.

AURORAS.—Although auroras, says the *Mechanics' Magazine*, are much more frequently seen in latitudes north of ours than in our own, the North Pole is not the region around which the most splendid and magnificent displays of the northern lights are to be seen. As we travel further north from England, auroras become more and more common until a certain latitude has been reached, after which they become less frequent. And, strangely enough, the region in which the display is most commonly to be seen lies further north in some longitudes than in others. For example, an inhabitant of St. Petersburg would have to travel northwards to within 19 degrees of the Pole before attaining the region of the most frequent auroral displays. On the other hand, an inhabitant of Washington need only travel northwards to latitude 56 degrees to reach the place of the greatest auroral action. If we took a globe and marked down all the spots thus obtained, we should find that they formed a nearly circular band within which the North Pole would occupy a very eccentric position. In fact, we could represent the position of the band very well by constructing a ring of card or paper of such dimensions as to agree with the sixtieth parallel of latitude, and then pushing the ring down on the side of America and upwards on the side of Asia, until it passed through the most southerly part of Hudson's Bay and the most northerly part of Siberia. When fully formed, the auroral arch is a most symmetrical and beautiful apparition. It surrounds a space of slate-colored light, and from the arch itself luminous streamers dart with a quivering motion towards what is termed the magnetic meridian. Sometimes the ends of the arch are bent downwards near the horizon; but at others they are bent in a contrary direction. Hansteen relates that when he was at Christiana he twice saw the auroral arch in the form of a complete oval. Sometimes more than one arch has been seen. On one occasion the observers, who were sent by the French Government to winter at Bossekop, in Finland, saw no less than nine arches, separated by dark spaces, "and resembling in their arrangement magnificent curtains of light, hung behind and below each other, their brilliant folds stretching completely across the sky."

RESPIRATION OF FISH.—M. Grehaut, in the course of a lecture on respiration in fishes, states that, as shown by previous writers, fish are able to live in water until almost the whole of the oxygen it contains in a state of solution has been exhausted. This was shown by a chemical examination of some water in which live fish were preserved, and which, after the expiration of a certain time, showed an entire absence of oxygen, no change in the amount of nitrogen, and double the amount of carbonic acid.

Another curious fact noted by the lecturer was that fish breathe by their skin as well as by their gills, nearly as great a change in the composition of the gases contained in the water being observed when the animals were suspended up to their branchiæ as when the whole body was immersed. He also stated that the presence or absence of the swimming bladder had little effect on the product of respiration.

SPECTRUM OF THE ZODIACAL LIGHT.—This subject is intimately connected with that of the spectrum of the aurora, because Augstrom announced that the zodiacal light and the aurora both gave the same monochromatic spectrum. But Liais, the Brazilian astronomer, has lately been studying the zodiacal light under the very favorable sky of Rio Janeiro, and comes to a different conclusion. He finds that this does not differ from ordinary sunlight, but gives a continuous spectrum. It is, however, too faint to see any dark lines. This result is confirmed by Rev. T. W. Webb, of England, who has recently been observing the zodiacal light with a spectroscope which shows the auroral line very distinctly. He sees nothing like the green auroral line in the zodiacal spectrum.

MOVEMENT OF STARS IN SPACE.—General Dufour, of Switzerland, in the course of a recent investigation, attempts to show that in the case of the movement of two stars around a point supposed fixed, this point must be in motion. He also concludes that the curve is plane, and that the stars remain in the same plane during their translation; and the inference is that these stars have both received one impulse and a parallel movement, also that the movement of the apsides proves that the centre of gravity of the system is displaced not according to a straight line, but a curved one.

NEW FOSSILS IN KANSAS.—The first remains of Pterodactyls ever found in this country were fragments of a gigantic species, *P. occidentalis*, discovered by Prof. Marsh, in 1870, in the upper Cretaceous shale of western Kansas. The next year two other species, *P. ingens* and *P. velox* were found by the same party in or near the same locality (near the Smoky River), showing that the peculiar reptiles, so long deemed wanting in America, were apparently well represented here during the later cretaceous. They are described in the April *Amer. Jour. of Sci.*

FLORA OF THE CANARIES.—According to M. De Candolle, the flora of the Canary Islands, while containing scarcely any plant peculiar to the western coast of Africa, includes a large number found also in Europe. This fact would seem to indicate that these islands were long ago united to Europe by a land connection, while they appear to have always remained separate from Africa.

Mining Summary.

The following is mostly condensed from journals published in the interior, in proximity to the mines mentioned

California.

ALPINE COUNTY.

Started Up.—Alpine *Chronicle*, April 20: Two amalgamators for the Tarshieh Mill arrived on Wednesday'e etage, and on Thursday the mill and furnaces were started up.

Pioneer Mill.—This mill, at Markleville, is to be removed to Hope Valley, where it will he erected for the use of the Barnes' mine.

AMADOR COUNTY.

Specimen.—Jackson *Dispatch*, April 27: A Co. who have been engaged in working a placer claim on the south fork of Jackson Creek, were rewarded, last Friday, by finding a piece of quartz weighing a little over 8 lbe, and valued at from $500 to $1,000.

CALAVERAS COUNTY.

Sceiffebd's Claim.—San Andreas *Citizen*, April 27: Mr. Sceifferd is taking out ore preparatory to having it crusbed at Lloyd's mill.

Capitol.—This Co. are dowu 35 or 40 ft. Tbey bave a well defined vein, which widens as they go down.

EL DORADO COUNTY.

Rich.—Placerville *Democrat*, April 27: The Pocahontas Co. at Logtown, have struck a richer deposit than ever before found in the mine.

LOS ANGELES COUNTY.

San Gabriel.—Los Angeles *News*, April 20: The Roberts Co. is the only one at present working, being engaged in hydraulicing a bank at least 500 ft above the level of the river. Four men are at work prospecting new ground. The first clean-up was $300 from an 8 day's run.

The Ferguson Co. have 15 men cutting their ditch, 2 miles of it being already completed. There still remains another two miles unfinished. Kaley & Co. are also engaged in ditcb-making. The Patterson & Hawley claim is in the bed of the river, where preparations are going on to commence sinking.

NEVADA COUNTY.

Dead Man's Flat.—Nevada *Transcript*, April 23: The ehaft on Hunt & Talhot'e ground is being timbered and pumped out, and will soon be in working order again.

Tbe Constitution claims tunnel work will soon be commenced.

Idaho Mine.—Tbere is enough ore in sight for 3 years' work, and the mine is paying better tban at any time since it was opened.

Locations.—Sisson, Wallace & Co. have located all the waters of Martis' Creek and its tributaries.

F. E. Baker and others have located 1,500 ft of miuing ground, at Blue Tent, Nevada Township.

Buchanan.—The mine is on Big Deer Creek, about 3 miles east of this city. The tunnel is in 300 ft, and the ledge is opened to the depth of 100 ft. It is about 20 incbes wide, and the rock pays steadily from $25 to $30 per ton.

Sweetland.—Tbe Sweetland Creek G. M. Co. are employing 45 men night and day, and using 750 inches of water. They clean up every 6 weeks an average of $30,000. The Creek claims, owned by the same Co., clean up from $2,500 to $3,000 at every run of 6 weeks.

The Buckeye Co. are running a tunnel 2,200 ft in length to reach the bottom gravel, 900 ft beiug completed, and expect to bave it finished by next fall.

Tbe Manzanita Co. are running off top dirt, whicb is paying well. They are also engaged in running a tunnel to reach the pay gravel.

The American Co., on Manzanita Hill, are runuing nigbt and day, and using about 1,100 inches of water. They olean up every 2 or 3 weeks from $9,000 to $12,000. Thie Co. is also running a tunnel to get in lower to reach the gravel.

Banks, Dennigen & Co., on the same Hill, are takiug out considerable gold.

The Yuba Co. have just started iu witb very bright prospects.

Relief Hill.—Nearly all the Co's are at work. The Eagle Co. is engaged in drifting, working 8 men, and clean up every 30 days. The laet run they made yielded them at the rate of $47 to the hand, or in the aggregate of over $11,000 for the 30 days' run. Tbe Waukeshaw Co. are progressing finely in their hydraulic claim. The Union and Eureka Co's are workiug a large uumber of men, and their prospects of large clean-ups are good.

Brioks.—Grass Valley *Union*, April 23: At Findley'e place last evening might have heen eeen 2 gold bricks from tbe Idaho mine, valued at $15,000, out of a 15 etamp mill, run for 2 weeks.

Rich Strike.—Tbe steam machinery of the Knight of Malta has been in operation for eeveral days, and Thursday night the water was taken out of the shaft. Yesterday morning the miners in sinking on the ledge found the most beautiful rock, filled with free gold and sulphurets. The ledge has fine walls and is from 2 to 3 ft thick in the shaft.

PLACER COUNTY.

Rich Strike.—Auburn *Herald*, April 27: Mr. Moran bas opened a quartz ledge in bis field, some 9 ft. deep. It showed gold at the top, and at the above depth revealed very ricb rock. Tbe ledge is about 18 incbes wide.

SAN DIEGO COUNTY.

Bullion.—San Diego *Union*, April 18: There was ehipped yeeterday, to S. F., bullion amounting to $5,875.

Jullian Mines.—The ore of tbe Owens lead, at the depth of 100 ft., regarded as low grade rock is proving itself to be $75 ore. The ledge is fully 5 ft. wide. The proprietors of the Stonewall lead recently purchased a 60-horse power engine, and intend to add 5 etamps to their mill. The other leads, unmentioned, are all being vigorously worked.

Shipped.—San Diego *Bulletin*, April 20: There was shipped yesterday, bullion valued at $1,585.

Work is about being resumed in the Good Hope mine. This ledge is about 100 yards north of the Owens. Tbe shaft is now 74 ft. deep.

SIERRA COUNTY.

Bald Mountain.—Downieville *Messenger*, April 20: The Bald Mountain Co., Forest City have reached the shaft witb their tunnel, and will soon be taking out pay.

Brandy City.—Nevada *Transcript*, April 25: Last season Marks & Co., of Moore's Flat, purchased a gravel claim and two ditches, known as the Brandy City claime, for $72,000. Sixty days after commencement of work, this Co. cleaned up $32,200.

SISKIYOU.

Black Bear.—Yreka *Union*, April 20: In the lower level—eomething over 400 ft. from tbe surface—the ledge ie from 22 to 24 ft. in thickness. The rock is of excellent quality.

Quartz on Humbug.—Last Friday, Mr. Lash made his final clean-up of the batteries and blankets of the Eliza, prior to turning the property over to the new purcbasers and the yield was a trifle over $16 per ton At the Brown Bear, Clark & Cornish are sinking upon the ledge and find it widening as they deecend.

TRINITY COUNTY

New Diggings.—Weaverville *Journal*, April 20; S. McGillivray intends to take a portion of the water from bis Cañon Creek ditch to the large red flat, back of tbe Buther place supposed to be very rich.

TUOLUMNE COUNTY.

Sonora *Independent*, April 27: New Start.—The Patterson Quartz mino, near Tuttletown, is to be reopened immediately.

Orcutt Mine.—The mine, at Jacksonville, has struck a very rich stratum of rock, which prospects all tbrougb it at tbe rate of $42 per ton.

Chispa.—Capt. Turner, picked up on Tuesday last, on bis ranch out of a pile of tailings, a piece of gold weighing 10 ozs., and $12.

Lennon & Waoner Mine.—Tbeee gentlemen are down upon their vein 50 ft., at which depth it is 10 inches wide, and averages $35 per ton with flattering prospects.—Within the last few days they have taken ont $500.

Strike.—Wright & Orcutt, Jacksonville, inform us that they bave struck a rich deposit of gold-bearing gravel in their neighhorhood.

Republican Quartz Mine.—The owners of the Republican mine have a vein 13 inches thick, paying on the average, $40 per ton.

Another Lead.—The workmen in Hughes' Tunnel, Jeffersonville, having left the old lead, are driving a side tunnel to tap a lead in anotber direction.

YUBA COUNTY.

Brown's Valley Mines.—Marysville *Appeal*, April 27: The Brown's valley quartz mines, including the Pennsylvania, Donnebrook, and other veins or lodee, have heen purchased by S. F. capitalists who propose to proceed immediately to re-open and work them vigoronsly.

Sucker Flat.—G. V. *Union*, April 24: At the the Blue Point, the tunnel througb wbich their flume runs ie 2,100 ft. long. Iu tbat hole over $200,000 have heen taken out. There tunnel ie 40 ft. below tbe bedrock.

At the Blue Gravel work is heing prosecuted with vigor. The miners started to run an iucline Monday to tap their tunnel. They clean up, on an average, from $60,000 to $70,000 in a run of 40 days. They have started a tunuel which is to be 3,000 ft long to wash tbe blue gravel tbat lies between tbe cement and bed rock.

Tbe Enterpriee has not began to wash yet as their tunnel is not through. They have about 520 ft. yet to run before it is completed.

The Smartsville claim have run into the bill so far that they now bave a 175 ft. bank. Tbey have a 250 ft pressure to wash their dirt.

Nevada.

EUREKA DISTRICT.

Antelope Dist.—Eureka *Sentinel*, April 21: There are about 20 men there, and the principal discovered ledge ie the "Merimac," tbe rock from whicb is worth $150 per ton.

New Discovery.—From immediately south of the Jackson Co.'s furnaces is a hill lately named "Coy Hill," ou whicb some fine locations have been made recently. Assaying well.

Robinson Dist.—The Canton M. Co. bas extensive interests in this Dist., whicb will be worked during the coming summer.

New York Canon.—The Golden Gate has a sbaft down over a 100 ft., and drifting from the eecond body of ore is progressing rapidly. The Fourth of July is driving matters, and immense quantities of high grade ore are being brought out. The Oromoso has a fine body of high grade ore in sigbt at only 20 ft. from the surface. The Morris is looking well in the incline at a depth of 15 ft. The Hannah has an incline from the hoisting shaft, with ore the whole widtb of the drift for 30 ft. in length.

ELY DISTRICT.

Pacific Tunnel No. 2.—Ely *Record*, April 21: Tbe length is 700 ft., running in a direct line for tbe American Flag mine. At 346 ft. a cnt was run about 12 ft. in a nortbwest direction, and a very large vein of pay ore was struck. From the dip it is suppoeed to be tbe Vermillion lead. At 480 ft. another vein was struck of about the same character ae the first. The face of the tunuel, from late surveys, was found to be 280 ft. from the surface. One hundred and eighty ft. more will be run to strike tbe American Flag ledge; thence through Spring Mound, tapping all the great mines in Pioche at an immense depth.

Ward Beecher—Has beeu sunk 240 ft. with rich results. At 210 ft. a drift was run west about 20 ft., which opened up a magnificent body of ore; the average assay being $107 to the ton. On Thursday at 240 ft., an immense body, covering the entire bottom of the shaft.

Phenix.—This claim, on Panaca Flat, is looking exceedingly well. The sbaft has heen sunk over 200 ft., and on Wednesday last a body of ore 2 feet in width was struck, assays from whicb give a return of $100 to $500.

Page & Panaca.—Work ie heing carried on vigorously. The main shaft is down about 200 ft., and 33 ft. below the first etation. At 260 ft. a new station will be opened. 3 ehifts are sinking tbe shaft.

Condor.—Work will be ehortly resumed with a full force of men. The ehaft is down about 90 ft.; a ledge of 4 ft. in width has been opened up, and sbows well. They have ahont 30 tons of good ore on the dump.

Maggie.—Tbis shaft is 120 ft. deep. About 2 ft. of pay ore has been discovered within the last 2 weeks. The mine is on Spring Mound just above the Creole sbaft of the Raymond & Ely.

Vulture.—This mine, near tbe Bowery, has shown ore 4 ft. in widtb, and assays run from $100 to $150 per ton. A shaft has heen eunk 30 ft., and chlorides are said to he plentiful at tbe bottom.

Kingston.—Tbe shaft is 190 ft. deep with very favorahle indications. Work is being pushed vigorously.

Bowery.—Down 190 ft., and drifting for the ledge. Shipping ahout 10 tons of ore to mill daily, wbich mills an average of $250 per ton.

HUMBOLDT.

Genacca's Mill.—Humboldt *Register*, April 20: It is expected to he turning out hullion by the first of July.

Dun Glen.—Cor. same: The Lang Syne mill will start up on Monday with a new trip-hammer battery.

A large body of rich ore has been struck in the mine within the last few days.

Work continues eteadily in tbe Tallulab tnnnel, with strong indication of a ledge. In the main shaft the ledge is 5 ft. wide, and looking finely.

Davey and Nelson are pushing work on their mine. Ahout 50 tons of shipping ore on the dump.

Bullion.—Unionville *Silver State*, April 27: Amount ehipped from the Arizona since our last issue, was $5,523.

Alpha Ore.—The English mill, at Reno, is running to its full capacity, day and nigbt, mostly on ore from the Co.'s mine in Echo Dist.—the Alpha. The ore mills $75 per ton.

Argentura Dist.—Work is being prosecuted vigorously on the recently discovered mines in Argentura Diet.

REESE RIVER.

Pacific Co. (Limited).—Reese River *Reveille*. April 20: In the Lane & Fuller shaft a cross cut is being run at the 550 ft. level, and a small quantity of high grade ore extracted from the ledge. At the 400-ft. level the pay streak ie exteneive, varying in widtb from 6 inches to 2 ft. in the 2 ledgee being worked. In the Buel North Star at the 500 ft. level, tbe ledge is stripped longitudinally for 200 ft., sbowing a face of ore the entire length, the width of the ledge averagiug from 1 to 3 ft. Working 54 men.

Grove Tunnel.—Tbis mine is let out in contracts to various parties. Now in ore house, about 40 tons high grade ore, belonging to various lessees. Total number of men working, 22.

Moroan & Muncey.—At bottom of 400-ft. level, tbe ledge is of an average size of 12 inches. Hoisting good ore and piling in ore honse.

Saybrook will shortly commence deepening shaft 150 ft. Now working in 110 ft. level, and getting ore of average grade. Working 8 men.

Esther.—Running a cross cut for the ledge at the 200 ft. level, and clearing out drift preparatory to taking out ore.

Diana.—Running 5 prospecting drifts on ledge at different levele, lowest 300 ft. Getting out ore in the 120 and 150 ft. levels. Shipping ore to Mauhattan mill and Wren's Concentrator. Working 15 men.

Isabella.—Getting rich rock in tbe lower level. Working 20 men.

Manhattan Shaft.—Leased to various parties. Working 35 men, 100 tons ore on dump.

Florida.—Getting out ore averaging $350 per ton, shipping to Manhattan Mill. About 10 tons on tbe dump. Working 12 men.

Clark & Co.—Getting out very high grade ore and shipping to Manhattan.

Ku Klux, a fiue body of ore has receutly heen struck in this mine, in a ledge of an average width of 2 ft., coutaining eome base hut averaging high in eilver.

Mills—Manhattan.—Running steadily on custom ore, and ore from the Co.'s mine.

Wren's Concentrator. — Running steadily on ore purchased from varioue dumps, and on small lots from Diana, Martincau and Grove Tunnel.

Metacom will start up as soon as the price of wood will admit.

Yankee Blade Dist—Ension.—During the week past 19 tons, of an estimated value of $150 per ton, has heen ehipped to Manhattan mill, and 1½ tons which assayed $1,000 per ton, Working 3 men.

Kling & Kelly.—Shaft down 150 ft. Average width of ledge 2 ft. Sbipping ore to Manhattan, varying by assay from $100 to $350 per ton. Working 20 men.

New York Canon—Chase.—Tunnel in 600 ft. Ledge from 1 ft. to 18 inches in width. On dumps, 30 tons of ore. Working 2 men.

Morris & Cable.—Width of ledge from 6 to 18 inchee, 15 tons of high grade ore on dump. Working 4 men.

Gold Mt. and Lida Valley.—There are at Gold Mountain about 30 men and at Lida Valley about 20, who are engaged in prospecting the ledges already discovered. In a tunnel run by B. F. Higgs, at Gold Mountain, water sufficient for domestic purposes has heen struck. The formation at Gold Mountain is sienitic granite and porphry, and the ore is in the form of sulphurets and chlorides of silver, and sulphuret and free gold. About 7 miles from Gold Monntain are several ledges carrying carhonate ores suitable for smelting. The principal mines are the Boreuo, Shaw and Nova Zembla on which shafte have been sunk.

Murphy Mine.—Since the 15tb of Feh. about 300 tons of ore have been taken from the mine which averaged $125 per ton. The ledge is 20 ft. in thickness in wbich are 2 veins of pay ore, one 5 ft. and the otber from 6 inches to 2 ft. in width. The Co. own in connection with tbe mine,

a 20-stamp mill. About 60 men are employed in and about the mine and mill.

WASHOE.

SUTRO TUNNEL.—Virginia *Enterprise*, April 21: The tunnel was yesterday in 2,840 ft.

ALASKA CON. M. Co.—The Co. is in the Colemnn M. Dist., 6 or 7 miles aonth of the Daney mine. Considerable work is being done on this claim, and the ore being taken ont has all the appearance of Comatock ore. The center ledge is 61 ft. wide, the west ledge 24 ft. (and the east ledge 30 ft. A force of men are thoroughly prospecting the mine, and sinking shafts and running tunnels.

NEW UTAH SHAFT.—The new shaft will be about the center of the claim and 600 feet east of the old shaft. Work will be commenced to-day on the new shaft, which will cut the lead at n depth of about 600 ft.

MCMEANS.—A shaft is sunk 100 ft. deep and a tunnel 600 ft. in length is run.

OVERMAN.—The 1,000 ft. station is opened and a drift level for the ledge from that point will be commenced soon.

PICTOU.—Shaft 155 ft. deep, with an incline of 70 ft. deeper on the lodge. Tunnel 550 ft. with 100 ft. further to go to cut the ledge.

BALTIMORE. — The machinery of the Uncle Sam hoisting works, purchased by the Baltimore Co., is being removed to the new shaft of the Co.

YELLOW JACKET.—Incline down 110 ft. below the lowest working level, following the slope of the incline. A new station will be opened at the 1,540 ft. level, when it is reached. Daily yield of the mine, 50 tons.

CROWN POINT.—Daily yield 425 tons, from the 1100 and 1200 ft. levels, milling on the average $70 per ton. There is no particular change to note in the mine. It is simply immense, with no limit to its richness or quantity of ore contained.

CHOLLAR-POTOSI.—Daily yield 150 tons from the Belvidere, Blue Wing and other old ore sections. Prospecting in the various parts of the mine vigorously carried on.

SIERRA NEVADA.—Daily yield 50 tons from the new ore vein in the lower levels. This vein is looking finely and a raise is being made to facilitate its working higher up

SUCCOR.—Only enough ore is taken out to keep the Co.'s mill running. The new shaft is sunk.

CON. VIRGINIA.—Prospecting vigorously at the 500 ft. level.

GLOBE.—Some very good ore is found in the old upper workings, which is being shipped to mill;

GOULD & CURRY.—Drifting north at the lower level, and sinking tho incline.

CALEDONIA.—Engaged in retimbering the shaft.

WHITE PINE.

NORTH AURORA.—White Pine *News*, April 20: The ore in the Risdalo chamber continues to hold up in quantity and grade. The ore body in the South chamber is cut through to the hanging wall, and drifts are pushed ahead east, west, and south, for the purpose of stoping out to advantage.

EAST SHEBOYGAN.—In the ore chamber a great part of the ore is of a high grade. The ore in the west cross-cut has improved since last reported. Work was recommenced on the Exchange drift this week.

MAMMOTH.—The ledge in shaft No. 12 shows a width of 8 ft., pitching to the northwest at an angle of 70 deg. There is a force of 5 men at work.

CON. SILVER WEDGE.—Work was resumed since last report. A drift was started to run from the 130-ft. level east. There is a body of quartz 2 ft. thick in the face of the drift.

SOUTH SHEBOYGAN.—The drift running to cut the ledge is in 67 ft.

NOONDAY.—There is 250 tons of ore on the dump.

WARD BEECHER.—Sinking winze from the bottom of Phillpotts chamber to East drift from Lady's chamber.

BEECHER CONS.—The mines and mills will start up about the middle of next month.

SILVER WAVE.—Breasting out in Boswell shaft. Hoisting and piling ore on the dump. Work in the Perkins shaft is going ahead on contract.

EBERHARDT. — A force is employed breasting out south of the old Keystone workings.

SILVER OWL.—Running an incline from the limestone foot-wall, and good indications. Also sinking a vertical shaft 200 ft. back to cut the ledge.

TRENCH.—The tunnel running to cut the ledge broke through the foot-wall yesterday, and found rich ore assaying from $60 to $1,000 per ton. The width of the ledge has not yet been ascertained.

Arizona.

MINES AND MINING.—Prescott *Miner*, April 13th: A new working shaft has been started on the Tiger. The furnaces at Wallapai and the mill near Ehrenberg are almost ready for operation.

PINAL MINES.—San Diego *Union*, April 18th: The work of developing the newly discovered silver mines in the Pinal mountains was going on nicely until the Apaches made a descent on the miners, stealing all their horses and mules. The lowest of the assays shows the poorest of the ore to contain $48 silver, to the ton, and the other assays have given us high as $10,000 per ton.

Colorado.

SHIPMENTS.—Georgetown *Miner*, April 13th: Bailey & Nott shipped during last week fifteen tons of ore.

Since our last report, G. W. Hall & Co. have sent off 95,000 lbs of ore.

Wm. Bement has purchased 70 tons. Shipped 60. Is making up a car of high grade for shipment to Europe.

CARIBOU.—Caribou *Post*, April 20th: In the Caribon mine the vein-ore of rich sulphurets is 1½ ft. thick. Workings for March, on one portion, paid a net profit equal to the interest, at the rate of six per cent. per annum, on $30,000,000, provided tho whole mine had been developed and worked with the same success that the part opened was worked during the past month.

The Caribou mill is working 16 to 18 tons of ore each day. A recent important addition to the works is a cupel furnace for refining the bullion.

The Silver Point, Idaho Hill, opened to the depth of 60 ft., has a wide crevice filled with rich ore. A sample lot assayed, in silver, at the rate of $2,600 per ton. The owners have a large amount of ore on the dump. The Seven-Thirty and many other mines are doing remarkably well.

The new mining camp of Williamsburg is 5 miles north from this place, and includes the Washington mine.

CLEAR CREEK CO.—Central *Reporter*, April 17th; on the Queen lode three claims are being worked, that are yielding a very fair grade of ore. On the discovery, Hall, Queen & Co. have a shaft 115 ft. in depth, the ore in the bottom averaging 10 inches in width. The first grade ore is worth for smelting purposes from $50 to $300 per ton. Claim No. 2 west is being worked by the Dagenais Bros. Their shaft—60 ft. in depth—carries a vein of first-class ore from 4 to 6 inches in width. No. 3 west, Lacaille & Co. have leased. At 110 ft. in depth they are drifting east on a fine vein of ore that averages about 10 inches in width.

BENNETT & CO., on the Kent Co. lode, at 150 ft., have a crevice 25 ft. between walls, with 6 ft. of pay-ore that runs a trifle over 6 ozs. to the ton.

Mr. Joseph Harper's mine is on the California, 425 ft. in depth, looking excellently well, carrying a rich crevice of ore in the shaft, and in the drift running west the crevice is four ft. between walls, of rich milling and smelting ore.

Lower California.

SAN RAFAEL.—San Diego *Union*, April 18th: Two new ledges have been discovered which are pronounced superior in richness to any yet opened.

Montana.

HIGHLAND.—Deer Lodge *New North-West*, April 13: Five men have been at work on the Nevins lode all winter. They are down about 250 ft., and have a well-defined crevice 4 to 5 ft. in width, and very rich. The Nevins Co. have 5 overshot wheels and 11 arastras, and expect to crush a great deal of ore this season.

UPPER TEN-MILE.—Helena *Gazette*, April 15th: Peterson & Co. have had a good force drifting in the har all winter, and washing the dirt with good results. They are running two breasts, day and night.

Monitor Gulch will be extensively worked again this season. Four hydraulics were run last year.

WORKING.—Helena *Herald*, April 13: At the Silver Reduction Works, Jefferson Dist., a continuous stream of bullion is flowing from the furnace, which assays $1,500 to the ton.

BEARTOWN.—Dear Lodge *Independent*, April 20th: Snider, Reimer & Co. are constructing a ditch from a point half a mile below town to a har two miles below.

McDonald & Clegg intend opening new mines in Phelan gulch, half a mile below the old diggings.

Oregon.

GOOSE LAKE.—Q. A. Brooks informs the *Statesman* that the placer mines lately discovered in Quartz Valley, between Link River and Goose Lake, are creating considerable excitement throughout all Southern Oregon.

Utah.

TUNNELS.—Salt Lake *Tribune*, April 20: Work is being prosecuted on the Howland and Etna tunnels, and Little Cottonwood, with much vigor. It is the intention of the Co. to work all the hands that can be profitably employed. As soon as the snow melts a number of shafts will be sunk on the line of the Howland tunnel.

RUNNING.—The Badger State Smelting Works, 4 miles south of the city, have turned out 8 tons of bullion in the last 2 days.

The Winnamuck, or Daggett & Bristol's Furnace, at Bingham Canon, is also in successful operation.

RUSTIC.—Cor. same: The smelters are to resume work soon. The Enreka Co. are putting up their 12 stamp mill at Homansville. Woodmansee's Sunbeam is showing 2 splendid veins. L. J. Whitney has purchased more Sunbeam, and has commenced operations with flattering prospects. The S. L. M. Co. are tunneling Argenta Hill with considerable success.

Jno. Bently, Sup't of an Omaha Co., has arrived and commenced work on the Co's mines, all near Diamond City. The Saratoga and Mary Cleveland are showing up splendidly.

The O. K. Co. will resume operations about the 1st of May.

The Swansea is being vigorously worked and is turning out and shipping more than ever. The Mammoth is working 40 men and can hardly procure transportation for the first-class ore. C. Crimson & Co. are tunnelling for the Mammoth north from Mr. Meader. He expects to strike the ledge in a few days.

The Eureka Co. have about 10,000 tons of milling ore on their dumps. Robbins & Lance continue to take out splendid ore from their Mono and Left Bower. They are taking out some fine ore from the Red Bird lode.

McMasters, Mathews, Foley, Green, Brooks & Martin, Pointer, Sterling and Jackman & Sons, are successfully working their claims at and near Diamond City. Quite an extensive vein of galena has recently been struck in the Austin lode.

Fresh discoveries of rich horn silver rock have recently been made on Eureka Hill, and the Eureka Company have taken a quantity of splendid silver ore from their Beck shaft.

The mines near Silver and Diamond cities are steadily looming up.

EAST RUSTIC.—Cor. same: The Alice is down 90 ft, as a fine ore streak of 3 ft 6 inches and a 6 ft 8 inches vein. The ore is good and improves the further it is followed. There was at least 40 tons of good ore on the dump. The work on this shaft is progressing rapidly. The Washington is another promising lead; it is down 100 ft and has at least 100 tons of ore on the dump. Any assay made from the promiscuous pile will go $100 to the ton. The Benton is an excellent lead. The Morning Glory is producing some splendid ore and has a large quantity on the dump. The Silver Pride of Diamond is doing well. Two shafts are down 100 ft each. They are drifting and getting out some very rich mill ore. The Bowers is at work with every prospect of being pushed ahead. Drifts are to be run and, if that fails, a further depth will be sunk.

The Silver Star is a well defined lead, the shaft is down about 75 ft. It has about 3 ft of ore which will assay as high as $500 per ton.

S. F. Stock and Exchange Board.

THURSDAY, MAY 2.

Sales at the Stock Board were larger for the week ending Wednesday, the 24th ult., than at any previous week since the Board was formed. The sum total was $11,203,000. The Raymond & Ely mine sent down up to the 26th ult., $284,854 for April; $32,000 was produced for the three days previous to the 29th. The Mahogany sent down $5,000 last week. The Board adjourned from over Saturday to attend the funeral of N. E. Grimes, formerly a member. The Trustees of the Dauphin M. Co. have elected the following officers: S. D. Krieder, President; R. C. Singer, Superintendent; and C. F. Balcolm, Secretary and Treasurer. The propositions before the Board to secure a larger room, abolish street sales, etc., will be seen by reference to another column.

The meeting called by the Senator M. Co., for the 31st of May, is to consider a proposition to increase the capital stock from $600,000 in 6,000 shares, to $2,400,000, in 24,000 shares. The Hartford M. Co. will hold a meeting on May 28th, with a view of increasing their stock from $280,000 in 400 shares, to $3,500,000 in 3,500 shares. The Imperial propose on May 29th, to increase their stock from $2,000,000 in 4,000 shares to $4,000,000 in 40,000 shares. The Gold Cañon Consolidated Co. will take into consideration on May 31st a proposition to increase their capital from $700,000 in 3,500 shares, to $3,000,000 in 35,000 shares. The Consolidated Virginia propose on May 20th to increase their capital stock to $7,080,000 in 23,600 shares. The Belcher Co. propose on May 24th, to increase their stock from $1,040,000 in 10,400 shares, to $10,400,000 in 104,000 shares. The Hale & Norcross, on the 30th of May, propose increasing their stock from $3,200,000 in 16,000 shares, to $9,600,000 in 48,000 shares.

There was only one session of the Board last Thursday, when a large business was done at advancing prices, and Belcher, Crown Point and Hale & Norcross brought heavier prices than ever before. On Friday, Belcher sold for $1,600, equal to $19,200,000 for the whole mine. Monday, stocks were still advancing. Tuesday, for the first time in a long time, the market was irregular and weak, some descriptions falling and some advancing. Wednesday, the market was decidedly weak, and everything showed a decline, varying in high priced descriptions from $20 to $80, and on low priced kinds from $1 to $15. To-day, however, the market recovered somewhat from Wednesday's depression, and Crown Point sold at $1,600 regular, and $1,700, buyer 30, the higest figures ever paid.

Comparative Prices—Extremes, Advance and Decline.—S. F. Stock and Ex. Board.

	April 25.	*Highest.*	*Lowest.*	May 2.	*Adv.*	*Dec.*
Alpha	$180	225	150	170	—	—
American Flag	—	20	16½	—	—	—
Belcher	1525	1690	1440	1400	—	125
Buckeye	8	10	8	10	2	—
Chollar-Potosi	320	320	220	270	—	50
Caledonia	121½	140	95	127	—	12
Cons. Virginia	140	140	110	128	—	12
Crown Point	1500	1700	1450	1700	200	—
Daney	6	6	4	8	—	—
Eureka Cons	—	42	32	—	—	—
Eureka	—	18½	16	—	—	—
Exchequer	55	100	50	65	10	—
Gould & Curry	505	540	470	510	5	—
Golden Chariot	—	16½	14	—	—	—
Hale & Norcross	405	410	215	365	—	40
Ida Elmore	—	21	17½	—	—	—
Imperial	420	470	320	365	—	55
Kentuck	610	610	420	507½	—	102½
Mammoth	—	90c	75c	—	—	—
Meadow Valley	16	19	—	—	—	—
Mahogany	—	22½	20	—	—	—
Ophir	135	135	107½	112½	—	22½
Orig. Hid. Treas	—	22	12½	—	—	—
Overman	270	270	180	185	—	85
Pioche	—	17	13½	—	—	—
Raymond & Ely	—	125	112	—	—	—
Savage	775	775	510	590	—	185
Sierra Nevada	54	55	47	48	—	2
Succor	10	10	8	—	—	—
Wash. & Creole	—	7¾	6	—	—	—
Yellow Jacket	315	315	250	285	—	30
St. Patrick	—	20	20	—	—	—
Seg. Belcher	320	320	170	285	—	35

Latest Prices—Bid and Asked.

	BID.	ASKED.		BID.	ASKED.
Alpha Cons	155	170	Ida Elmore	18	20
Amador	—	—	Imperial	470	505
Belcher	1350	1400	Kentuck	—	—
Chollar-Potosi	250	275	Meadow Valley	18	17½
Crown Point	1500	1700	Ophir	110	112
Daney	5½	6	Orig. Hid. Treas	18	18
Eureka Cons	32	37	Overman	170	180
Eureka	16	17	Savage	560	580
Golden Chariot	15	15	Raymond & Ely	115	117
Gould & Curry	480	510	Sierra Nevada	40	47
Hale & Norcross	350	370	Yellow Jacket	260	280

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

ASSESSMENTS.

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	DAY DELINQUENT.	DAY OF SALE.
Alleghany Consolidated, Cal. Ap. 26, 25c.	June 3	June 24*
Balto. M. Co., Stores Co., Nev., Ap'l 30, $1	June 5	June 28
Buckeye M. Co., Nev., Mar. 23, $1.25	April 26	May 16
Cons. Virginia M. Co., Nev., Mar. 19, $3.	Apr. 24	May 18
Daney M. Co., Lyon Co., April 3, $1.50	May 9	May 27
Francis M. Co., Cal., April 6, $1	May 14	June 4*
Gen. Lee S. M. Co., W. Pine, Ap'l 27, 10c.	June 11	July 2
Golden Chariot, Idaho T., April 12, $1.50.	May 22	June 18
Grand Duke M. Co., U. T., Mar. 5, 25c.	April 15	May 15
Huhn & Hunt S. M. Co., Nev., Mar. 20, 25c.	Apr. 29	May 27
Ida Elmore, Idaho, March 6. $3	April 11	May 10
Ingomar S. M. Co., Ely, April 2, 25c	May 8	May 31*
Imperatrice Eugenie, Cal., April 26, 25c.	June 2	June 17
Julia Nº 8 S. M. Co., Nev., April 22, $5	May 25	June 15
Kincaid Flat, W. P., April 23, $3	May 27	June 17*
Knickerbocker, M. Co. Nev., Mar. 23, 50c.	Apr. 27	May 17
Lemon M. and M. Co., Eureka, Apr 1, $1.	May 7	June 12
Louise M. Co., Nevada, April 6, 10c.	May 14	June 10
Lyons & Wheeler Co., A. T., April 6, 10c.	May 15	June 3*
Magnolia S. M. Co., Nev., April 22, 25c.	May 25	June 20
Mahogany M. Co., I. T., April 3, $1.50	May 11	June 3
Marcelina S. M. Co. Mar. 8. 10c	April 15	May 7*
Mt. Jefferson M. Co., Cal., Apr. 3, 30c.	May 6	May 22*
Nevada L. & M. Co., Nev., March 28, 4c	May 2	May 24*
Nuestra Senora do Guadalupe, May 12, $2.	Ap 15	May 8*
Ophir S. & G. M. Co. Cal. Mar. 18, 20c.	April 20	May 7
Ophir S. M. Co., Nev., April 17, $5	May 22	June 13
Overman S. M. Co, Gold Hill, Mar. 18, $4.	Apr. 13	May 13
Page & Panaca, Nov. April 12, 50c.	May 20	June 15
Peter Walter M. Co. Placer Co. Mar. 11, $1.	Apr. 18	May 6
Phœnix S. M., Nev., Mar. 19, 75c.	April 24	May 15
Piermont M. & M. Co., April 16, 40c.	May 20	June 19*
Pocahontas G. M. Co., Cal., Feb. 25, $5.	April 6	May 6*
Rising Star S. M. Co., Idaho, Ap'l 27, $1.	June 1	June 29
San Buenaventura Co. Cal., Jan. 19, $1.	Feb. 29	Mar. 29
Siempre Viva Co., Mex., Mar. 25, 30c.	May 2	May 20*
S. Gold Hill M. Co., Nev., Apr 1, $2.50.	May 6	May 27
S. F. M. Co., Utah Ter., April 13, 25c.	May 16	June 8*
Silver Sprout M. Co., Cal., April 29, 50c.	June 1	June 22*
Silver Wave, W. P., Nev. Apr. 10, 50c.	May 14	June 13*
Spring Mt. Tunnel Co., April 11, 15c.	May 20	June 10*
Succor M. & M. Co., Nev., Mar. 20, $2.	April 23	May 15
Sumner, Kern Co., April 11, $10	May 22	June 21
Tallulah M. Co., Nov., April 5, $1.50	May 7	June 4
Tecumseh G. S. & O. M. Co. Cal. Mar. 20, $3.	Apr. 23	May 14*
Tecumseh M. Co., Cal., April 24, $5	May 29	June 17*
Union G. M. Co., Cal., April 11, $1	May 13	June 3*

MEETINGS TO BE HELD.

Adams Hill Con. M. Co.	Annual Meeting, May 6
Belcher S. M Co.	Special Meeting, May 24
Best & Belcher M. Co.	Meeting May 13
Cayuga Chief	Annual Meeting, May 6
Central Coal M. Co.	Annual Meeting, May 6
Consolidated Virginia	Special Meeting, May 20
Cotopaxi S. M. Co.	Annual Meeting, May 6
Empire M. Co.	Annual Meeting, May 13
Eureka M. Co.	Annual Meetiug May 7
Golden Age & Empire M. Co.	Annual Meeting, May 27
Gold Canon Cons. M. Co.	Special meeting, May 31
Hale & Norcross	Meeting, May 30
Hartford G. & S. M. Co.	Special meeting, May 28
Imperial S. M. Co.	Special meeting, June 3
Independent G. M. Co.	Meeting May 8
Independence	Annual Meeting, May 6
Lyons & Wheeler M. Co.	Annual meeting, May 13
Mina Rica M. Co.	Annual meeting, May 8
Nevada Land & M. Co.	Annual meeting, may 13
Oneida M. Co.	Annual Meeting, May 6
Orient S. M. Co.	Annual Meeting, May 13
Original Hidden Treasure M Co.	Annual Meet, May 7
Peavine S. M. Co.	Annual Meeting, May 13
Pioche S. M. Co.	Annual Meeting, May 6
Seymour S. M. Co.	Special meeting, May 31
Sierra Butte M. Co.	Annual Meeting, May 6
Silver Sprout M. Co	Special Meeting. June 3*
Spring Mountain Tunnel Co.	Annual Meeting May 9

LATEST DIVIDENDS—(Within Three Months).

Belcher, $20	Payable April 10
Chollar Potosi, $1	Payable Feb. 10
Crown Point, $25	Payable April 12
Eastport, Cooso Bay, Coal M. Co. 1 per ct.	Payable Feb. 12
Eureka Gold M. Co., $1	Payable March 11
Keystone M. Co., $7.50	Payable April 10.
Meadow Valley M. Co., $1.50	Payable April 13
North Star G. M. Co., $7	Payable April 9
Raymond & Ely, $5	Payable March 8
Raymond & Ely M. Co., $7	Payable April 9
Yule Gravel M. Co., 50c.	Payable April 10

—*Advertised in this journal.

A NEW BOOK ON MINING.

The Explorers', Miners' and Metallurgists' Companion; Comprising a Practical Exposition of the Various Departments of Exploration, Mining, Engineering, Assaying, and Metallurgy. The Most Practical and Comprehensive Work on Mining Subjects Extant. Comprising 640 Pages and 81 Engravings. By J. S. Phillips, M. E. Price, bound in cloth, $10 (in coin); in leather, $12. Forwarded by mail, in cloth, $11.40, currency; in leather, $13.75. Issued and for sale by DEWEY & Co., Patent Agents and Publishers Scientific Press, S. F.

Illinois Industrial University.

We present in this number a cut of the principal building of the above institution. This University, located at Urbana, Champaign County, Illinois, was founded under a law of Congress, and is under the control and patronage of the State. It has quite a liberal endowment, and is economically developed to the full capacity of its current income; besides, the State has aided it by appropriations, and the county in which it is located, by donations. It was opened for the admission of students four years ago. There were seventy-seven students the first term, and the number has steadily increased, until in the present year three hundred and seventy-five students are in attendance. Women were admitted to the University in the autumn of 1870, and there have been during this year some forty-three in attendanee.

The University is divided into five Colleges, each of which comprises one or more Schools.

College of Agriculture.

This contains the School of Agriculture aud the School of Horticulture. This College aims to carry out one of the leading ideas of the law of endowment, to teach all the atudies relating to these arts. There are 600 acres of fine farming land under this department, well stocked, and in a fine condition to practically illustrate all the truths learned in the class room. This College deservedly takes first rank in the University, both for its importance aud completeness of work.

College of Engineering.

Thia comprises Schools of Mechanical Engineering, of Civil Engineering, of Mining Engineering, and of Architectural Engineering. The School of Mechanical Engineering takes the lead in this College. The instruction, while severely scientific, is also severely practical, and aims at a thorough understanding and mastery of all the mechanical principles and devices. Shop practice is required as a regular study of the course; and for this purpose a building 128 feet loug and 80 feet wide, has been erected and furnished with a full set of the best machinery. Over $30,000 has been carefully expended to develop the practical side of this school, and the University is prepared to give, and probably does give at present, better instruction in Mechanical Engineering than any other University in this country.

Although the School of Mechanical Engineering oecupies the first place in this College, the other Schools are by no meane neglected, but are at once thoroughly practical and scientifie.

College of Chemistry.

This College aims to fit men for all callings where this science is needed: Chemists, Pharmaceutists and Metallurgists; also in its application to the arts of electrotyping, photography, ete. The College has a laboratory well fitted up, and about $8,000 worth of apparatus and furniture.

College of Natural History.

The aim of this department is to fit persons for Practical Geologists, Collectors and Curators of Cabinets and Musenms, and for superintending scientific explorations and surveys.

College of Literature, Scicnce and Art.

This College embraces Schools in the different Languagee, in Commerce, and in Military Science. The course in this College is quite similar to the classical course in any full college.

Features of the University.

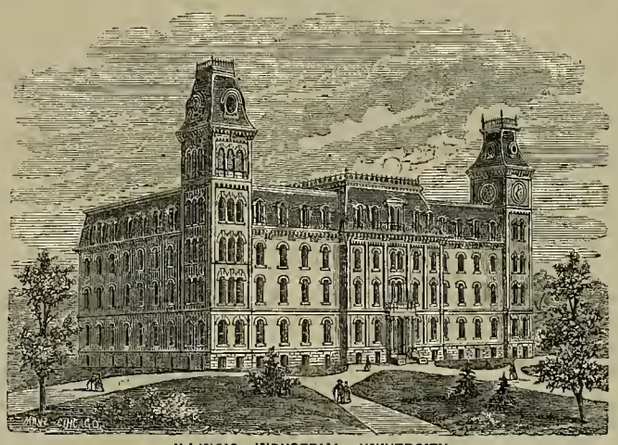
The University asks no fee for tuition, the only payments required after matriculation are the incidental feee of $2.50 each term.

The law establishing the institution requires that all male students shall have military drill; and to aid in this, a fine drill hall was built having a clear floor 60 by 125 feet. This room is large enough to permit two companiea to maneuver in conjunction. The qualifications required for admission arc: first, a good understanding of all the branches of learning taught in the common schools. Students possessing the qualifications required are admitted from any State or country; and perfect liberty in the choice of studies is permitted unless it seriously interferee with the general good.

One admirable feature of this institution is that, in all matters of order and decency, the students govern themselves, having a thoroughly organized and successfully working government for that purpose.

Among the features of the University that are most attractive to the visitor, and of great value to the etudent, are a library of nearly 8,000 volumes, open from 7 A. M. to 9 P. M. every school day; a museum of Natural History, and one of mechanics; a large green house well stocked with choice plants; and the large ornamental grounds rapidly growing into great beauty.

The cut given is of a new building not yet finished but to be ready for use at the opening of the next University year in September. This fine building has a front of 214 feet and two wings, oue at each end, of 120 feet in length by 60 in width. All the rooms are public, none being used for dormitory purposes. The cost of the building is $150,000.



ILLINOIS INDUSTRIAL UNIVERSITY.

The building now occupied is of five stories 124 by 40 feet with wing 70 by 45 feet. This will be given up to dormitory and boarding uses on the completion of the new building.

All communications addressed to the Illinois Industrial University, Urbana, Illinois, will receive prompt attention.

Social Peculiarities of Alaska.—Alaska has social wonders as well as other phenomena, which are not as those of other lands. A gentleman who haa recently returned from Sitka, says that the week before he left he witnessed a carnival such as could not be seen in any other part of the United States. The entire population marched in procession on the opening day, and during the remainder of the week no person appeared on the street unmasked. In every house jollity and good cheer prevailed, and Russian and Siwash, American and Tenton, indulged in masked balls each evening. This week is kept as a carnival week each year by the Russians, and they indulge in amusments to their heart's content. Notwithstanding the excitement, there were no quarrels or disorderly conduct apparent.

Extensive beds of peat, said to be fully equal in quality to the best Eastern article, have been discovered in the lowlands lying along the line of the Los Angeles and San Pedro Railroad, commencing at a point about ten miles below Los Angeles, and exteuding to the sea-shore. Pits have been snnk in different places along the liue of the railroad, and the deposit found to improve in quality with depth. The first delivery of peat in this country was made on the Los Bolas rauch, near Auaheim, a few weeks ago.

Artesian well-borers have been unnsually successful iu this viciuity since the earthquake.

The Hyde Steam Plow.

We had well nigh lost sight of this invention, since the resnlts of its operations in the tule lands in Sutter County, last fall, until we were once more reminded of its existence hy a notice in the Sacramento *Union* detailing the result of another successful trial, a few days since at Odbert's ranch, near Brighton, where some sixteen acres were most thoroughly plowed—broken up and pulverized. We have since been informed that after the first rains, last fall, the plow was taken to Sacramento, and two wheels put on as steering wheels, instead of one, and the driving wheels each made 30 inches wide, instead of 15 inches, as they formerly were. It waa found that the machine sunk too deep in the ground; hence the necessity of these improvements. The main principles of the plowing arrangement have been found to be correct both in tule ground and in the hard brick clay ground, in both of which it has operated, turning up the soil into a light body, that the foot sinks into as on a sponge.

The operation is entirely different from ordinary plowing, which leaves the land in a long furrow. The Hyde steam plow leaves it in short spiral furrows, angular to the line of movement—the same as putting a spade into the ground and tnrning it up half over as it is taken out, cultivating and lightening up the grouud most thoroughly. We are informed that the Hyde plow, when compared with the published results of steam culture in England, does its work with loss expenditure of steam aud fuel. Though the successful accomplishment of this hard, solid fact has cost the Messrs Hyde a considerahle sum of money, yet the importance of it to this country, and in fact to all prairie country, is so great that we think they cannot fail to be amply remunerated for this large outlay. We think our large laud holders will do well to give the undertaking their careful consideratiou. Capitalists freqneutly hold back from encouraging new inventiona, on the ground that they are visionary. That objection cau now hardly he urged against thia, as repeated trials and progressive improvements seem to have pretty fully demonstrated the practicability of this machine.

The original cost of the two systems give Hyde's a considerahle percentage of advantage over "the rope traction system" in use in Englaud, to say nothing of the more rapid execution of the work, or the decidedly superior pulverization effected hy the former. The introductiou of a successful steam plow would he one of the greatest benefits which could he bestowed upon Cahfornia at this time, and we sincerely trust that Mr. Hyde may he ahle to accomplish so desirahle an object.

Mineral Product of Germany in 1870.—The total production of coal in Germany in 1870 was 23,000,000 tons, raised hy 107,682 workmen, and representing a value of £6,900,000, at the pit's mouth. Of this quantity 5,850,000 tons were raised in Upper Silesia, 1,570,000 in Lower Silesia, 11,760,000 in Westphalia, 890,000 tons in the Aacheu district, and 2,780,000 in the Saar district. The production of lignite aud hrown coul waa 6,110,000 tons, of a value of £866,000, principally from Prussia and Saxony; iron ore and ironstone, 2,660,000 tons; ziuc ore, 368,000 tons; lead ore, 98,850; manganese ore, 11,200; iron pyrites, 73,800; phosphorite, 25,000; rock salt, 2,000,000 tons. The production was raised at 2,432 works hy 181,770 workmen.

Books introduce us into the hest society; they hring us into the presence of the greatest minds that ever lived.

New Publications.

Fire-Side Science.—A series of Popular Scientific Essays upon subjects connected with every-day life. By James R. Nichols, A. M., M. D., Author of "Chemistry of the Farm and Sea," and Editor of the Boston *Journal of Chemistry*. New York: Hurd & Houghton. Cambridge: Riverside Press.

We have received a copy of the ahove work from Bancroft & Co. The essays coutained in this little volume relate to the science of home life, and the every-day affairs of individuals aud families. The anthor, as editor of the Boston *Journal of Chemistry*, is one of the most successful and instructive writera on popular science in the country. He has a most happy manner of treating ordinarily dry subjects in a way to interest or instruct either the fireside group or those who lahor in the field or shop.

It is one of the most encouraging signs of the times that there is a growing demaud and taste for really valuahle and instructive reading, and he who can render science attractive to the husy working men and women of our country is better than he who taketh a city. The demand of the day is that science should he brought down to the comprehension of the popular mind, and made to minister to the ueeds and pleasures of the people. To do this it must he divorced from the tramels of technology, and made plain and attractive to the common mind. There is uo difficulty in doing this; and he who most successfully leads in this uew path of literature is engaged iu a nohle and most important work for the elevatiou of the masses. Fire-Side Science should find a place in every home in the laud.

Pocket-Book of Mechanics and Engineering, containing memoranda of facts and connection of practice and theory; by John W. Nystrom, C. E.; eleventh edition. Revised and greatly improved with original matter. J. B. Lippincott & Co., Philadelphia.

This work is the result of study and practice accumulated during the author's professional career, and will he found extremely useful and convenieut for engineers in the field. The former editions are familiar to many, who fully appreciate its value. The sources from which the information has heen derived are considered to he the highest and best on the varions subjects discussed. Dalton on air and heat. Regnault on steam. Kopp on the expansion of water. Morin on friction and strength of materials, aud various others of equal authority. The pocket-hook of an engineer hecomes, after a time, like au old friend, always ready wheu wauted; hut to keep up with the advance of the times new works are required, or new editions of old oues already proven true; and iu the latter case it is convenient to have the oue we have been accustomed to, as we can more readily refer to any particular subject. A large amount of original matter has heen introduced in this edition. The work may he procured of A. Runan & Co., No. 11 Montgomery street, in this city.

The Richest of all Gold Fields.

It has only recently been discovered what almost inexhaustible mineral wealth the soil of Eastern Siberia conceals, and that in the district of the River Amoor, Russia, possesses a gold-field which explorers of those parts are inclined to consider the richest in the world.

Gold-washing and gold-digging are going iu the tributaries of the Russo-Chinese frontier streams and their valleys, and repay the persons employed in it so abundantly that laborers earn 50 to 150 roubles in silver per day, and companies of diggers on the Oukalouta find, as a rule, from seven to eight, but in some cases much as eeventy and even one hundred pounds of gold per day.

The river Sega is still more productive, and has yielded to one company one hundred and seventy pounds per day. These two rivers are the richest but by no means the only gold-producing tributaries of the Amoor. Geologists have found that the Tablona from which the river Sega eprings, contains various kinds of mineral treasures—gold, silver, and more especially great masses of iron, which promise in time to secure to Russia an extensive remunerative iron manufacture. To make these treasures available for Western industry, a company has been started at St. Petersburg, working partly with English capitalists, to navigate the Amoor with the river steamer service. The enterprise is uot, however, to be confined to this one subject, for the company hope in course of time to open a profitable trade with China and Japan, and expect later on to command the trade with the Western coast of North America.—*Col. Miner.*

The Goodyear hard rubber patent expires May 6, 1872. The Goodyear eoft rubber patent expired sometime ago.

Useful Information.

Another Scientist on Spiritualism.

The celebrated London lawyer, Ed. W. Cox, who was a witness with Dr. Crookes, of the so-called spiritual manifestations, to which allusion was made, with illustrations, in the Press a few months since, has lately pubbsbed a pamphlet, in which he says he has become fully satisfied that intelligent noises or rappings are actually produced in what are called "spiritual manifestations," and that chairs, tables and other objects are undoubtedly moved, and that the proofs of the reality of these demonstrations are just as absolute as are the proofs of any other class of facts in nature.

The force by which these demonstrations are made, he calls "psychic force," as also denominated by Prof. Crookes. Mr. Cox thinks the fact indicative of the existence of a soul within man, and it is the soul which he thinks may exercise psychic force beyond the body. He rejects the idea that the manifestations are produced by the agency of *disembodied* spirits; and holds that they are purely and wholly the result of forces residing in the human organism. The medium is never able to communicate anything that is not already known to some person present.

This psychic force, Mr. Cox thinks, operates by a vibratory or wave-like action, and is opposed to and capable of overcoming the attraction of gravitation. Tables and other objects that are moved are first filled, so to speak, with the psychic emanation, which renders them buoyant in the air, when they float, swing and sway about as if supported by an invisible balloon.

One of the explanations of these phenomena, and upon which Mr. Cox lays much stress, is *the unconscious cerebral action of the mind of the medium*, which action is manifested through the psychic force. The *Scientific American* in reply to this latter explanation says: "Now as this unconscious cerebral action can be induced and made to set men's bodies in motion, without his knowing it, it becomes a question whether Mr. Cox himself and his friends did not have *their* cerebrums unconsciously excited so that they could hear noises and see sights that in reality never took place; or so that they could not see the person who pushed the piano, lifted the table, or forced down the balance.

The Wonders of Chemistry.—Chemistry insists that charcoal and the diamond are one; that ottar of rose and burning gas count the same atoms in their constitutions; and that the ruby is but iron and clay. In what subtle combination lies the difference between the twins, why C4 H4 should be a stench in the one and a sweetness in the other, or priceless here and common there, star-eyed Science has not yet explained.

And, after all, it is no more mysterious than that "the limb, the thews, the statute, bulk and big assemblance of a man." should make up indifferently a coward or a hero; here Nero and there Paul; here Newton and there Hodge; here Attilla and there Howard.

What spiritual chemistry will ever classify the differences between men in personal power? Faraday and Agassiz come up from the ranks with little help but that of their own wits. Humboldt's only son, heir of wealth and genius, spends most of his life in bed being too lazy to get up. Napoleon the First made an army, and then spun it like a top whither he would. Napoleon the last crumbled an army into a scattering mob, and ran away from it.

Terra Cotta.—The architects have held a convention in Boston, and among other papers read by the members, one on the use of terra cotta in building is especially deserving of notice. This material is burned clay, mixed with pulverized glass, earthenware, or fossil bones. It was used by the Egyptians, and afterwards by the Greeks and Romans, and later still by the architects of the Middle Ages. The Ninevah statues and tables of terra cotta, with written engravings, remain as sharp and clear as ever. Lately the composition has come into general use for fine buildings in Lodon. A solid block, one foot square, will sustain a weight of eight hundred and eighty-five tons without cracking, and its cost is less than that of stone. Some thought terra cotta lacked certain qualities necessary for trustworthy work. It did not shrink evenly in baking, a great deal of time was required for its preparation, and the blocks were necessarily too small.

Curious Fact.—At a recent sitting of the French Academy of sciences, a curious communication was received from M. Zaliwski, which if it were borne out, would be invaluable to navigation. He states that if a hollow cylinder made of thin material, open at the top and provided with a sharp-edged bottom, be properly ballasted and then put into a tub or other vessel filled with water, it will soon move in a never-varying direction from west to east. The round tin boxes in which concentrated milk is preserved will do perfectly for the experiment, which will become more and more perceptible the oftener the same cylinder is made to do duty in that way.—*Engineer.*

To Improve Gilding.—Mix a gill of water with two ounces of purified nitre, one ounce of alum, one ounce of common salt; lay this over gilt articles with a brush, and the color will be much improved.

Lubricators.

In selecting, preparing, and applying lubricators, it is necessary to use the utmost care, and see that the lubricator employed is properly adapted to the purposes for which it is to be used, since that which is the very best lubricator for some purposes may prove to be worthless for others. Thus the very expensive and exceedingly delicate oil used by the watchmaker would be of comparatively little value, if applied to heavy machinery, and we need hardly suggest that the converse is equally true. The conditions which chiefly demand our attention in connection, are—1. The nature of the surface to be lubricated; 2. The pressure employed; 3 The temperature to which the machinery is to be exposed, and 4. The method of applying the lubricating material.

Close-grained, hard surfaces, with a fine finish, require a finer lubricator than the surfaces of the opposite kind. In steel spindles with finely polished foot-bearings, working in hard and smooth steps, the finest oil answers admirably. Cast iron of good quality will bear a coarser oil, while, if very open, it may require a soap. The same is true of wood, whether used endwise or longitudinally. For wooden bearings the finest oil is not nearly as good as coarser oil or tallow, while it is very much more expensive. This circumstance is, however, greatly influenced by the amount of pressure to which the surfaces are exposed. Even steel bearings, exposed to great pressure, demand a harder lubricant than where the pressure is light; and where the surfaces are very soft, and the pressure very great, the only lubricant that can be relied upon is plumbago. Ordinary machines pay very little attention to the relation that should subsist between the lubricating material employed and the temperature at which it is used. In Europe this subject has received the most careful thought, and those who will take the trouble to consult the English engineering pocket-books, will find the most explicit directions as to temperature, given in connection with the receipts for preparing lubricators. The necessity of this becomes obvious when we reflect that temperature regulates in a large measure the hardness or softness of oleaginous lubricators; and this hardness should always be carefully adjusted to the conditions in which they are to be used.—*Handicraft.*

Letter Writing.—In Russia, the number of letters sent in a year is not quite three to 100 inhabitants, while in England the average is twenty to each person. In the United States, the letters average seven to each inhabitant—a trifle over one-third as many as in Great Britain. This is owing to our vicious and burdensome postal system, and not to the lack of intelligence of our people, as might be argued. A good system, adapted to the wants of the country, would soon make the number of letters greater than in England, as we have more people who can read and write. The whole of Europe averages between five and six letters to each person, both Prussia and France averaging more than the United States, and even Spain half as many.

Patent Fuel.—"Take three parts of the best Newcastle coal, beaten small, one part of loame, mix these well together into a masse with water, make thereof balls, which you must dry very well. This fire is durable, sweet, not offensive by reason of the smoke or cinder as other coal fires are, beautiful in shape, and not so costly as other fire, burns as well in a chamber even as charcoal." The foregoing extract, taken from a fragment of an old book supposed to have been printed about the year 1670 or 1679, and headed, "An Excellent Invention to Make a Fire," contains probably the earliest reference on record to the manufacture of what is now commonly known as patent artificial fuel.

Too Much Legislation.—There is a law in Massachusetts, providing for the inspection of fish, in which all packages of fish are restricted to a weight of 200 pounds. A capitalist of Boston desired to construct tanks in platform cars, and to send them to San Francisco filled with mackerel, bringing them back filled with salmon which are so abundant on the western coast. As the "packages" in this case, however, would weigh two thousand pounds, the enterprise would be illegal, and it was abandoned. State fish inspectors, in the mean time, are making about $4,000 a year.

A Paint for Smoke Stacks.—A correspondent of the *Scientific American* gives the following: One pint of good varnish, one pint boiled oil, and red lead sufficient to produce a proper consistency. Prepare it a few hours before wanted, and repeatedly stir while using. Use no turpentine or dryers. I have a stack thus painted which has stood the weather and heat for two years, and remains as when first done, but changing to a darker color. The expense is trifling. This is applicable to any sheet iron which may be subjected to weather or moderate heat.

Durable Work.—One side of a house at Digbton, Mass., has just been reshingled for the first time since the house was built, 77 years ago. A large part of the old shingles are but little worn. They are of Southern cedar, and the nails were all made by hand. The west side of the roof, which is less exposed to storms, will apparently last for many years longer.

One hundred years ago there was only four newspapers printed in America.

Good Health.

Needed Sewing Machine Improvement.

It is quite generally agreed among medical men that the injury to health from operating sewing machines, arises more from the anatomical position which the operator is compelled to assume than from the mere labor of propelling the machine. Operators at sewing machines are obliged to sit with their backs entirely unsupported and the knees elevated, thus keeping the spinal muscles constantly stretched, and inducing pain in the back, which is the most constant effect of work of this kind. This irritation is reflected by sympathy to other parts of the system, and general debility ensues. The *Scientific American* says: "We have never seen any satisfactory reason why the tables of sewing machines which are operated by foot power should not be brought up over the lap, so that the operator might sit leaning slightly backward, with the spine thoroughly supported and the limbs extended. We proposed this once to a leading manufacturer, and were told that the notion that women were injured by working on sewing machines had no foundation in fact. We argued that those who had investigated the subject, though claiming that moderate exercise of this sort would not injure, almost unanimously insisted that excess *would* injure, and added that profitable employment with such machines implied an extent of labor which these authorities claimed to be excessive on machines as at present constructed. We failed, however, to convince him that any improvement in form was desirable or practicable.

Notwithstanding this discouragement, we put our idea to the test of actual trial, and found that all who had been accustomed to work on the old machine, who tried the modified position above described, were unanimous in testifying to the superior comfort and ease secured by it. There may be improvements made in treadles, but these do not reach the root of the evil. It is the position, not the mere labor of propelling the machine, that fatigues the operator.

Those who tried our plan of raising and bringing the table up nearer the person, and placing the treadles farther away, found no difficulty in handling the work or in keeping it properly placed on the table, as the manufacturer above alluded to seemed to apprehend. The whole body was placed in an easy, unconstrained position, and so supported as to rest rather than fatigue the back. We look to see some such change made in the construction of sewing machines. They are so valuable in many departments of industry that invention will not rest till their full utility is developed. The value of an improvement that would enable an operator to work even one hour per day longer than at present, without injurious fatigue, can scarcely be over-estimated."

In-Door Life.—One chief respect in which our severe climate and over-stimulating social condition harass us, is the excessive preponderance of in-door activity which they involve. Now man is not yet an in-door animal, though he seems to be in a fair way to become one ultimately. The intense pleasure and the renewed vigor which we feel in summer picknickings may serve to indicate the extent to which our old barbaric needs still assert themselves in our mental and physical constitution. We cannot, however, again become out-door barbarians; nor is it urged that barbaric life is more conducive to health than civilized life. We may nevertheless learn from the savage one all-important hygienic lesson. In innumerable ways the savage violates the laws of health; but he at least breathes pure air, and his blood is rapidly oxygenated. Now one of the worst features, perhaps the very worst, of our in-door activity is the way in which it interferes with the due aeration of our blood. And this is a feature of in-door life which we can and must obviate. Partly due to imperfect science, but still more to unpardonable carelessness of the plainest rules of hygiene, is the unquestioned fact that our houses, our schoolrooms, our theatres, and our public conveyances are, as far as the atmosphere is concerned, foul dens of corruption. —*Ex.*

Throat and Lung Diseases.—Most of the throat and lung diseases, which indirectly lead to consumption, are occasioned by sheer carelessness. A delicate woman often sits for two or three hours in a crowded theatre or church, breathing an atmosphere tainted by the exhalations from the lungs of hundreds of other people, her system is exhausted, her skin is excited by unwonted action, and when she leaves the building and goes out in the cold air her blood is suddenly driven to the interior of the body, and then ensues a more or less permanent congestion or inflammation of some of the internal organs—usually the air tubes in or leading to the lungs. This process being repeated many times, a chronic bronchitis is finally established in persons otherwise healthy, and life is ever after rendered miserable by this periodical overheating and sudden chilling of the body, even if the more dangerous malady, consumption, does not interfere, and put the abused body into the grave.

Pure Vegetable Salve.—One pound lard, one-half pound rosin; add ten ounces elder bark; boil these over a slow fire half an hour, then strain and put up in small boxes. This sells at 25 cents a box.

Weakening of Fatal Maladies.—According to M. Alphonse de Candolle, when a fatal malady has seriously affected the younger portion of a population, the succeeding generation, descended from persons who escaped the disease or were but little affected by it, will be found less liable to its attack, as an ordinary effect of the law of descent, this continuing to be the case from generation to generation. This, therefore, constitutes one cause of the weakening of epidemics, and may serve to explain the reason why a disease is most injurious when it first attacks any people, and why it becomes subsequently rarer or less dangerous, as has frequently been observed.

After the lapse of several generations, however, a population moderately affected by a disease approaches the condition of one which has never had it, and an increased intensity may then ensue. Applying these principles to the small pox, M. De Candolle suggests that, at the epoch when Jenner introduced vaccination, the variolic affection had become enfeebled in proportion to the anterior epochs. The vaccination was then more efficacious as applied at this particular period. Small-pox having almost disappeared from Europe for two generations, a new population has sprung up less accustomed to it; and this cause of recrudescence tends now to render vaccination less potent. The author does not pretend that this is the only cause, but that, in connection with others, it exists, and in such a manner as to produce the results specified.

Symptoms of Catarrh.—Indisposition to exercise, difficulty of thinking or reasoning, or concentrating the mind upon any subject, lassitude, lack of ambition or energy, discharge falling into throat, sometimes profuse, watery, acrid, thick and tenacious mucous, purulent, offensive, etc. In others a dryness, dry, watery, weak or inflamed eyes, ringing in the ears, deafness hawking and coughing to clear the throat, ulcerations, death and decay of bones, scabs from ulcers, constant desire to clear nose and throat, voice altered, nasal twang, offensive breath, impaired or total deprivation of sense of smell and taste, dizziness, mental depression, loss of appetite, indigestion, dyspepsia, enlarged tonsils, tickling cough, difficulty in speaking plainly, general debility, idiocy and insanity.

All the above symptoms are *common* to the disease in some of its stages or complications, yet thousands of cases annually terminate in consumption or insanity, and end in the grave without ever having manifested one-third of the symptoms above enumerated.

Transplanting Hair.—The successful transfering of skin and flesh to assist the recovery of wounds, has induced some one to experiment on hair, and the result is a process of removing portions of the scalp, with the hair on, from some luxuriant head, and planting it on the victim of baldness. A cotemporary points out that it may soon become fashionable to wear hair of various hues and shades, thereby producing the most singular and beautiful effects of color; or the hair might be made to appear white, green, blue, or red, at the owner's option, and by various ways of disposing it. "Take, in due proportions, hair of all the prismatic tints, rumple it, and immediately you have white hair; comb it in another way, and there is your purple, your ultramarine, your yellow, or any possible hue." If these directions are followed, the recognition of the original color of the head may require the use of the spectroscope."

Reading in Railway Cars.—The *Philadelphia Medical and Surgical Reporter* has the following sensible remarks on this subject, and we commend them to the attention of all who ride much by rail: Most, if not all who read on railroads, are sensible of weight and weariness about the eyes. This sensation is accounted for on high medical authority by the fact that the exact distance between the eyes and the paper cannot be maintained. The concussions and oscillations of the train disturb the powers of vision, and any variation, however slight, is met by an effort at accommodation on the part of the eyes. The constant exercise of so delicate an organ of course produces fatigue, and if the practice of railroad reading is persisted in must result in permanent injury. Added to this difficulty is bad or shifting light. The safe and prudent mode is to read little if any. The deliberate finishing of volumes in railway cars is highly detrimental.

Frozen Beef Essence.—Dr. H. B. Hare *(Philadelpaia Medical Journal)* writes that, in a case of scarlet fever in a child, the patient could not be induced to swallow the beef-tea which his condition required. As he took ice with avidity, the father suggested that if the beef-tea was frozen he might then be induced to take it in that form. The suggestion was carried out, and the child took the frozen beef-tea readily. This expedient may in many cases be advantageously adopted.

If you are caught in a drenching rain, or fall into the water, by all means keep in motion sufficiently vigorous to prevent the slightest chilly sensation until you reach the house; then change your clothing with great rapidity before a blazing fire, and drink instantly a pint of some hot liquid.

A Good Liniment.—One of the very best liniments that was ever made for man or beast is composed of equal parts of laudanum, alcohol, and oil-of-wormwood.

Scientific Press.

W. B. EWER.....SENIOR EDITOR.

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ILLUSTRATIONS AND REPORTS OF MINING ENTERPRISES WANTED.—Drawings or photographs of mining works that are of general interest to our readers are solicited for publication in this journal. Official reports of Companies, and description of mines of importance, or of special interest, are also desired. Sketches of any new method and discoveries will be very acceptable.

San Francisco:

Saturday Morning, May 4, 1872

Gold and Legal Tender Rates.

SAN FRANCISCO, Wednesday, May 1, 1872.—Legal Tenders buying, 90¼; selling, 91. Gold in New York to-day, 112.

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ERUPTION OF VESUVIUS.—Old Mother Earth, after somewhat forcibly calling our attention to the fact that there was something else than railroads, mining stocks and Goat Islands to think about, has gone after the Italians and woke some of them up from their *dolce far niente* to see Vesuvius once more in a state of eruption. Dispatches from Rome state that a number of persons were killed by the lava, which burst up through the ground under their feet. The town of Torre del Greco was in so much danger, that all the inhabitants fled. Naples' dispatches describe the scene as wonderfully grand, and say that the ashes and lava threatened the villages on the mountain side. On the 27th ult., the lava-stream had already reached Sebastian, and threatened other places. The consternation of the neighboring towns is extreme, and earthquakes are the order of the day.

MEN WANTED.—J. L. Hallett, railroad contractor at Portland, wants 3,000 men to work on the Oregon and California, Oregon Central, and Northern Pacific Railroad. He announces steady employment for the season and money every month.

TREASURE SHIPMENT.—The steamship America sailed from here for China and Japan on Wednesday, and carried $1,524,570.22 in treasure. The total shipments since January 1st is $10,067,217.22.

EARTHQUAKES.—A shock of earthquake was felt at Salinas City on the 1st inst., and at the same time in Gilroy. It is said to have been heavy but no damage was done.

ON FILE.—"The Minea of Utah;" "San Diego Minea" and the "Limestone Belts of Nevada."

Quicksilver.

The long prevailing high price of quicksilver has excercised an important influence on our mining interests, and the importance of obtaining it at low rates will be evident to all, except producers. In the production of gold and silver hullion, quicksilver is an indispensible requisite and without it our mines could not be developed, unless the ingenuity of our people could devise some suitable substitute not now known. The production of this necessary article at the cheapest possible rates, is a matter of great interest to our mining population, and the many mines of this metal in California, by proper and economical working with suitable appliances and without combinations, to keep up rates, should be able to produce and sell it at a much more reasonable price than present quotations. A low price for quicksilver would cause an increase in consumption, and of course, larger sales, requiring a greater production. It is an absolute necessity for the purposes for which it is mainly used and for amalgamating particularly, where it is now used with a sparing hand, a more plentiful supply would be a material benefit.

The European Mines.

The amount of quicksilver which the various mines of the world are capable of producing, is very large, much larger in fact, than is demanded for any purposes to which it is at present applied, and the only reason why it is held so high is, that a few parties have control of the supply of the world. The Almaden mine in Spain, discovered in 1497, yielded for 250 years, from 550,000 to 650,000 pounds per annum. In 1750, when the Huancavelica mine of Peru caved in and the supply from that source was temporarly cut off, the Almaden increased its production to about 2,016,000 pounds per annum and has continued to yield that amount ever since. The Santa Barbara mine of Huancavelica which had, up to 1867, produced $80,000,000 worth of quicksilver, is now abandoned. The reasons given are its distance from seaboard, low grade of ores, scarcity of fuel, being unable from these causes to make any profit in competition with the other great mines of the world. The Idria mine in Transylvania is another of the important mines of the world and its production is from 600 to 800 flasks per month. The ores are of a low grade. This mine is under lease from the Government.

The California Mines.

California, among its numerous mineral advantages, possesses the broadest fields of this necessary article in the world and by far the most prolific of its mines is the well-known New Almaden, in Santa Clara county. As it may be interesting to know the amount produced from this mine yearly as the representative one of California, the following figures will show it, in flasks, premising that the flasks contain 76½ pounds of quicksilver. In 1851, the number of flasks produced was 23,875; in 1852, 19,921; in 1853, 18,035; in 1854, 26,325; in 1855, 31,860; in 1856, 28,183; in 1857, 26,002; from July 1857 to October 1858, 39,935. From that time to February 1861, the mine was closed by injunction. From February 1861, to January 1862 it produced 34,765 flasks; in 1862, 40,391; in 1863, 19,564; in 1864, 46,216; in 1865, 47,194; in 1866, 35,150; in 1867, 24,461 flasks; in 1868, 25,628; in 1869, 16,898; in 1870, 14,000, and in 1871, 18,763 flasks. Total up to January 1872, 537,176 flasks, each containing 76½ pounds of quicksilver.

The New Idria mine in Fresno County produced in 1866, 6,045 flasks; in 1867, 11,500; in 1868, 12,300; in 1869, 10,450; in 1870, 10,000, and in 1871, 9,227 flasks. The Redington mine, near Knoxville, Lake County, produced in 1866, 2,980 flasks; in 1867, 7,145; in 1868, 8,700; in 1869, 5,000; in 1870, 4,546, and in 1871, 2,128 flasks.

Among the other mines whose product goes to swell the gross amount, are the Guadalupe in Santa Clara county, owned in Baltimore, Md.; the Josephine in San Luis Obispo county, owned by Barren & Co.; the Enriquita, owned by the Almaden, and the Bautista, owned by the Almaden, and now idle, both in Santa Clara county; the Pioneer is in Napa county. The Whitton is in Napa county and there is one at Oakville. The Vallejo mine is in Solano county; the Manhattan or Knox & Osborne mine is three miles from Knoxville, in Lake county; the California is in Yolo, and there are several in Pope valley near Napa. the Abbot mine is in Lake county; Excelsior in same county. There are several in Monterey, one of which is called the Pennsylvania, which produced a small quantity, and one owned by McGarrahan not now being worked. There is one at Mount Diablo, Contra Costa county, which produced a small quantity but is now in litigation. An occasional flask comes from the San Luis Obispo mines. The Biotte and Lockhart mine is at St. Helena, Napa county. The Phoenix in Pope valley, Napa county, produced in 1870, from a partial working, only 763 flasks. There is also a mine in San Bernardino county, and several recent discoveries in Napa and Lake counties, and a number are spoken of from which we hear little, in the Coast Range, from up north down to San Bernardino county. The total product from all the California mines mentioned, for the last three years, was, according to the *Commercial Herald*, as follows: In 1869, 36,600 flasks; in 1870, 29,546 flasks; and in 1871, 31,881 flasks.

The total monthly product at present is said to be not over 3,100 flasks of which the New Almaden furnishes 1,600, the Redington 600, the New Idria 600, and all others 300. The New Idria cleaned up 2,000 flasks in January, 40 from the mine and the remainder from what had accumulated inside the condensers.

Cause of the High Price of Quicksilver.

Quicksilver has remained at a high rate for the past three years and at such a one as the amount of production and demand does not warrant. A combination orring control the whole supply and keep the prices where they can make the most profit. Through the agency of Mr. Butterworth, the manager of the Almaden, a contract for the delivery of 50,000 flasks from the product of the mine prior to April 1st, 1868, was made in 1866 with the late Mr. W. E. Barron for $30 per flask. They obligated themselves not to sell or consign any quicksilver from the mine until this contract was completed. Messrs D. O Mills and W. C. Ralston were Mr. Barron's securities for the faithful performance of his part of the contract which was to advance $150,000 on the debt of $250,000 of the Co. and if necessary advance money to meet the full amount. The contracting parties found, in April 1868, that the production exceeded the demand, or rather that while the production was increasing the demand was the same, and declined to contract to purchase any more. However, another contract or agreement was made between Butterworth representing the New Almaden, Barron and Mills controling the New Indria, and the owners of the Redington mine for two years. By the terms of this contract, as far as known, these mines were to limit their production to a certain amount, Barron & Co. were to be shipping and foreign agents, Redington & Co. local agents for the sale of the quicksilver here. The product of the mines was reduced and by the arrangement made the combination netted a profit of about $35 per flask on the sales. The Annual Report of the New Almaden Company for 1870 states that the financial matters of the mine were in a bad state and $55,000 was required immediately to settle a law suit. There was also a large amount due the Bank of California. The agent, Mr. Butterworth, to get out of this financial difficulty, entered into contract with D. O. Mills to sell him the 15,525 flasks of quicksilver hitherto delivered to Barron & Co. under combination contract and all that would be delivered up to April, 1870, under said contract, at $32 in gold per flask. And all the product for two years from April 1870 at $31 gold per flask, half cash on delivery and half cash in 60 days, he discounting all deferred payments at current rates of interest if the company should require. The company had the right to deliver an average of 2,000 flasks of quicksilver monthly. He was to pay the company any sum that might arise after deducting amount due to Barron & Co. for advances on the quicksilver under their contract.

When the combination contract between the New Almaden, New Idria and the Redington mines expired, the owners of the Redington, knowing that the two other mines were controlled by the same parties, declined to enter into any new combination or sell their product for the price which the New Alamaden did. They finally entered into contract with Barron and Mills to sell their product for 10 years. The price was not made public but was generally understood to be $40 per flask and the production was to be limited to a certain amount, Redington & Co. under this agreement were still to have the local sale.

The Almaden mine in Spain is entirely in the control of the Rothschilds, who have a lease of it. This mine supplies the London market and a large part of Europe, and also Mexico. California supplies the United States, China and India, so the world is divided between the two great producers. An understanding exists between the two controlling parties which permits each to dispose of their quicksilver in their respective markets. The result is that a pound of quicksilver, owing to the duty of 15 per cent., is 15 per cent. dearer in California, where it is produced, than in Mexico, to which place it is exported from Spain.

By referring to the figures given above it will be seen that the product of the several mines has gradually decreased since these combinations were formed. The consumption is of course limited and an over supply would not suit the measures of the men who have control. Moreover, what is consumed would be consumed if it were $1 or $1.50 per pound, just the same as at 85 cents, but small miners could not use it to advantage. The amount lost in amalgamating has been discussed at length in the SCIENTIFIC PRESS. The Almaden ores just as they come from the mine would not average over 3 per cent. metal, and the Napa mines not more than one per cent., so a good deal of ore is rejected. Three per cent. ore however will pay well, and all of the mines would pay if they chose to sell at lower rates. Some of the mine owners, however, sell their product to the Bank of California combination, while others with small lots traffic with hardware dealers or others who supply parties in the interior. They generally undersell the combination a few cents, but the amounts are so small they make little difference. Although it is understood that the contract of this combination expired on the 1st of April of this year, their profit has been so immense that it is probable that there will be a renewal, and a combination of the various mines and interests will most probably be effected. So far as known no such step has yet been taken but as prices remain as they have for months past it is to be supposed that we will have no reduction for some time to come. The owners of the Redington purposely keep down their product because they prefer to keep the ore in the mine rather than sell it at the price agreed under a contract which only compels them to deliver what they manufacture. The only chance we would have to get a decrease in price would be in case a number of the new mines would refuse to enter the combination and increase their product, but there is little chance of this. The ring have too good a thing of it, and doubtless intend to continue their operations on the old basis. Perhaps we ought, under the circumstances, to congratulate ourselves on being able to get it even at the advanced price we do. Still it seems lamentable that an article which is so indispensable to our mining operations should be subject to a speculative combination, without any conscience as it depresses the leading industry of the coast. The miner requiring the use of quicksilver in California is obliged to pay the monopoly price 85 cents per pound, while a merchant exporting pays but 80 to the same company for the same material.

DOVER STRAITS.—The question of getting across the British channel without going in steamboats has agitated the English mind for many years, and a number of schemes have been proposed and abandoned. Recently a company has been incorporated in London, with the intention of connecting France and England by a tunnel under the sea. The sum of £2,000,000 is to be used in testing the feasibility of the plan, and if the experimental work proves successful, both countries are expected to join in pushing the enterprise to completion as quickly as possible.

UTAH NEWS.—An English company has commenced suit for the possession of the well-known Flagstaff mine in Little Cottonwood, U. T., claiming it as the property originally located as the General Grant.

A great quantity of mining machinery is coming into Salt Lake City, and it is said that heavy contracts for mills are out. The mine owners evince a strong desire to reduce their own ores, and ship bullion only.

THERE are 17 pneumatic tube lines in operation in the city of London, varying in length from 980 to 29 yards.

Railway Progress in Russia—Manifest Destiny.

Russia is making advances in her system of railway commnnication. It was said two or three years since that Russia was "railway mad." If snch was the case there is much method in her madness, and her vagaries have been of much benefit to her in every point of view.

The government, by placing the snow-bound and mud-bonnd interior in rapid and easy communication with the ports, has enabled Russian manufacturers and agricnlturists to develop their respective industries with the most wonderful results; and the consequence has been that railway extension is still regarded with the highest favor.

Yet with all that has been done, there is ample room for fnture progress in this direction. The extent of the Rnssian Empire is larger than that of the United States, and, like these States, extends from the Atlantic to the Pacific. As yet she has but about 9,000 miles of lines, while the United States has some 65,000. It is also noticeable that, in Rnssia, as elsewhere, production, industry and the general improvement of the masses, keep equal pace with the extension of the iron road.

In view of these facts there is nothing unreasonable in prosuming that Russia will continne to press forward her railway system, with even an accelorated ratio, until every part of that magnificent empire shall be bound together and consolidated by this great annibilator of time and space. Thns conditioned, the arts, sciences and indnstries will soon become as fully developed in Russia as upon the most favored portion of Central Europe; for the Rnssian, with equal facilities, is not much behind the native of any otber portion of Europe, in anytbing which goes to make up a great and progressive people.

There is one significant fact, which has been observed in the Rnssian railway system, and that is that her railway gauge has been studiously fixed so that it cannot be used by the rolling stock of any other part of Europe. Under these circumstances, in case of a war between that power and any other European nation, her railway system will be of no account to her enemy in pnshing his conquest over the border, while she herself will enjoy its full advantages to the very extent of her domains.

The late German-Franco campaign would have been an utter impossibility, had Napoleon imitated the Czar in that respect. In that campaign Germany witb all of her rolling stock, fitting the French tracks and the enormous resources of her shops and artisans, could not bave laid siege to Paris, had she not impressed an immense amount of the same material belonging to the Austrian Empire, which she from time to time found within her borders, and confiscated at an enormous cost for settlement with their legitimate owners.

This policy on the part of Russia is manifestly a peaceful one—all she wishes is to be "let alone," and for that she is taking security in a most efficient manner. It may be observed, however, that while she is thus rendering herself impregnable at home, she is also placing herself at great advantage in her Asiatic aspirations. Her railroad system will be brought to the very borders of her Asiatic neigbbors, who will thus be placed absolutely at her mercy, while the allies of those nations will be compelled to operate to great disadvantage for the lack of such facilities.

The manifest destiny of Russia is as sure in its ultimate domination over Europe and Asia, as is that of the United States over every portion of the American Continent.

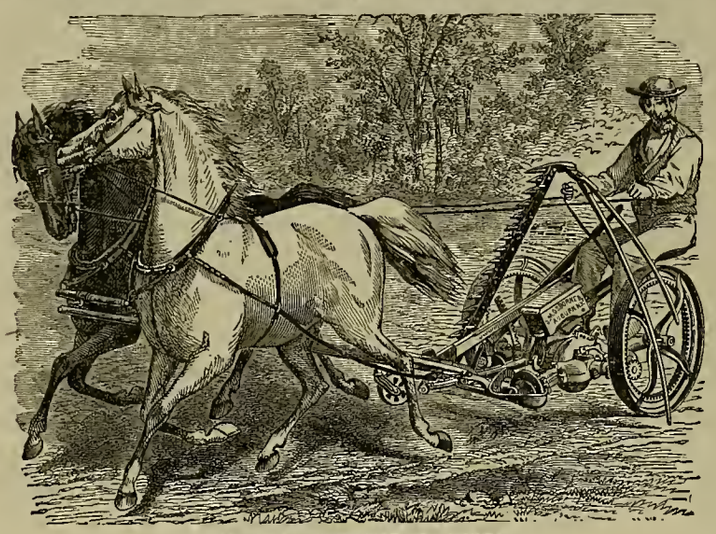
Sales.—It is understood that the Keystone quicksilver mine in San Luis Obispo county has been sold for $36,000. A dispatch from SaltLake states that the Silver Wreath and half of the Lookout mines at Schell Creek, were sold on the 29th inst., to an English Company, for $50,000. Another dispatch dated the 1st inst., says that the Vallejo Company have been offered $1,000,000 for their property by English capitalists.

The Kirby Two-Wheeled Mower.

Our object in presenting the accompanying illnstration, is to attract the attention of the readers of the Press, to a new featnre for this coast, in mowing and reaping machines. We are aware of the reputation long since awarded to the old Kirby mower, and that it has successfully maintained its excellent reputation; its complete success, as claimed by its inventor, having never been excelled in the history of mowing machines.

In its present improved form, it possesses a perfection of principle that secures the execution of the best possible work. It has the flexibility and independent motion of frame and finger-bar peculiar to all Kirby machines, cntting close and clean over all variations of ground. One of its great excellencies is, its jointed connecting rod—or pitman — a feature belonging exclusively to this mower; the joint in the connecting rod working simultaneously with the joint in the finger-bar, keeps the connecting rod always in perfect line with the cutting apparatus, allowing the knife to run perfectly free, without binding, at whatever angle the bar may be raised or folded.

By a convenient lever, the bar is raised to pass any obstruction, even a tree, or can be folded completely across the machine in front for transportation, without throwing out of gear, stopping the team, or the driver leaving his seat; and yet can be instantly thrown out or



THE KIRBY TWO-WHEELED MOWER.

into gear without stopping when desired, by either foot or hand. No stopping to fasten finger-bar in position when folded. A loose or rigid tongue as desired, without stopping.

Another peculiar feature is the raising or lowering of the points of the guards or fingers without stopping, giving them any pitch or angle to suit the grass or ground. The driver's seat is also a lever to command the heel of the cutter bar raising or lowering it at pleasure; and as if to make it a more perfect machine over others, it possesses a device expressly applicable to California machines, by which the connecting rod or pitman will take up its own wear thus preventing all shake or jar and breaking of the knives.

Our illustration represents it as a mower, but it possesses the combined feature of reaper or mower, and with the "Baltimore" self-rake attachment, becomes as claimed by the proprietor, the most perfect reaper the world has ever seen.

San Diego Mines.—Dispatches from San Diego state that at Julian City, last week, the mill of De Frees, after a run of eleven days on one hundred and fifty tons of rock from the Owen's mine, was cleaned up, the result being nine bars of bullion valued at $10,000, an average of $66.66 per ton. Fifty tons of this rock was principally composed of casing rock, which helped to lower the general average. The shaft is down now two hundred feet and at this depth a drift is being run, the rock from which it is expected will yield $100 per ton. Twenty-six tons of ore from the Big Blue mine gave $1,090 or an average of $42 per ton. The mines in this district are being developed rapidly and most of them show a higher character of ore as they go down. A line of stages will shortly be put on between Julian and Los Angeles.

The thermometer on Wednesday at noon, stood at 72°, in this city.

Perfumery Resources of California.

An Eastern merchant, largely interested in the importation of fine and expensive oils, and choice perfumeries, visited Southern California about two years since, and in a letter to the New York *Daily Globe* said: "This portion of the Pacific coast is naturally suited to the growth of flowers; from its native capabilities it ought to be the centre of perfume and oil manufactory and trade. The choicest material for expensive oils is wasted here to the amount of thousands of dollars during the season." This branch of California's resources has often been commented upon by the tourist, but no one has yet attempted to engage in the business. No doubt the time is not far distant when the choice varieties of blossoms that are native and prolific to this clime and soil, will form the material for a large manufacturing business, and result in a steady resource of wealth to the manufacturers.

Orange Flowers, Etc.

One of the chief productions of Southern California is the orange. It thrives wondrously there, and is already one of the features of trade in that section. Los Angeles oranges possess sweeter and richer flavor than the Tahiti oranges, and command a better price in San Francisco markets. The peel of the Los Angeles orange is thicker, sweeter and tenderer, containing more oil than any other orange in the Pacific markets. The distiller would in time find the orange groves of California a productive field for material.

From reliable authority we find and refer to a few facts connected with the orange waters and the manufacturers of the same. Two distinct odors are procured from the orange blossom varying according to the different methods used for its distillation and production. To the manufacturer this difference of perfume from the same flower is a great advantage, and is a fact worthy of investigation by the chemical philosopher. Doubtless this peculiarity belongs to all fruit blossoms.

When orange flowers are distilled with water we obtain the otto of the blossom, which is known as the Oil of Neroli; this Neroli produced from the *citrus aurantium*, is considered the finest quality. The next quality is from the Seville orange, called "bigaradid," this and the "neroli petale" are used to an enormous extent in the manufacture of "Eau de Cologne," and other choice perfumes.

Essence of orange, or, as it is called, "Essence of Portugal," is obtained from the peel of the fruit, and is produced by distillation. The peel is rasped in order to break the sacs that hold the otto; this otto will ignite with a brilliant combustion. It is used universally in perfumery, and is the main ingredient in Lisbon water. The Los Angeles orange contains more otto in its sacs than the Isthmus or Tahiti orange. Experts in perfumery manufacturing say that nowhere in the world are there better facilities for this trade than is offered in Southern California.

There is also a constantly increasing demand for perfumery, made by the soap, cream, pomade and oil manufacturers. All absorbent powders require delicate and expensive flavors. The citron-lemon of California possesses a delicious perfume, and the oil is even superior in every particular to the orange.

The almond flourishes in lower California better than in other climates, and the value of its oil, and the universal use of its perfume, is too well known to be repeated. Of the flowers we particularly observe the heliotrope and the rose; the flowers bloom heavily, and are more heavily charged with odors than those of more northern growth. If the floral varieties necessary for oil and perfumery manufacturing purposes were cultivated and grown in view of such supply and demand, the results in Southern California would astonish the world. The only attention given now is to door-yard growths and ornament; but if hundreds of those rich acres were given to flower-planting for commercial purposes, we might challenge the world to vie with us in the production and value of the same.

The quantity of otto yielded by one or more of such plants as are native to Los Angeles may be given here for the purpose of showing what value could be placed on the same if manufactured at home:

Orange peel,	10 lbs.	yield, of otta	1 oz.
Almond,	14	" "	1 oz.
Geranium leaves,	100 lbs.	"	2 oz.
Peppermint (herb),	100 lbs.	"	4 oz.
Lavender flowers,	100 lbs.	"	30 oz.

This is a list of only a few plants, but sufficient to show the product of each variety. The otto of lavender is now manufactured or produced almost exclusively by the French. Turkey, Hindostan, Africa and England produce the majority of our essence and handkerchief perfumes. Tonquin furnishes the musk.

Lavender, jasmine, orange and rose are the leading combinations of commercial perfumes and waters.

The Novelty Glass Cutter.

The little device shown in the cut is intended to take the place of the more expensive diamond glass cutter now in use, and will perform its work as readily and with equal exactness, while the original cost is much less. The indentures

shown are of different sizes for different weights of glass. The cutter is a small piece of carbonized steel which revolves on a pin at the end of the handle. It is easily managed and requires much less skill than the diamond point for the exactness of position does not matter so much. The roller is placed on a piece of cast iron which is all in one piece, so there is no danger of the handle becoming loose and rickety.

This machine will be found very useful, from its cheapness, in the country where glass can be cut and fitted without waiting for a glazier to come around. In fact, a little tool like this is invaluable, and should be in every household, for its applications are numerous and its cost very little. Weister & Co., No. 17 New Montgomery street, will send sample cutters to any address, post paid, for 75 cents in stamps.

Nevada County Mines.

Our correspondent, L. P. Mc., in his recent notes of Travel in Nevada County, omitted to mention Brown's Cement Claim, which is one of the first-class claims in the vicinity of You Bet. It is owned by Judge G. S. Brown and is located about a quarter of a mile south of You Bet, and south of and adjoining the claims of the English Company, or Birdseye Creek G. M. Co. The main channel cuts it from northeast and southwest. It contains about 24 acres of mining ground. About one quarter of the surface has been washed to within 50 feet of the bed rock and one quarter of the bed-rock has been drifted over. At present it is not being worked but when it was worked it paid as well as the best in the county.

The outlet to this celebrated claim is through Wilcox's ravine. Mr. Brown owns about 4,000 feet of this ravine and through it, eventually, all that portion of the Birdseye Creek G. M. Co.'s ground underlying the town of You Bet will have to be worked. From 1,500 to 2,000 acres more of mining ground lying in the direction of Chalk Bluff will have to be worked through the same ravine. This claim has been worked successfully since 1865 and up to July 1870 over $600,000 in gold was taken from it. Mr. Brown also owns an 8-stamp mill for crushing cement, which is run by a hurdy-gurdy wheel using 50 inches of water.

DOMESTIC ECONOMY.

To Drive Rats Away Without Poison.

We know of three methods: First, the old French plan; this is followed chiefly in Paris by men who make it a special business. They take a deep tub with water in the bottom, and a little elevation in the middle like an island, on which is only a place for just one rat to sit. The top is covered, and has a large balanced valve, opening downward; on the middle of this valve a piece of fried pork or cheese is fixed, and when a rat walks on it to get the cheese, the valve goes down, and drops the rat in the water, and moves back into position. A road is made from a rat hole to the top of the tub by means of a piece of board rubbed with cheese, so as to make the walk attractive to the rats. In the course of a single night some ten, twenty, or even more rats may go down, and if the island was not there they would be found most all alive in the morning quietly swimming around; but the provision of the little island saves the trouble of killing them, because their egotistic instinct of self-preservation causes them to fight for the exclusive possession of the island, on which in the morning the strongest rat is found in solitary possession; all the others being killed and drowned around him.

Second, the New York plan, invented by one of our friends. The floor near the rat hole is covered with a thin layer of moist caustic potassa. When the rats walk on this it makes their feet sore; then licking their feet makes their mouths sore; and the result is that they shun this locality, not alone, but to tell all the rats in the neighborhood about it, and eventually the house is entirely abandoned by them, notwithstanding the houses around may be teeming with rats.

Third, the Dutch method; this is said to be used successfully in Holland; we have, however, never tried it. A number of rats are left together by themselves in a very large trap or cage, with no food whatever; their craving hunger will, at last, cause them to fight, and the weakest will be eaten up by the others; after a short time the fight is renewed, and the next weakest is the victim, and so it goes on till one strong rat is left. When this one has eaten the last remains of any of the others, it is set loose; the animal has now acquired such a taste for rat-flesh that he is the terror of ratdom, going round seeking what rat he may devour. In an incredible short time the premises are abandoned by all others, which will not come back before the cannibal rat has left or has died.

COMPOSITION OF WORCESTERSHIRE SAUCE.—White vinegar, 15 gallons; walnut catsup, 10 gallons; Madeira wine, 5 gallons; mushroom catsup, 10 gallons; table salt, 25 pounds; Canton soy, 4 gallons; powdered capsicum, 2 pounds; powdered allspice, 1 pound; powdered coriander seeds, 1 pound; cloves, mace, and cinnamon, of each ½ a pound; assafœtida, ¼ pound, dissolved in brandy, 1 gallon. Boil 20 pounds of hog's liver in 10 gallons of water, for 12 hours, renewing the water from time to time. Take out the liver, chop it, mix with water, and work it through a sieve; mix with the sauce.

Imitation No. 1.—White vinegar, 240 gallons; Canton soy, 36 gallons; sugar house syrup, 30 gallons; walnut catsup, 50 gallons; mushroom catsup, 50 gallons; table salt, 120 pounds; powdered capsicum, 15 pounds; allspice, 7 pounds; cloves, mace, and cinnamon, of each 4 pounds; coriander, 7 pounds; assafœtida, 2¼ pounds; dissolved in St. Croixrum, 1 gallon.

Imitation No. 2.—White vinegar, 1 gallon; Canton soy, 1 pint; molasses 1 pint; walnut catsup, 1½ pints; table salt, 4 ounces; powdered capsicum, 1 ounce; allspice, 1 ounce; coriander ¼ ounce; cloves, ½ ounce; mace, ½ ounce; cinnamon, 6 drachms; assafœtida, ¼ ounce; in rum 4 ounces; mix.

Imitation No. 3.—Take port wine and mushroom catsup, of each 1 quart; walnut pickle, 1 pint; soy, ½ pint; pounded anchovies, ½ pound; fresh lemon peel, minced shallots, and horse radish, each 2 ounces; allspice and black pepper, bruised, each 1 ounce, (or currie powder, ¼ ounce), digest for 14 days, strain, and bottle.

FASTENING LOOSE WINDOW SASHES.—The most convenient way to prevent loose window sashes from rattling unpleasantly when the wind blows is to make four one sided buttons of wood, and screw them to the stops which are nailed to the face casings of the window, making each button of proper length to press the side of the sash outwards when the end of the button is turned down horizontally. The buttons operate like a cam. By having them of the correct length to crowd the sills of the sash outwards against the outer stop of the window frame, the sash will not only be held so firmly that it cannot rattle, but the crack which admitted dust and a current of cold air will be closed so tightly that no window strips will be required. The buttons should be placed about half way from the upper to the lower end of each stile of the sashes.—*Industrial Monthly.*

SNOW BALLS.—One cup of sugar, two eggs, four tablespoonfuls of milk, one teaspoonful of cream of tartar, one teaspoonful of soda if the milk is sour, if sweet one-half teaspoonful, flour enough to roll into balls. Fry in lard, dip in the white of an egg, then white sugar till white all over.

Filters and Filtering.

Water, wine, spirits, jelly, syrup, tinctures, and a great variety of other fluids, hot and cold, often contain substances which should be separated, in order to render the fluid clear and bright. As regards water filtering, it has become pretty general; but in domestic life there are fluids, such as wine, liquid jelly, syrup, etc., which are required to be made "clear" before they are put on the table. There are three kinds of filters—sponge for watery liquids, cotton for spirituous fluids, and wool for gelatinous fluids and oils. In every well appointed kitchen, there are tin or porcelain funnels. For filtering watery fluids it is only necessary to insert, in the choke of the funnel, a V shaped piece of fine sponge. All such liquids, on being put into the funnel, will pass through the sponge, and become quite clear. When this effect ceases the sponge must be removed, and well cleansed. Viuous fluids are best cleared by filtering through a coue of white blotting paper, shapped by folding a square piece of paper from corner to corner, then folding the triangle into half its size, and opening the folds; it will fit any funnel, which will act as a support to the paper.

Wines, etc., poured into this, will run through perfectly bright. In some cases where the wine is only a little thick from lees, cork, or other mechanically suspended substance, it can be made quite clear by filtering through a wad of white cotton put in the choke of the funnel; and when this answers, it is much quicker than the paper filter. For jelly and oil, wool alone is the proper medium for filtering. The felted wool jelly bag is pretty well known as the best means of clearing calves' foot jelly, and it also answers for olive and other oil. These bags are, however, too expensive to be generally used: hence they are rarely seen in kitchens. A good substitute for the wool bag is a colander, on the inside of which a new flannel lining should be fitted, made of double stuff. A wad of white knitting wool, put in the choke of a funnel, will do to filter any small portion of such fluids. Many a good glass of port wine has been wasted for the want of a penny paper filter.

TO MAKE CHUTNEY.—Indian chutney is a compound of mangoes, chillies, and limejuice, with some portion of other native fruits, such as tamarinds, etc., the flavor being heightened by garlic. For family use the following receipt will be found very suitable: Chillies, 1lb. to 1½lbs.; apples, 1lb.; red tamarinds, 2lbs.; sugar candy, 1lb.; fresh ginger-root, 1lb.; garlic, ½lb. to ¾lb.; sultana raisins, 1½lb.; fine salt 1lb.; distilled vinegar, 5 bottles. The chillies are to be soaked for an hour in the vinegar, and the whole ground with a stone and mullor to a paste. Here is another receipt which may be depended upon for making an excellent chutney:—1lb. salt; 1lb. mustard seed; 1lb. stoned raisins; 1lb. brown sugar; 12ozs. garlic; 6ozs. cayenne pepper; 2 quarts unripe gooseberries; and 2 quarts best vinegar. The mustard seed should be gently dried and bruised, and the sugar made into a syrup with a pint of the vinegar; the gooseberries dried and boiled in a quart of the vinegar; the garlic to be well bruised in a mortar. When cold, gradually mix the whole in a mortar, and with the remaining vinegar thoroughly amalgamate them. To be tied down close; the longer kept the better.

SEA WATER IN BREAD-MAKING.—It was stated at a meeting of the Academy of Science of Paris that while excellent bread can be made with sea water, and that this forms a good tonic, soup or broth made with sea water is entirely uneatable. It would appear that the chloride of magnesium in the sea water is raised to a temperature, during the process of baking, sufficiently high to effect its destruction, and thereby cause its peculiar taste to disappear, which is not the case when boiled, as for soup. If, however, cane-sugar is added to the soup, a compound is said to be formed of the sugar with the chlorides, which has not the disagreeable taste of the latter.

TO DETECT THE ADULTERATION OF WINES.—The adulteration of wines with cider can easily be detected by filtering and adding ammonia in excess. The apple juice will immediately deposit crystals on the side of the test tube. Genuine wine sheds a pulverulent deposit which does not adhere to the glass, and is devoid of a crystalline structure. Acetic acid will dissolve either of these precipitates. The deposit from the cider consists of flat crystals with parallel sides; that from wine shows star-shaped formations. The treatment with acetic acid shows the presence of lime and phosphoric acid in both cases, the quantity of lime in the wine being minute.

CURING OF HAMS AND BACON.—In curing hams and bacon it will be found very advantageous to use the same quantity of common soda as of saltpeter—one ounce and a half of each to fourteen pounds of ham or a piece of bacon, using the usual quantity of salt. The soda prevents that hardness in the lean of the bacon which is so often found, and keeps it quite mellow all through, besides being a preventive of rancidity. This receipt has been very extensively tried for fifteen years, and invariably approved of.

SOUR CREAM BISCUITS. Sift one teaspoonful each of salt and soda into one quart of flour, in the bread pan. Have ready one pint of sour cream, beat one egg and add to the cream, stir, roll and cut, and bake as quickly as possible.

Sleep and Lodging.

Next to food comes lodging. To secure a comfortable bed is to the greater part of mankind still a desideratum—and yet any man of ordinary capacity may himself make the foundation for an excellent one with a few hours' labor. When we reflect on the importance of sleep, the time thus spent will not appear wasted. Without sleep insanity is certain. Nearly one-third of life must be passed in sleep. Why we are thus constituted is not to the present purpose. What relation the hours of sleep hold to the inclination of the earth's axis, or if the inhabitants of the planet Mars sleep, we shall not stop now to inquire. It is enough, with Sancho Panza, to invoke blessings on the man that invented sleep—"it covers one so like a blanket," "tired nature's sweet restorer, balmy sleep," descending as it does "like tired eyelids over tired eyes."

How strange it is that in this decade of the nineteenth century, we should first be able to compel the attendance, certainly and securely, of sleep—to realize the truth of the fable of Lethean waters. Opium gave us this boon at the expense of a feverish reaction; morphine promised it, but failed in the performance; chloroform gave it, but at a serious risk. How suddenly chloral has come into use! Almost as quickly as the shades of night, which it so aptly represents, has this invention crossed the Atlantic on downy pinions to visit the abodes of American care and distracting brain labor. This is the veritable angel of sleep. Of the bed-bottoms conducive to sleep: The foundation of the superstructure should be firm, open, elastic, noiseless; affording no harbor to insect denizens. It is of no consequence to the prominent hip-bones and short ribs of an emaciated sleeper, whether they are a few inches more or less distant from the floor; but it is of consequence that the prominent portions of the body should find for themselves correspondingly depressions in the supporting medium, thus extending the surface of contact and avoiding chafing.—*Ex*

A HANDY KITCHEN.—The other day we went into a model kitchen. Between it and the dining-room a small passage served as a closet, and also to keep all odors of the kitchen from reaching the dining-table. On one side of the kitchen was a large range, beyond that a sink with hot and cold water leading into it, and a waste-pipe from it. At the end of the room, between two windows, screened to prevent the ingress of flies, stood a long work-table, with a series of drawers. On the other side of the room were two stationary tubs, each with faucets for hot and cold water and a discharge pipe. Hinged covers made an ironing table firm and ample.

Just beyond the sink a door opened into the pantry, a room four by ten, with a window, a shelf running round three sides of it, wide and high enough to cover barrels of flour, sugar and meal.

At one end of the space beneath this shelf was filled with deep drawers for towels, table-cloths, the ironing blanket, starch and blueing, each in appropriate place. The housewife needed but a step in there and find everything at hand necessary to prepare food for the table. No running up stairs for meal and flour, no getting ready to make bread, or pies, or cake; pans are close by; spices in neat boxes at her elbow; coffee-mill, with a little shelf under it to hold the cup, was screwed over the window casing. What hardships are there in doing work in such a kitchen?—*Ex.*

RAISED CRUST FOR PIES.—Some persons cannot eat rich pastry, and for their benefit I will give a plain recipe. Take one pound of flour, three ounces of butter, one tablespoonful good yeast, and milk to form a dough. Rub the butter in flour, add the milk and yeast, and set to rise. When light, roll out pretty thin, and line the plates. Put in the fruit, roll out the cover, and set the pies in a quick oven. This makes good crust.

TO KEEP DRIED FRUIT FREE FROM WORMS.—Housekeepers and others are much troubled to keep their dried fruit free from worms. A contemporary says that a handful of sassafras bark sprinkled through a bushel of fruit is a preventive from this pest. Has any one ever tried it?

HOW TO STOP A PINHOLE IN A LEAD PIPE.—Take a ten-penny nail, place the square end upon the hole, and hit it two or three slight blows with a hammer, and the orifice is closed as tight as though you had employed a plumber to do it at a cost of a dollar or more.

CHEAP CAKE.—Chop a cupful of fat pork and pour on it a cupful of boiling water, add a cupful of molasses; boil a few minutes, and add salt, soda, spice, (cloves are best,) and flour for a batter. Bake in one loaf.

THE very best way to clean a stained steel knife is to cut a solid potato in two, dip one of the pieces in brick dust (such as is usually used for knife cleaning), and rub the blade with it.

JOHNNYCAKE.—Beat one egg, add one cup of sour milk, one cup of sweet milk, one teaspoonful of soda, from one to three tablespoonfuls of molasses, salt, and stir quite soft.

HOG'S hair is recommended for hen's nests by a correspondent of the *World*. He says hens setting in these nests have never been infested with bee.

THE richer a man makes his food, the poorer he makes his appetite.

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Invite all who desire a First-class and Entirely Reliable Article, and which for Over 18 Years in this country has given such GENERAL SATISFACTION, to ask for the H & L AXLE GREASE. See that the trade mark H & L is on the red cover of the package, and take no other. 3v24-cowr

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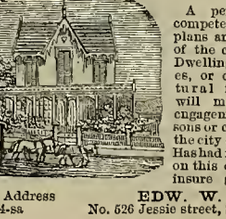

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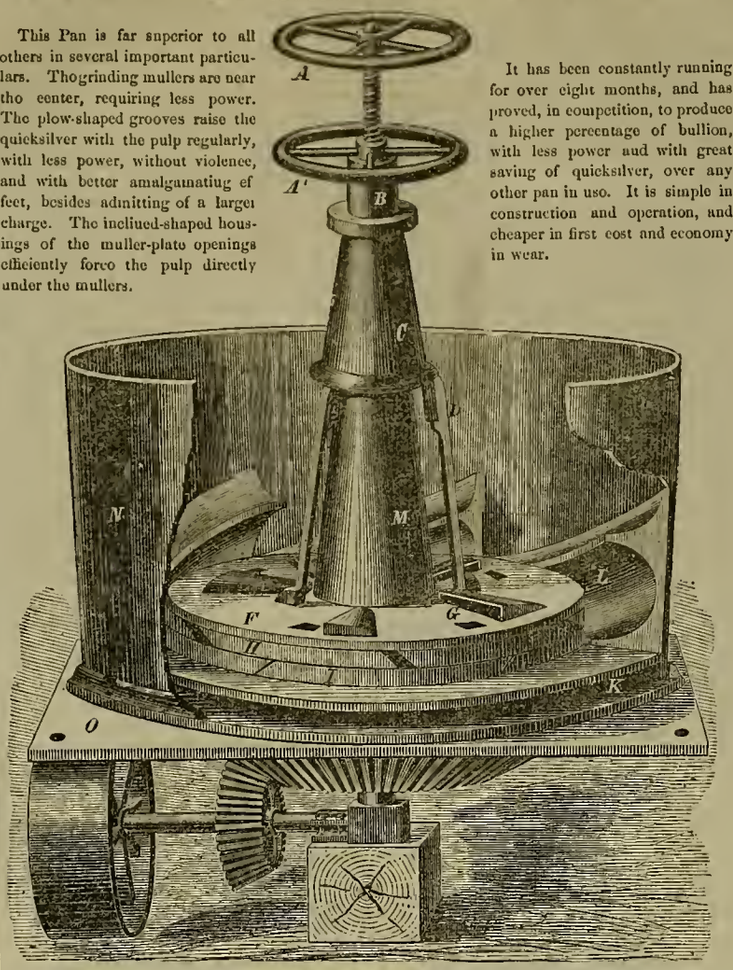

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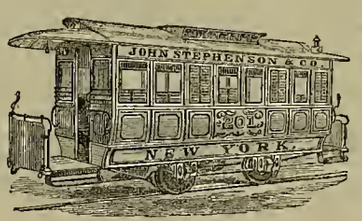

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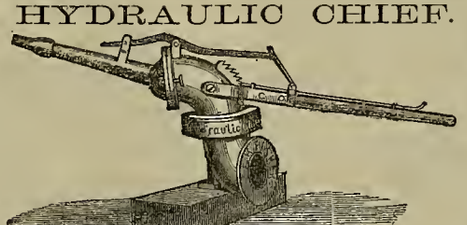

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A circular containing a full description of this Powder can be obtained on application to our Office.
16v20-3m JOHN F. LOHSE, Secretary.

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New Incorporations.

The following have filed certificates with the County Clerk, San Francieco.

PAUPER M. Co.—April 18. Location: War Eagle Mountain, Carson District Owyhee county, Territory of Idaho. Capital stock $1,600,000, in 16.000 sharee, Trustees: M. D. Townsend, A. H. Lissak, Jr., David Fay, J. W. Coleman and George W. Beaver.

ALASKA M. Co.—April 18. Location: Gold Hill District. Capital stock, $1,500,000, in 30,000 sharee. Trustees: A. P. Forhee, E. Skerrett and H. H. Flagg.

ARKANSAS M. Co.—April 18. Location: Ely Mining District, Nevada. Trustees: B. F. Sides, J. Valentine, F. L. A. Pioche and Alexander Lascelle.

UNION CONSOLIDATEN S. M. Co.—April 19. Location: Virginia District, Storey county, Nevada. Capital stock, $2,000,000, in 20,000 shares. Trustees: Geo. D. Roherts, A. E. Head, J. J. Hucks, S. W. Lee and M. B. French.

WASHOE S. M. Co.—April 19. Location: Gold Hill District, Storey county, Nevada. Capital stock, $2,000,000, in 20,000 shares. Trustees: Wm. J. Williams, A. C. Ellis, Geo. D. Roherts, W. G. Wayman and Thomas J. L. Smiley.

ECLIPSE, WINTERS ANN PLUTO GOLD HILL CONSOLIMATEN M. Co.—April 20. Location: Gold Hill Mining District. Capital stock $2,-000,000, in 20,000 shares. Trustees: H. H. Flagg, R. F. Morrow, Charles Foreman, John Skea and E. Hull.

AMELIA S. M. Co.—April 20. Location: Ely Mining District. Capital stock, $3,000,000, in 30,000 shares. Trustees: E. B. Rail, C. M. Gilmore and N. C. Fassett.

HAMILTON M. M. Co.—April 20. Location: Wbite Pine District. Capital stock, $5,000,000, in 50,000 shares. Trustees: J. B. Haggin, George Hearet, Fred M. Eaton, R. H. Lloyd and B. B. Minor.

DARDANELLES M. Co.—April 20. Location: Storey county, Nevada. Capital stock, $2,400,-000, in 24,000 shares. Trustees, Vincent Ryan, O. C. McCracken and J. R. Sharpe.

CASCADE BLUE GRAVEL M. Co.—April 20. Location: Nevada Township, Nevada county. Capital stock, $1,800,000, in 37,000 shares. Trustees—R. F. Knox; James Scott, George H. Hallett, L. B. Ahernathie and Thomas Nel. son.

LUCIN M. Co.—April 22. Location: Utah Territory. Capital stock, $2,000,000, in 40,000 shares. Trustees—S. B. Boswell, J. Fry, W. P. Pritchard, James Freeborn and George C. Shreeve.

STANFORD M. Co.—April 22. Location: Humboldt county, Nevada. Capital stock, $3,000,-000, in 30,000 shares. Trustees—Wm. Hazelhurst, Jas. Dodds, S. Huff, George M. Piuuey and George A. Treadwell.

COOK & GEYER M. Co.—April 22. Location: Storey county, Nevada. Capital stock, $2,400,-000, in 24,000 shares. Trustees: John H. Boalt, LouisZanier, Jr., M. J. McDonald, John H. Dall and J. A. Pritchard.

TYLER M. Co.—April 22. Location: American Flat, Nevada, Capital stock, $3,300,000, in 33,000 shares. Trustees—Alpbeus Bull, Henry Dutton, C. H. Burton, H. H. Flagg and George D. Roherts.

OCCIDENTAL M. Co.—April 22. Location: Silver Star District, Nevada. Capital stock, $4,000,000, in 4,000 shares. Trustees—J. C. Flood, William Kohl, John F. Miller, Edward Barron and Alvinza Hayward.

PICTOU M. Co.—April 22. Location: Gold Hill, Nevada. Capital stock, $1,500,000, in 30,000 shares. Trustees—A. P. Forbes, H. H. Flagg and E. Skerritt.

NORTH COMSTOCK M. Co.—April 23. Location: Virginia District, Storey county, State of Nevada. Capital stock, 2,400,000, in 24,000 shares. Truetees—A. V. Grim, John B. Winters, S. Heydenfeldt, M. Morganthau and P. J. Wbite.

COLUMBUS M. Co.—April 23. Location: Columbus District, Nevada. Capital stock, $5,-000,000, in 50,000 shares. Trustees—George Hearst, J. B. Haggin, F. W. Eaton, W. H. Chevere and O. C. McCracken.

CALIFORNIA CONSOLIDATED M. Co.—April 24. Location: El Dorado county. Capital stock, $3,000,000. Trustees—George L. Bradley, William H. Sears, M. D. Townsend, E. N. Torrey and A. J. Bryant.

LOUISE M. Co.—April 24. Location: Ely District, Lincolu county. Capital, $6,000,000. Trustees—Andrew Kohler, Watson Webb, S. A. Raymond, S. A. Coburn and A. K. Chase.

CEDERBERG M. Co.—April 25. Location: El Dorado county, California. Capital stock, $2,-400,000, in 24,000 shares. Trustees—Joh M. Seamans, Phillip F. Mobrhardt, John M. Fitzgibbon, James C. Penuie and Theodore G. Biltz.

LADY BRYAN M. Co.—April 25. Location: Storey county, Nevada. Capital stock, $2,700,-000, in 1,800 shares, of $150 each. Trustees—John P. Jones, Edward Patten, M. D. Townsend, Wm. H. Sears and W. F. Myers.

DAUPHIN M. Co.—April 25. Location: Butte county. Capital stock, $1,200,000, iu 12,000 shares. Trustees—R. C. Singer, Samuel D. Kreider, M. Herman, G. A. Treadwell and M. D. Walbridge.

VIRGINIA AND GOLD HILL WATER Co., April 26.—Object, to purcbase and hold water rigbts, to buy lands for sites for works and reservoirs for supplying mills, etc., with power in Storey and Lincoln counties, Nevada, and selling water for domestic uses. Capital stock, $5,-000,000, in 50,000 shares. Trustees—Alvinza Hayward, Joseph A. Donohoe, J. C. Flood, A. K. P. Harmon, W. S. Hobart, John Skae and Jamee G. Fair.

DAYTON G. AND S. M. Co., April 26.—Lincoln county, Nevada. Capital stock, $3,-000,000, into 30,000 shares. Trustees—A. K. P. Harmon, C. B. Land, W. S. Hobart, James A. Pritchard and Josepb Clark.

MCMEAN G. and S. M. Co., April 26.—Location, Gold Hill district, Storey county, Nevada. Capital stock $3,600,000, in 36,000 shares. Trustees—James A. Pritchard, Wm. Hazlehurst, M. J. Henley, Frank Wheeler, and S. A. Raymond.

SOUTH OVERMAN S. M. Co., April 27.—Location, Gold Hill, Nevada. Capital $3,000,000, iu shares of $100 each. Trustees—D. L. McDonald, B. L. Schmidt, J. Autbor Hope, S. A. Raymond, and Theodore Pbelps.

MOCKING BIRN M. Co., April 27.—Location, Ely District, Nevada. Capital stock, $3,000,-000, in shares of 100. Trustees—J. D. Fray, J. B. E. Cavallier, S. W. Lee, Geo. A. Treadwell, and Charles J. Deering.

ORIGINAL SCHELL CREEK M. Co., April 27.—Location, State of Nevada. Capital stock, 4,-000,000, in shares of 100. Trustees—David L. Phillips, Edward B. Pond, Wm. Ingraham Kipp, Wm. D. Conklin and Wm. H. Doran.

HARLOE M. AND M. Co., April 27.—Location, Mariposa county. Capital stock, $500,000, in sbares of $50. Truetees—W. Meek, J. W. Tripp, A. Jackson, P. A. Eakins and Wm. P. Merriam.

PLUMAS EUREKA M. Co., April 27.—Location, Plumas county, California. Capital stock, $1,-000,000, in shares of 100. Trustees—W. F. Babcock, Tiburcio Parrot, J. W. Gashwiler, S. Heydenfeldt and John Parrot.

TRUE EXCHEQUER M. Co., April 26.—Location, Storey county. Capital stock, $800,000, in 8,000 ehares. Trustees—Charles Felton, Robert F. Morrow, A. E. Head, Robert Sherwood and Charles Forman.

TINTIC EUREKA S. M. Co., April 29th.—Location in Tintic M. District, Utah Territory. Capital stock, $3,000,000, in 30,000 shares. Trustees: James M. Carter, Tbomas Marshall, M. S. Hurd, H. S. Brown and J. F, Woodman.

AMERICAN FLAT M. Co., April 29th.—Location in Gold Hill M. District, Nevada. Capital stock, $3,000,000, in 30,000 shares. Trustees; M. Morganthau, John B. Winters, J. W. Foard, J. A. Coolidge and A. K. Grim.

The following compauies filed certificates of incorporations April 30th:

PETTICOAT M. Co.—Location in Railroad Flat M. District, Calaveras county. Capital stock, $2,000,000, in 20,000. Trustees: J. C. Flood, John W. Mackay, J. F. Boyd, J. W. Gashwiler and C. Barran.

HIGHLANN CHIEF Co.—Locotion in Ophir M. District, Tooele county, Utah Territory. Capital stock, $3,000,000, in $30,000 shares. Trustees: E. C. Catherwood, A. J. Bryaut, E. B. Ruil, John W. Sbaw and J. C. Wadsworth.

DESNEMONA S. M. Co.—Location in Ely District, State of Nevada, or in Utah mines. Capital stock, $3,200,000, in 32,000 shares. Trustees: Wm. H. Raymond, Benjamin F. Avery, Henry Raymond, C. N. Felton and Thomas Sbannon.

WARN BEECHER CONSOLIDATED M. & M. Co.—Locatiou in White Pine M. District. Capital stock, $2,400,000, in 24,000 sharee. Trustees: J. E. de la Monagnie, R. Sherwood, J. W. Gashwiler, H. G. Blasdel, A. Hayward, W. B. Bourn and C. B. Land.

FLOWERY M. Co.—Location in Flowery M. District, Storey county, Nevada. Capital stock, $3,000,000, in 30,000 shares. Trustees: James A. Pritchard, John W. McKenny, H. H. Flagg, H. Hazen and John Gehlig.

GENESSEE VALLEY M. Co.—Location in Plumas county. Capital stock, $2,500,000, in 25,000 sharee. Trustees: D. L. McDonald, H. C. Bidwell, Andrew Jackson, A. J. Chambers and Louis Vosaire.

MEDICAL SOCIETY INCORPORATED.—California State Medical Society of Homeopathic Practitioners filed a certificate of incorporation April 30th. Object, to effect a harmonious professional co-operation among the practitioners of homeopathy on tbe Pacific Coast, and to acquire and impart a knowledge of medicine and surgery generally. Trustees: J. K. Clark, J. S. Shepard, T. O. Coxhead, M. J. Worder, S. Porter, J. Easton and W. N. Griswold.

GREEN VALLEY BLUE GRAVEL M. Co., May 1st.—Location in Township No. 8, Placer Co. Capital stock, $1,200,000, in 24,000 shares. Trustees: E. J. Weeks, A. D. Carpenter, A. Peck, L. C. Shearer and Joseph Nuber.

TEACKLE M. Co., May 1st.—Location in Gold Hill M. District, Nevada. Capital stock, $2,800,000, in 28,000 shares. Trustees: E. B. Dorsey, James A. Pritchard, S. A. Raymond, James L. King and James Flanagan.

HARTFORD M. Co., May 1st.—Location in Gold Hill M. District, Nevada. Capital stock, $2,500,000, in 25,000 shares. Trustees: J. P. Jones, Nathan Solomon, E. M. Hall, Lawson J. Adams and Edmond Patton.

A SWEDISH Arctic Exploring party has recently brought some remarkable meteoric stones from Greenland, the largest of which weighs 12 tons, and has a cross section of 42 square feet in the largest part.

THE Rock Island Mining Company, whoso property is in Storey Co., Nev., have obtained a patent to their mine, and are about to place their stock in the market.

Ores Sampled.

Tbe following lots of ore were sampled hy J. W. Thurman, 413 and 415 Mission street during the month of April: Two lots of 2,108, and 165 sacks of copper ore from Battle Mountain, Nev., and 121 sacks of lead and silver ore from same place; 138 sacks of lead and silver ore from Mexico; 314 sacks of antimony, Mill City; from Arizona 31 sacks silver ore from Prescott District, 40 and 75 sacks from Wallapai, and 24 from Clark District. From Arizona mine, Nevada, 58 sacks silver ore and 170 sacks from tbe Eureka mine, making in all 3,344 sacks.

One huudred and fifty-six tons of copper ore assaying from 26 to 30 per cent. was shipped to Liverpool on owner'e account; 160 tons of silver ore assaying from $200 to $1,650 per tou was hought by Messrs. Selby & Co., and Cross & Co. Silver ores have been coming in freely from Arizona, aud if we only had quick and cheap transportation from there we would have thousands of tons of good ores that would assay from $300 to $2,500 per ton. Freight is so high and it is so long before the miners can get their returns that they feel unwilling to make shipments. The freight at this time costs them about $100 per ton, and it takes from two to three months from the time the ore starts from the mines before it can reach San Francisco. As soon as the ores arrive and can be crushed and sampled, the shippers and Messrs. Selby & Co. stand ready to buy and pay the highest cash price for all the ores they can get. The wonder is that they ship at all under such disadvantageous circumstances, and a proof of tbe richness of the mines is evident from the fact of their making any profit at such high rates of freight, etc.

Copper ores are very scarce at this time and are hadly wanted both for shipment and for the purpose of manufacturing into bluestone here. Parties who can ship such ores to this market should do so as soon as possible ae the present prices will pay them well for all they can furnish. This ie a good outlook for our long neglected copper mines and owners will no doubt get out ore as rapidly ae possible.

Mining Accidents.

John A. Coulter, a miner, employed in the Kingston mine, on Pauaca Flat, was killed recently, by falling from a bucket in the shaft. He had put in some blasts and after lightiug the fuses gave the signal to hoist. On the way up the gear became entangled and the men could not raise him except by pulling baud over hand. While doing so one of the blasts went off and he fell 130 feet and broke his neck.

A man working at the Saratoga mine, says the Reese River *Reveille*, fell in such a manner recently, that a moving car struck him and fractured his jaw in two places,

John McCabe, working in the Murphy mine, Ophir Cañon, Nev., was instantly killed last week, by a car falling upon him and throwing him down an incline.

The Quincy *National* says that three men named L. P. Maynard, Lorenzo Serry and Fred Knoble, were carried over the dumps of the Taylor Hill claim recently. There is a perpendicular fall of 150 feet from the mouth to the flume.

The Virginia *Enterprise* records the death of James Roach, a miner employed in the 1200-ft. level of the Crown Point mine. He was struck on the head hy a piece of timber which was being sent down the chute.

THE street cars of London are differently arranged from those in use here; they have seats inside and out. The track is a flat strip of iron, with a groove for the flange of the wheel to run in. This strip offers no obstacle to vehicles, as it is exactly level with the pavement, not sunk, and does away with some of the objections of our system.

IF you want pictures or fine frames, cheap, send to Sanborn, Vail & Co., 31 Kearny street, S. F. 18v24-3m

State University.—Tbs next term of the Preparatory Department will begin April 20th, 1872.

The course of study embraces the Ancient and the Modern Languages and the higher Mathematics, and is specially adapted to the University curriculum.

Terms, $12 a term. GEORGE TAIT, Oakland. 13v3hp-tf

$5 TO $20 PER DAY AND NO RISK.—Do you want a situation as salesman at or near homs to introduce our new 7-strand White Wire Clothes Lines, to last forevsr. Don't miss this chance. Sample Free. Address Hudson River Wire Works, 75 William street, N. Y., or 1 Dearborn street, Chicago, Ill. 23v1-12mbp

Daily Weather Record,

BY THE U. S. ARMY SIGNAL SERVICE, FOR THE WEEK ENDING WEDNESDAY, MAY 1, 1872.

Place of Observation.	Date.	Observation taken at 9 A. M.	Hight of Barometer.	Thermometer.	Rel. Humidity.	Direction of Wind.	Vel. of Wind. Miles per Hour	Force of Wind. Hurricane Scale. Approximately.	Amount of Lower Cloud.	Rainfall since last Report.	State of Weather.
Sba Fran'co.	Thu..25		30.04	47	55	W.	20	Brisk			Clear
	Fri...26		30.00	46	69	S. W.	4	Gentle	1-2		Fair
	Sat...27		29.98	47	83	S. W.	14	Fresh	1-4	.02	Fair
	Sun..28		30.05	60	78	S. W.	4	Gentle			Fair
	Mon..29		30.25	47	85	Calm					Clear
	Tu...30		30.25	52	73	Calm					Hazy
	Wed..1		30.12	52	80	W.	3	Gentle			Hazy
San Diego.	Thu...25		29.89	57	81	S. W.	1	Light			Cloudy
	Fri...26		30.01	54	79	S.	10	Frosh	1-2		Cloudy
	Sat...27										
	Sun..28										
	Mon..29										
	Tu...30		30.11	57	93	N. E.	2	Light			Hazy
	Wed..1		30.01	56	43	N. E.	1	Light			Clear
Portland,Or	Thu...25										
	Fri...26										
	Sat...27										
	Sun..28										
	Mon..29		30.20	43	91	Calm			4-4	.11	Cloudy
	Tu...30										
	Wed..1		30.43	57	93	N.	1	Light	1-4		Fair
Virg'a, N.T.	Thu...25		29.65	22	70	W.	4	Gentle			Cloudy
	Fri...26		29.65	22	50	S.	2	Light			Clear
	Sat...27										
	Sun..28		29.57	29	78	Calm			4-4	.07	Cloudy
	Mon..29		29.62	29	43	W.	2	Light	4-4		Cloudy
	Tu...30		29.84	26	62	E.			1-4		Cloudy
	Wed..1										
Gorrna.	Thu...25		30.03	34	34	N. W.	8	Fresh	1-4		Fair
	Fri...26		29.88	32	61	N.	8	Freeh	1-2		Fair
	Sat...27		29.83	36	53	N. W.	8	Fresh	1-2		Fair
	Sun..28		29.70	40	64	N. W.	7	Fresh	1-4		Fair
	Mon..29		29.95	37	45	N. W.	8	Fresh	4-4		Cloudy
	Tu...30		30.08	35	52	N. W.	12	Fresh	1-2		Fair
	Wed..1		30.38	36	62	W.	6	Fresh			Clear
Cheyenne.	Thu...25		29.76	44	52	S. W.	8	Frosh			Clear
	Fri...26		30.05	32	89	S. E.	24	Brisk	4-4	.20	Hv Snow
	Sat...27		29.94	33	89	Calm					Clear
	Sun..28		29.84	45	59	W.	1	Light	4-4		Cloudy
	Mon..29		29.54	36	55	N. W.	4	Gentle	4-4		Cloudy
	Tu...30		29.93	29	66	W.	9	Fresh	1-4		Fair
	Wed..1		30.21	27	82	N. W.	15	Brisk	1-4		Cloly
Denver.	Thu...25		29.48	41	65	S.	2	Light			Clear
	Fri...26		30.08	43	75	E.	2	Light	4-4		Clear
	Sat...27		29.98	38	81	Calm					Fair
	Sun..28		29.83	47	70	S.	2	Light			Fair
	Mon..29		29.69	43	14	W.	23	Brisk			Cloudy
	Tu...30		29.98	39	34	W.	11	Freeh	1-4		Fair
	Wed..1										
Omaha.	Thu...25		29.43	85	53	S.	10	Freeh	1-2		Fair
	Fri...26		30.02	47	34	E.	15	Brisk	4-4		Cloudy
	Sat...27		30.02	41	82	N. E.	5	Gentle	4-4	.97	Cloudy
	Sun..28		29.92	49	93	S. E.	4	Gentle	4-4	.29	Lt. Rain
	Mon..29		29.42	65	65	S.	10	Fresh	4-4	.02	Cloudy
	Tu...30		29.70	49	61	W.	9	Freeh			Clear
	Wed..1		29.68	46	47	N. W.	13	Brisk			Fair
Davenport, I	Thu...25		29.81	60	44	S.	23	Brisk	1-2		Hazy
	Fri...26										
	Sat...26		30.15	50	51	E.	4	Gentle			Cloudy
	Sun..28		30.15	47	71	E.	3	Light	4-4		Cloudy
	Mon..29		29.88	62	74	S.	16	Brisk	4-4		Cloudy
	Tu...30		29.74	63	80	S.	17	Brisk		.29	Cloudy
	Wed..1		29.90	51	62	W.	4	Gentle			Clear

San Francisco Metal Market.

Corrected weekly by Hooker & Co., 117 and 119 Cal. street

PRICES FOR INVOICES

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

THURSDAY, May 2, 1872

IRON.—			
Scotch Pig Iron, ₱ ton	$70 00	@	— —
White Pig, ₱ ton	52 00	@	— —
Refined Bar, bad assortment, ₱ lb	— 05½	@	— 06
Refined Bar, good assortment, ₱ lb	— 06	@	— 07
Boilor, No. 1 to 4	— 05	@	— 06
Plate, No. 5 to 9	— 08	@	— 09
Sheet, No. 10 to 13	— 06½	@	— 07
Sheet, No. 14 to 20	— 07	@	— 09
Sheet, No. 24 to 27	— 06	@	— —
Horse Shoes	8 00	@	
Nail Rod	11		
Norway Iron	9		
Rolled Iron	6		
Other Irons for Blacksmithe, Miners, etc.	6	@	7
COPPER.—			
Sheathing, ₱ lb	— 24	@	— 28
Sheathing, Yellow	— 24	@	— 26
Sheathing, Old Yellow	— 11	@	— 11½
Composition Naile	— 24		—
Composition Bolts	— 24		—
TIN PLATES.—			
Plates, Charcoal, IX ₱ box	12 00		— —
Platee, I C Charcoal	10 00		10 50
Roofing Plates	11 00		— —
Banca Tin, Slabe, ₱ lb	—		— 45
STEEL.—Cast, Tobiesh Cast, ₱ lb	— 16		— 17
Drill	16		17
Flat Bar	17		20
Plough Pointe	3 75		
Russia (for mould boards)	12½		
QUICKSILVER.—₱ lb	—		— 85
LEAD.—Pig, ₱ lb	— 06		— 06½
Sheet	— 08		— 8½
Pipe	— 9		— 10
Bar	— 08		— 09
ZINC.—Sheets, ₱ lb	— 10		— 10½
BORAX.—Refined	— 25		— 30
Borax, crude	— 5		— —

Leather Market Report.

[Corrected weekly by Dolliver & Bro., No. 109 Post st.]

SAN FRANCISCO, Thursday, May 2, 1872.

SOLE LEATHER.—The demand is still equal to the supply and prices still continue firm.

City Tannod Leather, ₱ lb	.26@29
Sante Cruz Leather, ₱ lb	.26@29
Country Leather, ₱ lb	.25@28
Stockton Leather, ₱ lb	.26@29

French skins are firmer with an advance in some grades. Heavy California skine are firm, with an upward tendency.

Jodot, 8 Kil., per doz	$80 00@
Jodot, 11 to 13 Kil., per doz	76 00@ 90 00
Jodot, eecond choice, 11 to 15 Kil. ₱ doz	60 00@ 76 00
Lemoine, 16 to 18 Kil., ₱ doz	75 00@ 77 50
Levin, 12 and 13 Kil., per doz	68 00@ 70 00
Comelan, 16 Kil., per doz	70 00@
Cornellian, 12 to 14 Kil., per doz	60 00@ 68 00
Ogeraa Calf, ₱ doz	54 00@
Simon, 18 Kil., ₱ doz	65 00
Simon, 20 Kil. ₱ doz	68 00
Simon, 24 Kil. ₱ doz	72 00
Robert Calf, 7 and 8 Kil	35 00@ 40 00
French Kips, ₱ lb	1 10@ 1 30
California Kip, ₱ doz	60 00 to 80 00
French Sheep, all colors, ₱ doz	15 00
Eastern Calf for Backs, ₱ lb	1 15@ 1 25
Sheep Roans for Topping, all colors, ₱ doz	9 00@ 13 00
Sheep Roans for Linings, ₱ doz	5 50@ 10 50
California Russett Sheep Linings	1 75@ 5 50
Best Jodot Calf Boot Legs, ₱ pair	5 25
Good French Calf Boot Legs, ₱ pair	4 50@ 5 00
French Calf Boot Lege, ₱ pair	4 00
Harness Leather, ₱ lb	30@ 37½
Fair Bridle Leather, ₱ doz	48 00@ 72 00
Skirting Leather, ₱ lb	34@ 37½
Welt Leather, ₱ doz	30 00@ 50 00
Buff Leather, ₱ foot	18@ 21
Wax Side Leather, ₱ foot	18@ 29

RICHARD H. BUEL, Consulting Mechanical Engineer, 7 Warren Street, New York. Advice and assistance given to those who desire to invest funds in meritorious and valuable Patent Rights. Machinery of all kinds bought and sold. Unusual facilities for testing engines, boilers and other machinery. I refer particularly to Professor R. H. Thurston, of the Stevene Institute of Technology, who has consented to aeeociate himeelf with me in consultation on matters of special importance. 10v24-13t

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the Scientific Press we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

Alleghany Consolidated Gold Mining Company—Location of works, Alleghany, Sierra County, Cal.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 26th day of April, 1872, an assessment of twenty cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at his office, 37 New Merchants' Exchange, California street. Any stock on which said assessment shall remain unpaid on the third day of June, 1872, shall be deemed delinquent, and will be duly advertised for sale, at public auction, and unless payment shall be made before, will be sold on Monday, the 24th day of June, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. M. BUFFINGTON, Secretary.

Office, No. 37 (third floor), New Merchants' Exchange, California street, San Francisco. ma4-4t

Francis Mining Company--Location of works, Mariposa County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 6th day of April, 1872, an assessment of one dollar per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary of the company, 409 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Wednesday, the 8th day of May, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 4th day of June, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. CRONISE, Secretary.

Office, 409 California street, San Francisco, Cal.

Ingomar Silver Mining Company—Location of works, Ely Mining District, Lincoln County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 2d day of April, 1872, an assessment of 25 cents per share was levied upon the capital stock of said company, payable immediately, in U. S. gold coin, to the Secretary, at the office of the company, Room 21, Hayward's Building, 419 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Wednesday, the 24th day of May, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Friday, the 31st day of May, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

By order of the Board of Trustees.

CHAS. S. NEAL, Secretary.

Office, Room 21, Hayward's Building, No. 419 California street, San Francisco, California. np6-4t

Kincaid Flat Mining Company—Location of works, Tuolumne County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 23d day of April, 1872, an assessment of Three Dollars per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, No. 220 Clay street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 27th day of May, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 17th day of June, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

R. H. CORNELL, Secretary.

Office, No. 220 Clay street, San Francisco, Cal. ap27-4w

Lyons & Wheeler Mining Company—Location of works, Maynard Mining District, Mohave County, Arizona Territory.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 6th day of April, 1872, an assessment of Ten Cents per share was levied upon the capital stock of said Company, payable immediately, in United States coin, to the Secretary, at the office of the company, Room 3, No. 419 California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on Wednesday, the 15th day of May, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 3d day of June, 1872, to pay the delinquent assessment, together with the costs of advertising and expenses of sale. By order of the Board of Trustees.

T. W. COLBURN, Secretary.

Office, Room 3, No. 419 California street, San Francisco, California. ap13

Marcelina Silver Mining Company.—Location of Works: Eureka District, Lander County, Nevada.

Notice—There are delinquent upon the following described stock, on account of Assessment (No. 2) levied on the Eighth day of March, 1872, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Am't.
Cunninghsm, P. P.	22	200	$20 00
Cunninghsm, P. P.	23	100	10 00
Quinlan, P. B.	56	50	5 00
Worland, C. R.	58	1000	100 00

And in accordance with law, and an order of the Board of Trustees, made on the Eighth day of March, 1872, so many shares of each parcel of said Stock, as may be necessary, will be sold at public auction at the office of the company, Room 21 Haywnrds Building, 419 California Street, San Francisco, Cal., on the 7th day of May, 1872, at the hour of 2 o'clock, P. M., of said day, to pay said delinquent Assessment thereon, together with costs of advertising and expenses of sale.

CHAS. E. ELLIOT, Secretary.

Office, Room 21, Hayward's Building, 419 California street, San Francisco, California.

Mount Jefferson Milling and Mining Company—Location of works, First Garote, Tuolumne County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 3d day of April, A. D. 1872, an assessment of Thirty Cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company. Any stock upon which said assessment shall remain unpaid on Monday, the 6th day of May, A. D. 1872, shall be deemed delinquent, and will be duly advertised for sale, at public auction, and unless payment shall be made before, will be sold on Wednesday, the 22d day of May, A. D., 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. J.W. CLARK, Sec'y.

Office, 418 California St. San Francisco. ap13-4w.

Nuestra Senora de Guadelupe Silver Mining Company.—Location of Works, Tayoltita, San Dimas District, Durango, Mexico.

NOTICE.—There are delinquent, upon the following described Stock, on account of Assessment levied on the 12th day of May, 1869, and re-levied on the 8th day of March, 1872, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No of certificate.	No. shares.	Amount.
Thomas Brennan	163	10	$20 00
Henry Beck	84	5	10 00
Henry Beck	81	5	10 00
Valentin Gassner	71	30	60 00
L. Rosenfelder	114	6	12 00
L. Rosenfelder	184	10	20 00
H. Schumaker	84	5	10 00

And in accordance with law, and an order of the Board of Trustees, made on ths 8th day of March, 1872, so many shares of each parcel of said Stock as may be necessary, will be sold at public auction at the salesroom of Maurice Dore & Co., No. 327 Montgomery St., on Wednesday the eighth day of May, 1872, at the hour of 11 o'clock, A. M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

E. J. PFEIFFER, Secretary.

Office—No. 210 Post Street, San Francisco.

Ophir Copper, Silver and G. M. Company.—Location of Works, Ophir, Placer County, Cal.

NOTICE.—There are delinquent upon the following described Stock, on account of assessment levied on the 18th day of March, 1872, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. shares.	Amount.
Allen, M W	336	25	$ 15 00
Brown, Chas. F	342	7½	4 50
Bunker, G F	341	220	132 00
Brush, R G	222	100	60 00
Brush, R G	289	65	39 00
Brush, R O	230	30	18 00
Brush, R G	239	50	30 00
Brush, R G	246	38	22 80
Brush, R G	288	62	37 20
Brush, R G	291	65	39 00
Bloomer, Theo. H	232	30	18 00
Braudt, Mrs. E	315	50	30 00
Buford, H L	315½	5½	3 30
Baum, Chas	316	100	60 00
Brush, R G, Trustee	329	100	60 00
Brush, R G, Trustee	331	50	30 00
Everson, Wallace	338	200	120 00
Garniss, Jas. R	283	100	60 00
Garniss, Jas. R	337	40	24 00
Hluckley, Geo. E	334	50	30 00
Kip, Jr. W I	337	500	300 00
Meade, C	244	25	15 00
Purdy, G W	215	50	30 00
Quade, A	259	100	60 00
Reynolds, W O	210	19	11 40
Rogers, Geo P	324	25	15 40
Swain, H C	79	137	82 20
Swain, H C	80	137	82 20
Swain, H C	238	200	120 00
Swain, H C	245	100	60 00
Swain, H O	294	50	30 00
Swain, H C	295	50	30 00
Swain, H C	296	20	12 00
Swain, H C	303	50	30 00
Swain, H G	318	50	30 00
Swain, H G	319	50	30 00
Swain, H C	320	50	30 00
Swain, H C	326	50	30 00
Swain, H C	327	50	30 00
Swain, H C	340	2½	1 50
Swain, W B	11	5	3 00
Swain, W B	10	5	3 00
Stackpole Thos	335	25	15 00
Wightman James	—	400	240 00

And in accordance with law, and an order of the Board of Trustees, made on the 18th day of March, 1872, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the office of John Middleton & Co., No. 310 Montgomery Street, on the 17th day of May, 1872, at the hour of 1 o'clock P. M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

R. G. BRUSH, Secretary.

Office: N. E. Cor. Sansome and Halleck Streets. Entrance on Halleck Street. apr27-3w

Piermont Milling and Mining Company—Location of works, Piermont Mining District, White Pine County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the sixteenth (16th) day of April, 1872, an assessment of Forty Cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company. Any stock upon which said assessment shall remain unpaid on Monday, the twentieth (20th) day of May, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the nineteenth (19th) day of June, 1872, at the hour of 2 o'clock P. M., at the office of the company, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. W. CLARK, Secretary.

Office, 418 California street, San Francisco. ap27-4w

San Francisco Tunnel and Mining Company.—Location of Works, Little Cottonwood Mining District, Utah Territory.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the thirteenth (13th) day of April, A. D., 1872, an assessment of Twenty-five (25) cents per share was levied upon the assessable stock of said company, payable immediately to the Secretary at the office of the company. Any stock upon which said assessment shall remain unpaid on Thursday, the 16th day of May, A. D., 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday the eighth (8th) day of June, A. M., 1872, at the office of the company, at the hour of 2 o'clock, P. M., to pay the delinquent assessment, together with costs of advertising and expenses of sale By order of the Board of Trustees.

J. W. CLARK, Secretary.

Office—No. 418 California street, San Francisco, California. ap20-4w

SAN FRANCISCO TUNNEL AND MINING COMPANY—POSTPONEMENT—The day for deeming stock delinquent on the above assessment is hereby postponed until Tuesday, May 21st, A. D. 1872, and the sale thereot until Monday, the 10th day of June, A. D. 1872. By order of the Board of Trustees.

ma4-3t J. W. CLARK, Secretary.

Silver Sprout Mining Company—Location of works and mine, Kearsarge District, Inyo County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 29th day of April, 1872, an assessment of fifty cents per share was levied upon the capital stock of said Company, payable immediately in United States gold coin, to the Secretary, at the office of the Company, Room No. 1, second floor, 318 California st., S. F.. Any stock upon which said nssessment shall remain unpaid on the first day of June, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the 22d day of June, 1872, to pay the delinquent nssessment, together with costs of advertising and expenses of salo. By order of the Board of Trustees.

ma4-4t T. B. WINGARD, Secretary.

Office, Room No. 1, second floor, No. 318 California street, San Francisco, Cal.

Office of the Silver Sprout Mining Company—San Francisco, April 29, 1872.

In accordance with a resolution adopted at a meeting of the Board of Trustees of the Silver Sprout Mining Company, held this day, a special meeting of the stockholders of said company is hereby called, the same to be held at the office of the company, No. 318 California street (Room No. 1, second floor), San Francisco, California, on Monday, the 3d day of June, 1872, at 1 o'clock P. M., to take into consideration and decide upon the proposition to increase the capital stock of said company, from three million five hundred thousand dollars, divided into five thousand shares, of the par value of seven hundred dollars each (the present capital stock), to five million dollars, divided into fifty thousand shares, of the par value of one hundred dollars each.

NATHANIEL PAGE,
A. WINGARD,
B. F. TUTTLE, } Trustees.

ma4-4t

Silver Wave Mining Company----Location of works, White Pine Mining District, White Pine county, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the Tenth (10th) day of April A. D. 1872, an assessment of fifty (50) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of said company. Any stock upon which said assessment shall remain unpaid on Tuesday, the fourteenth day of May, A. D. 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the Thirteenth (13) day of June, A. D. 1872, at the office of the company, at 2 o'clock P. M., to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. W. CLARK, Secretary.

Office, No. 418 California street, San Francisco, Cal. ap4w

Spring Mountain Tunnel Company.—Location of Works, Ely Mining district, Pioche, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 11th day of April, 1872, an assessment of fifteen (15) cents per share was levied upon the capital stock of said company, payable immediately in United States gold and silver coin, to the Secretary, at the office of the company, Room 3, Merchants' Exchange, California St., City and County of San Francisco, State of California. Any stock upon which said assessment shall remain unpaid on Monday the 29th day of May, 1872, shall be deemed delinquent, and will be duly advertised for sale, at public auction, and unless payment shall be made before, will be sold on Monday the 10th day of June, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. M. BUFFINGTON, Secretary.

Office, Room 37, New Merchants' Exchange, California Street, San Francisco, Cal. ap20-4w

Tecumseh Gold, Silver and Copper Mining Company.—Location of works, Gopher District, Calaveras County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 24th day of April, 1872, an assessment of Five ($5.00) dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, F. J. Herrmann, at the office of the company, No. 634 Washington street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 29th day of May, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 8th day of June, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

F. J. HERRMANN, Secretary.

Office, 634 Washington street, San Francisco, Cal. Office hours from 11 A. M. to 2 P. M. ma4-4t

Union Gold Mining Company.---Location of works, Howland Flat, Sierra county, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 11th day of April, 1872, an assessment of one dollar ($1.00) per share was levied upon the capital stock of said Company, payable immediately in United States gold coin, to the Secretary, at the office of the Company, Room No. 22, Merchants' Exchange Building, California street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the 13th day of May, 1872, shall be deemed delinquent, and will be duly adve tised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 3d day of June, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

ALFRED K. DURBROW Secretary.

Office—Room No. 22, Merchants' Exchange Building, California street, San Francisco, California. ap13-td

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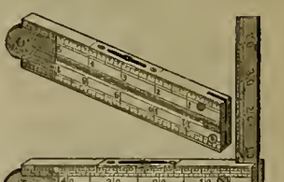

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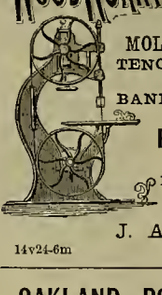

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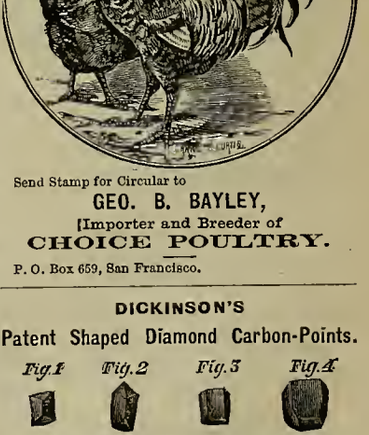

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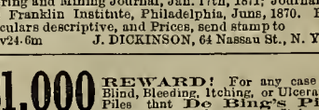

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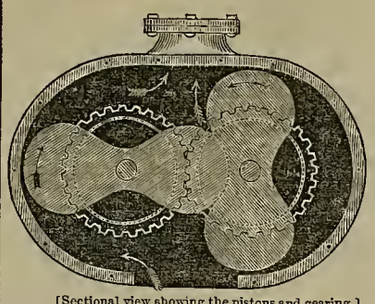

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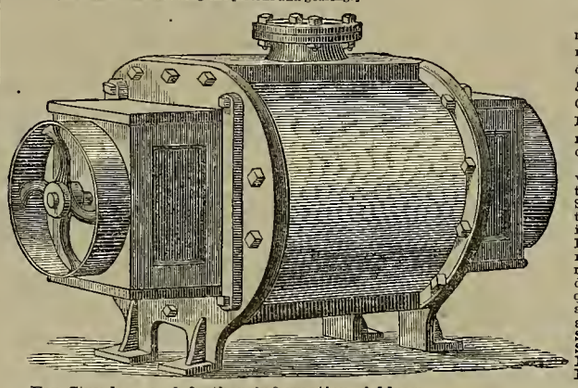

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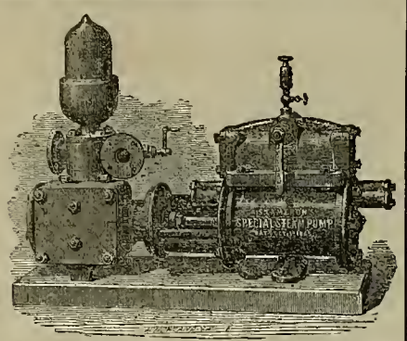


San Francisco Boiler Works, 123 and 125 Beale Street, San Francisco.

F. I. CURRY (late Foreman of the Vulcan Iron Works), Proprietor.

High and Low Pressure

BOILERS

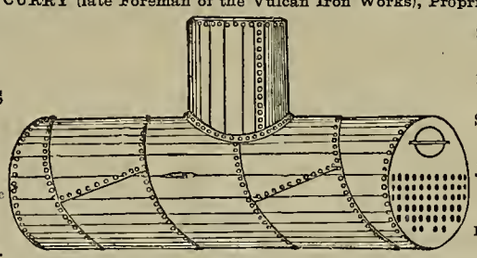
of all descriptions.

SOLE

Manufacturers of the

CELEBRATED

SPIRAL BOILER.



Sheet Iron Work of every DESCRIPTION done at the Shortest Notice.

All kinds of

JOBBING

and

Repairing

Promptly Attended to.

22v22-3m

THE RISDON
Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1868.
CAPITAL.....$1,000,000.

LOCATION OF WORKS:
Corner of Beale and Howard Streets,
SAN FRANCISCO.

Manufacturers of Steam Engines, Quartz and Flour Mill Machinery, Steam Boilers (Marine, Locomotive and Stationary), Marine Engines (High and Low Pressure). All kinds of light and heavy Castings at lowest prices. Cams and Tappets, with chilled faces, guaranteed 40 per cent. more durable than ordinary iron.

Directors:

Wm. Alvord, C. J. Brenham, C. E. McLane,
Wm. Norris, Wm. H. Taylor, Lloyd Tevis,
James D. Walker.

WM. H. TAYLOR.....President.
C. E. McLANE.....Vice President.
JOSEPH MOORE.....Superintendent.
LEWIS R. MEAD.....Secretary.

24v17-qy

OCCIDENTAL FOUNDRY,

137 and 139 First st., near the Gas Works, San Francisco.

STEIGER & BOLAND,

IRON FOUNDERS.

IRON CASTINGS of all descriptions at short notice.

NOTICE.—Particular attention paid to the making of Superior Shoes and Dies. 3v24-3m

Miners' Foundry and Machine Works,

CO-OPERATIVE,

First Street, bet. Howard and Folsom, SAN FRANCISCO.

Machinery and Castings of all kinds.

COPARTNERSHIP NOTICE.

We have this day admitted Mr. William R. Eckart as a member of our firm, the business of which will be hereafter conducted under the firm name of Prescott, Scheidel & Co. PRESCOTT & SCHEIDEL.

Marysville, Jan. 8, 1872.

MARYSVILLE FOUNDRY.

Referring to the above, we respectfully solicit the patronage which has for the past twenty years been enjoyed by our predecessors, pledging our best attention to the wants of all who may so favor us.

Quartz and Amalgamating Machinery,

SAW AND GRIST MILLS,
STEAM ENGINES,
HYDRAULIC MACHINES,
HOUSE FRONTS, ETC.

Repairs upon all kinds of machinery promptly made and at moderate charges. Having unrivalled facilities, we are prepared to make to order, at short notice, everything required in our line.

Specimens of our work may be seen in all the mining regions on this coast.

5v24-3m PRESCOTT, SCHEIDEL & CO.

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,

SAN FRANCISCO.

ALL KINDS of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Brasses, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch

☞ PRICES MODERATE. ☜

J. H. WEED. V. KINGWELL.

H. J. BOOTH & CO.,
UNION IRON WORKS,

(The Oldest and most Extensive Foundry on the Pacific Coast).

Cor. First and Mission Sts.,

SAN FRANCISCO.

Marine, Locomotive and Stationary Engines Quartz Crushing and Amalgamating Machines, Mill Irons and Brass and Iron Castings, of every description, made to order.

Steamboat Repairing, Boiler Making, Turning and Finishing,

EXECUTED WITH DISPATCH.

Beet Sugar Machinery complete in every part—made a specialty.

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A complete set of Machinery of our own design and patent for extracting oil from Castor Bean, dispensing with Hair Cloth. Also Machinery for Flax Seed Oil, Mustard Seed Oil, and Sun Flower Seed Oil.

MARBLE MACHINERY

For sawing Marble of any thickness or size.

Irrigating Pumps. Steam Pumps.

Plans, Estimates, and Advice promptly supplied.

H. J. BOOTH. OEO. W. PRESCOTT. IRVING M. SCOTT

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[SAN FRANCISCO

SCREW BOLT WORKS,

PHELPS BROTHERS, Proprietors,

MANUFACTURERS OF ALL KINDS OF

Machine Bolts, Bridge Bolts, and Ship or Band Bolts,

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THOMPSON BROTHERS,
EUREKA FOUNDRY,

129 and 131 Beale street, between Mission and Howard, San Francisco.

LIGHT AND HEAVY CASTINGS,

of every description, manufactured 24v16qr

FERRACUTE MACHINE WORKS,

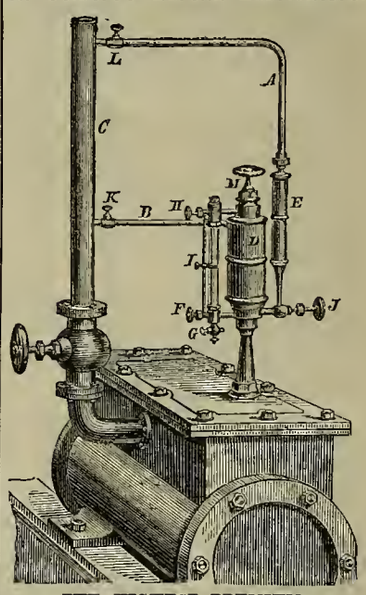
Bridgeton, N. J.

PRESSES, DIES and all FRUIT CANNERS TOOLS a specialty.

Improved 3-lb. Can Press for $65; Rotary Solder Cutter, $15, etc. 13v24-13t

Machinery.

N. Seibert's Eureka Lubricators.



THE HIGHEST PREMIUM

Awarded by the Mechanics' Institute Fair, San Francisco, and State Fair, Sacramento, 1871.

These Lubricators are acknowledged by all engineers to be superior to any they have ever used; feed constantly by pressure of condensed water, supplied by pipe A, regulated under the oil by valve J, and forced out through check valve and pipe B into the steam pipe C; it then becomes greasy steam, passes to all the valves and cylinder at every stroke of the engine; glass tube I indicates amount used per hour. Packing on rods and stems lasts longer, and the rings on the pistons will not corrode. One pint of oil will last from three to six days, according to speed and size of engine; I, sliding gauge; K, valve to shut off when engine stopps; H, F, valves to shut off in case of frost; steam does not enter the cup; it is always cool; warranted to give satisfaction. Patented February 14, 1871. Manufactured by California Brass Works, 125 First street, S. F. 24v23tf

Notice is hereby given, that the copartnership heretofore existing between A. J. Severance, Charles W. Randall and J. Gus. Burt, under the firm name of "Severance, Holt & Co.," is this day dissolved by mutual consent. A. J. Severance, having purchased all the interest of his late partners, will continue the business of manufacturing and selling Diamond Drills, as before, under the style of A. J. Severance & Co.

Dated San Francisco, Nov. 24, 1871.

Office, 315 California street. A. J. SEVERANCE,
CHAS. H. RANDALL.
22-v23-tf J. OUS. BURT.

POWER, TAINTER & CO.,

MANUFACTURERS OF

WOOD-WORKING MACHINERY,

3003 Chestnut street (West end Chestnut street Bridge) PHILADELPHIA.

☞ Woodworth Planers a Specialty. 2v23-1y

McAFEE, SPIERS & CO.,

BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st. between Fremont and Beale, San Francisco.

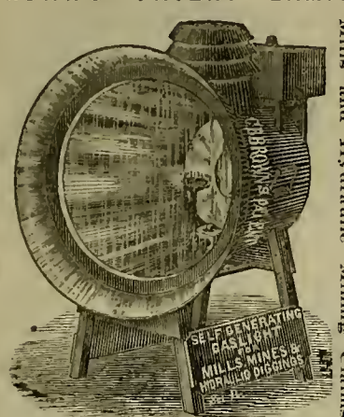
CALDWELL'S

Improved Stop Governor,

Manufactured at the CYCLOPS MACHINE WORKS, 113 and 115 Beale street, San Francisco.

3v24-3m WM. CALDWELL.

BROWN'S PATENT LAMP.



One of these Lamps, when placed at a distance of 200 feet from the bank, will light up a bank surface 250 feet in length and 100 feet high, and to a much better advantage than any other light heretofore tried, and at an expense not to exceed five cents per hour. Lamps furnished at short notice.

For further particulars address

C. B. BROWN,

7v24-t Placerville, Cal.

Varney's Patent Amalgamator.

These Machines Stand Unrivaled.

☞ For rapidity pulverizing and amalgameting ores, they have no equal. No effort has been, or will be spared, to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the apperture and between the grinding surfaces.—Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Setlers made on the same principle excel all others They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill-men are invited to examine these pans and setlers for themselves, at the office, 229 Fremont Street, San Francisco.

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.

MANUFACTURERS OF

Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools,

13 and 15 Fremont street, near Market, San Francis

10v14ar

SHEET IRON PIPE.

THE

Risdon Iron and Locomotive Works

Corner Howard and Beale Streets,

Are prepared to make SHEET IRON AND ASPHALTUM PIPE, of any size and for any pressure, and contract to lay the same where wanted, guaranteeing a perfect working pipe with the least amount of material.

All kinds of OAR WHEELS, AXLES and RAILROAD WORK made to order. Standard sizes of Wheels constantly on hand. Wheels bored and pressed on, Axles turned, etc., at Reasonable Rates.

☞ All kinds of Machinery made and repaired.

24v22-3m JOSEPH MOORE, Superintendent.

J. M. STOCKMAN,

Manufacturer of

PATTERNS AND MODELS,

(Over W. T. Garratt's Brass Foundry).

N. W. corner Natoma and Fremont streets, S. F. Entrance on Natoma street. 6v23-3m

BLAKE'S PATENT STEAM PUMPS.

WHAT IS SAID BY THOSE WHO USE THEM.

SALEM, Oregon, January 16th, 1872.

MESSRS. BERRY & PLACE, San Francisco—Gentlemen: In answer to your query regarding the working of the large Blake Steam Pump, our company purchased of you, we would say in all sincerity that the pump *has exceeded our expectation*. It has been in use since the 27th of September, 1871, and has thus far given the most perfect satisfaction. It does its work with ease, does not get out of order, and requires but little or no attention to run it. It is SIMPLE, DURABLE, and PERFECT in its construction. We have found it entirely satisfactory and just the pump *in every respect* needed for our work.

Yours, respectfully, W. F. BOOTHY, Pres't Salem Water Works.

PHŒNIX MINE, Napa County, January 19th, 1872.

MESSRS. BERRY & PLACE, San Francisco—Gentlemen: The No. 8, Blake Steam Pump we bought of you last fall is doing good service. We are having a large amount of water to contend with during this stormy weather; but the pump throws it all out of the main shaft (160 feet deep) with perfect ease, and is only working from 60 to 80 strokes a minute. It is a complete pump and no mistake. We are well satisfied with its working, and if you wish to use the name of our company, as a reference, you are at liberty to do so. Very resp'tly, GEO. FELLOWS, Supt. Phœnix Quicksilver M. Co.

OFFICE STARR MILLS, VALLEJO, Cal., January 13th, 1872.

MESSRS. BERRY & PLACE, San Francisco—Gentlemen: We are pleased to state that the No. 3 Blake Pump purchased of you, has constantly supplied our three boilers for the past year, with water heat to above boiling point with one of Armstrong's Patent Heaters. It has given us no trouble nor expense, and has in fact fully come up to your recommendations. Yours, Etc., STARR BROS. & CAMPBELL.

OFFICE S. J. WOOLEN CO., SAN JOSE, January 29th, 1872.

MESSRS. BERRY & PLACE, San Francisco—Gentlemen: We have used a No. 6 Blake Steam Pump now for about two years, both as a Tank Pump and as a Fire Pump in case of need: and it has given excellent satisfaction. *It suits us in every respect.* Very respectfully, R. F. PECKHAM, Pres't San Jose Woolen Co.

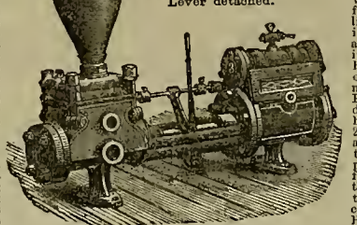
BELMONT, Cal., February 6th, 1872.

MESSRS. TREADWELL & CO.—Gentlemen: In reply to your inquiry concerning the large Blake Steam Pump, purchased of Berry & Place, by Mr. Ralston, I will say, that it gives ENTIRE *satisfaction*, even working as it now is, where no other Pump could; for it is *at present six feet under water*, yet it does its work PERFECTLY.

Yours, Etc., J. E. BUTLER, Supt. Water Works and Engineer at W. C. Ralston's.

BLAKE'S PATENT STEAM PUMP.

These Pumps have been tested, and found to be indisputably without an equal wherever tried. They have been sold in the Pacific States now for nearly three years, and we are willing every one in use may be referred to; every Pump will speak for itself. They are constructed in the most simple style, and built in the most thorough manner—especially calculated for simplicity, durability and power. Some of the advantages of the Blake Pump may be summed up as follows: It is positive under any pressure. May be run slow or fast as may be desired. Will discharge more water than any others of the same dimensions. Has no leaky joints, the steam part being cast in one entire piece. The steam valve is perfectly balanced, is cushioned at each end, and slides with the greatest facility *having no cams, nor complex rotary arrangements to get out of order.* Will start at any point of the stroke, and will discharge all the water of condensation. The Pump has no crank or fly-wheel, thereby saving a considerable item of expense to the purchaser. Having *no dead points*, it therefore needs no watching, and is consequently ready to start without using a starting bar or any hand work whatever. The Blake Pump is extensively used on Railroads and Steamboats, in Hotels; for Mining and Fire purposes; in Breweries, Tanneries, Sugar Houses, Factories, Mills, Laundries, and as Boiler Feeders, wherever steam is employed. In fact, wherever water or other liquids are desired to be raised in large or small quantities, or against heavy or light pressure, it is the cheapest and best Pump that can be used. It is offered to the public as the most perfect independent steam Pump ever invented. Forty different sizes are made, capable of throwing from 1,000 to 200,000 gallons an hour, and adapted to any class of work that may be required. Every pump will be warranted to perform the work required of it by the purchaser, or it may be returned and the money will be cheerfully refunded. The Blake Pump was awarded a silver Medal at the exhibition of the Mechanics' Institute, San Francisco, and State Fair at Sacramento, as being the best steam Pump on exhibition. The agents have recently imported several of the largest-sized Mining Pumps for water works, and deep mines, and will be pleased to refer parties to them; we claim for it, that it is the most simple and durable, and consequently the best Steam Pump ever built. For sale by TREADWELL & CO., Machinery Depot, old stand, corner of Market and Fremont streets, San Francisco, who will be pleased to send circulars to any address, or show its advantages to parties calling on them.



It has no Cams or Rotary Complex Valves. It has stood the test wherever tested.

IT IS SIMPLE, COMPACT, DURABLE, AND POWERFUL.

☞ Manufactured by Geo. F. Blake & Co., Boston, who build and have on hand a larger variety of Steam Pumps than any other concern in the country, embracing *forty* different sizes, and capable of throwing from 1,000 to 200,000 gallons an hour, and adapted to every description of work required. ☞ Send for circular and prices.

The largest stock in the country at the Machinery Warehouse of

TREADWELL & CO.,

Manufacturers' Agents, corner Market and Front Streets, San Francisco.

☞ Machinery Depot for Miners, Millmen, and Engineers' Supplies. Iron and Wood Machinery; Portable Engines; Mills; Machinists' and Mechanics', Miners' and Farmers' Tools; Sturtevant's Blowers, Turbine Waterwheels, Etc., Etc.

6v24-eowbp

Extract from Official Report of Mechanics' Institute Fair of San Francisco, 1871.

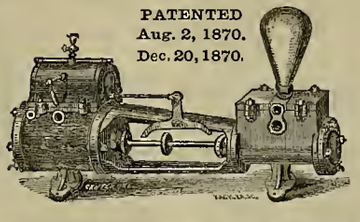
"In the foregoing trials it appears that the most efficient Pump on exhibition is the KNOWLES. The workmanship on this Pump is also very good. We would therefore recommend that this Pump receive a Silver Medal. (Diploma awarded). Signed by the Committee:

G. W. DICKIE, CHAS. R. STEIGER, W. EPPELSHEIMER, H. B. ANGELL, MELVILLE ATWOOD."

11v3-ewbp

THE SELDEN PUMP.

PATENTED
Aug. 2, 1870.
Dec. 20, 1870.



Combines Simplicity and Durability to a Remarkable Degree.

Its parts are easy of access, and it is adapted to all purposes for which Pumps are used—especially Mining.

Full description in *Scientific Press* of August, 1871.

Catalogues sent on application.

A. CARR,

43 Cortlandt Street, New York.

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THEODORE KALLENBERG,

MACHINIST,

and Maker of Models for Inventors. All kinds of Dies, Stamps and Punches made. Also, all kinds of Small Gears Cut.

Repairing done on very Reasonable Terms and in the best manner. No. 32 Fremont street, S. F. 19v23-3m

The Hesse Grinder and Amalgamator.

BEST IN USE!

Especially well adapted for the Reduction of Sulphuret Ores.

LORD & PETERS, Agents,

304 Battery street, San Francisco, Cal.

☞ Send for Circular. 13v24-3m

Metallurgy and Ores.

RODGERS, MEYER & CO.,

COMMISSION MERCHANTS,

ADVANCES MADE

On all kinds of Ores, and particular attention PAID TO

CONSIGNMENTS OF GOODS.

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STATE ASSAYER,

Analytical and Consulting Chemist,

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Particular attention given to the Analysis of Ores Minerals, Metallurgical Products, Mineral Waters, Soils, Commercial Articles, Etc.

One or two pupils can receive theoretical and practical instruction in Assaying, Analysis, or any particular branch of Chemistry at the laboratory. 11v21-3m

LEOPOLD KUH,

(Formerly of the U. S. Branch Mint, S. F.)

Assayer and Metallurgical CHEMIST,

No. 611 Commercial Street,

(Opposite the U. S. Branch Mint,

SAN FRANCISCO, CAL. 7v21-3m

J. W. THURMAN,

(Successor to S. W. Howland & Co.)

ORE CRUSHERS AND SAMPLERS,

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RICHARDSON & Co. have been for thirty years established in Swansea as Agents for the preparation, Sampling, Assaying, and Sale of Copper, Silver, Gold, Lead, Zinc, and all other Ores and Metals, for which they have extensive Warehouses and Wharves under cover, 1,000 feet of Quay Frontage within the Floating Dock, and the most complete Machinery and Appliances. They are also prepared to make advances against Ores in anticipation of realization, and to guarantee all payments when required. 17v24-1y

G. W. STRONG. W. L. STRONG

C. W. STRONG & CO.,

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We purchase Ores, Bullion, etc. Ores worked and Tests made with care. Also, Assays of Gold, Silver, Copper, Lead, Tin and other Metals. 23v22tf

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Vessels, Apparatus, Sheet, Wire, Etc., Etc.

For all Laboratory and Manufacturing Purposes

H. M RAYNOR,

25 Bond street, New York.

Platinum Scrap and Ore purchased. 23v18

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IMPORTERS OF AND DEALERS IN

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Chemical Apparatus and Chemicals,

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PHOTOGRAPHIC GOODS, ETC.,

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We would call the special attention of Assayers, Chemists, Mining Companies, Milling Companies, Prospectors, etc., to our large and well adapted stock of

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Chemical Apparatus,

Having been engaged in furnishing these supplies since the first discovery of mines on the Pacific Coast.

WE ENUMERATE IN PART:

Assay Balances—L. Oertlings, London.
Assay Balances—Becker & Sons, Antwerp.
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Bullion Balances and Weights.
Humid Assay Apparatus.
Iron Furnaces—Improved, Lined with Fire Brick for Cupelling and Melting.
Tongs, Muffles, Cupel Moulds, Assay Moulds, Scorifiers, Roasting Dishes, Annealing Cups, French Clay, Assay Crucibles, Hessian (or Sand) Crucibles.
Dixon's Celebrated Black Lead Crucibles and Covers—all sizes.
Assayers' and Chemical Glassware and Assayers' Hardware—a full assortment.
Steel Stamps for bars cut to order.

ACIDS AND CHEMICALS.

Acid in carboys and bottles, commercially and chemically pure.
Bi Carb. Soda, Borax, Bone Ashes, Litharge.
Assay Lead in bars, rolled and granulated.
Black Oxide Manganese, Sodium and Sodium Amalgam, Sulphate of Copper, Quicksilver, and all Chemicals and Reagents required by Assayers and Milling Co.'s.

☞ Our Gold and Silver Tables, showing the value per ounce Troy at different degrees of fineness, and valuable tables for computation of assays in Grains and Grammes, will be sent upon application.

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Patent Agency.

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The principal Agency on this side of the continent. Established in 1860. Inventors can rely upon the surety and dispatch of all important and confidential business intrusted in our hands. Long familiarity with Mining, Farming, and all other classes of inventions on this coast, enables us to give the most intelligent advice to PACIFIC COAST INVENTORS of any Agency in the Union, and oftentimes save unnecessary delay and expense. Every branch of the patent soliciting business attended to. All WORTHY INVENTIONS patented by us will be liberally noticed, free, at the most desirable time for the patentee, in both the SCIENTIFIC PRESS and the PACIFIC RURAL PRESS.

Send for our 52-page illustrated PATENT CIRCULAR, mailed free on receipt of stamp. Also the U. S. Patent Law of 1870.

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No. 338 Montgomery st., S. E. cor. California st., diagonally across from Wells, Fargo & Co., S. F.

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WITH EXPERIENCE IN CANVASSING business, can now obtain lucrative and permanent employment by DEWEY & CO., Patent Agents and Publishers of the SCIENTIFIC PRESS and the PACIFIC RURAL PRESS, No. 338 Montgomery street, S. F.

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Concentration of Ores (of all kinds), including the Chlorination Process for Gold-bearing Sulphurets, Arseniurets, and Gold and Silver Ores generally, with 120 Lithographic Diagrams. 1867.

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Young and Middle-aged Men and Boys may enter on any week day, and in addition to all the advantages to be enjoyed at any other Business College, have access to the General Lectures and Literary Exercises of the University. Our Diploma is received as conclusive evidence of proficiency by the Bankers, Merchants and business men. 11v3-tf

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Address E. P. HEALD,

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3v3-eowhp

California File Manuf'g Co.

Potrero, Solano street, bet. Tennessee and Minnesota streets, SAN FRANCISCO.

Manufacturers of New Files.

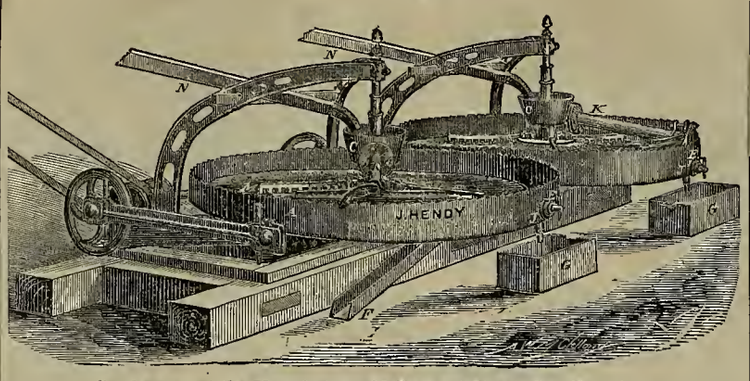
Old Files re-cut and warranted equal to new.

REAPER AND MOWER SECTIONS, BARS AND KNIVES COMPLETE,

at a saving of 50 per cent. Orders from the country promptly attended to. 9v19-by

HENDY'S

LATEST IMPROVED PATENT SELF-DISCHARGING SULPHURETS CONCENTRATOR.



Can be seen at the Manufactory, 32 Fremont Street, San Francisco.

Those in want of Concentrators would do well to visit some of the quartz mills that have Hendy's Patent Concentrators in use, and satisfy themselves before purchasing other Concentrators of pretended merit. THEY ARE WARRANTED TO WORK SATISFACTORILY.

The principle upon which HENDY'S PATENT CONCENTRATOR is constructed is the only true and mechanical one for the purpose of concentration.

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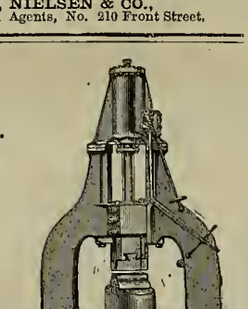

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4.00 P. M.* Passenger Train for Stockton, Merced and Sacramento.

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7.30 A. M. Steamer New World (from Broadway Wharf) —Connecting at Vallejo with Trains of California Pacific Railroad.

4.00 P. M.* Sacramento Steamer (from Broadway Wharf), Connecting at Vallejo with trains of California Pacific Railroad.

2.00 P. M.* Steamer Antelope, from Broadway Wharf, connecting at Donahue with Trains of S. F. and North Pacific Railroad.

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LEAVE OAKLAND, *5 40, 6 50, 8 00, 9 10, 10 00, and 11 10 a. m., 12 00, 1 40, 2 50, 3 50, 5 05, 6 20, 7.50 and 10 20 p. m.

ALAMEDA BRANCH.—LEAVE SAN FRANCISCO, 7 20, 9 00, and 11 15 a. m., 1 30, 4 00, 5 30, and 7 00 p. m. (7 20, 11 15, and 5 30 to Fruit Vale only).

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SAN FRANCISCO, SATURDAY, MAY 11, 1872.

VOLUME XXIV. Number 19.

Sutter's Mill—Where Gold was First Discovered.

The accompanying illnstration will call many to the minds of pioneers of California, pleasant reminiscences of those favored and long to-be-rememberod days, the days of "49." It represents Snttor's mill, where the first practical discovery of gold was mado, which led to the "excitement" of 1849 and the immonse influx of people from all parts of tho world to our shores, ultimately rosnlting in the opening of the gold fields of the Siorras, the civilization and settlement of our glorious State; the discovery of the nnbonnded field of mineral conntry on tho Pacifio Coast; and the development of the nnmberless resonrces of mnoh-favored California, as well as adjacent States and Territories. Sutter's mill was sitnated on the Sonth Fork of the American river, in El Dorado time Connty, for a time known as the "Empire County" of the State. The story of the discovery of gold by James W. Marshall is briefly as follows:

Marshall was building a sawmill, nnder contraot, for John A. Sutter, at the locality above mentioned, and, on the 19th of Jannary, 1848, turned the water into the race. The swift current of the race washed away considerable earthy matter, exposing numerous ooarse particles of gold, one of which, when the water ran clear, was picked up by Marshall. He gave the piece to Mrs. Weimer, the wife of his partner, who was at the time cooking for the men, and, according to Samuel Brannan, Esq., in a recent letter to the Calistoga *Tribune*, it is still in her possession in Santa Barbara. Although Marshall was confident that he had discovered gold, he knew nothing of either chemistry or gold mining, so he could not prove the nature of the metal or tell how to obtain it in paying qnantities. He went down to the mill, however, every morning to look for more pieces, but the men with him having no faith in the value of his discovery, paid little attention to what he was doing. His specimens continued to accumulate, and about the middle of Febrnary, Mr. Bennet, one of the party at the mill, came down to San Francisco to learn whether the metal was really gold or not.

A man named Isaac Humphrey, who had washed gold in Goorgia, immediately recognized it as the "pure stuff." He went back to Sntter's Mill (or Coloma) with Bennett, where they arrived on the 7th of March. A few of the men were indolently hunting for the gold, but without much faith as to its really being such, and work at the mill was going on as if there were none in the neighborhood. After Humphrey had washed a pan of dirt from the bottom of the mill race in the place where Marshall had found his specimens, he became convincod that the mines were far richer than any he had ever seen.

A rocker was made and the searoh began in earnest. The other men at the mill seeing his success and confidence in the discovery immediately quit work, made rockers for thomselves and started to work hunting for gold, everything else being abandoned.

We give herewith an illustration of the mill from a painting by Chas. Nahl, belonging to Mr. A. Roman, of this city, which was taken from a sketch made in 1851. It was located in a beantiful valley on the South Fork of the American River. At the time of discovery Coloma contained a double log cabin, and about eighteen persons, exclusive of Indians. From that time to the present the place has experienced the usual vicissitude incident to a mining camp where the population is always changing.

SUTTER'S MILL—WHERE GOLD WAS FIRST DISCOVERED.

The mill was, we believe, never completed, aud the sketoh shows it as it was left at that time. Among the persons who were there at the time of the discovery, were J. W. Marshall, E. Pierson, John Weimer, Peter Weimer, W. H. Scott, A. Stephens, H. Bigler and C. Bennet.

In the middle of March, P. B. Reading, visiting Sutter's Fort, heard of the gold, and on going to Coloma and seeing the similarity of the formation and that of his own ranch, near the head of the Sacramento Valley, started back, and in a few weeks was washing gold on the bars of Clear Creek, nearly 200 miles northwest from Coloma.

John Bidwell also came to Coloma, and, returning with a party of Indians from his ranch, began washing gold on the bars of Feather River, 75 miles from Coloma. Some of the men became dissatisfied because Marshall, Weimer, Bennett and Capt. Sutter claimed the right of discovery, and chargod all who worked thore 10 per cent., so they prospected for themselves, and fonnd good diggings about 25 miles down tho river, at a place which has since been known as Mormon Island. By this means the mines were immediately opened at several different points, proving, in a measure, their extent and value.

The first printed notice of the discovery of gold appeared in the California *Star*, which was published in San Francisco, on the 15th of March, 1858. It was as follows: "In the newly made race-way of the saw-mill recently erected by Captain Sutter, on the American Fork, gold has been found in considerable quantities. One person brought $30 to New Helvetia, gathered there in a short time."

On the 29th of May the same paper announcing the suspension of its publication, said: "The whole country, from San Francisco to Los Angeles, and from the sea-shore to the base of the Sierra Nevadas resound with the sordid cry of gold! gold! gold! while the field is left half planted, the house half built, and everything neglected but the manufacture of picks and shovels, and the means of transportation to the spot where one man obtained $128 worth of the real stuff in one day's washing; and the average for all concerned is $20 per diem."

Immediately after this commenced the great "'49 rush," with which most of onr readers are acqnainted.

There has been considerable discussion as to Marshall's claims to being the first discoverer of gold in California at Sutter's Mill, and a number of persons have presented themselves as candidates for the honor. Geo. M. Evans in a recent letter to the Oregon *Bulletin*, claims that he, Stearns and T. Sirrine were the discoverers, and Sam Brannan, Esq., was the first one who made the fact publicly known. The latter gentleman seeing the letter referred to, republished in the Calistoga *Tribune*, denies the statement by giving substantially tho facts above mentioned to the effect that it was James W. Marshall, and says that there are many living witnesses to testify to their correctness. It is generally conceded that Marshall was the first practical discoverer of gold in California, although its existence in this country was known for some years before. The Indians had several times bronght small quantities to the missions, bnt no steps were ever taken to ascertain the localities or work the mines.

In Hakluyt's acconnt of the visit of Sir Francis Drake to the California Coast, in 1579, the following statement occurs concerning its mineral wealth. "There is no part of the earth here to be takeu up wherein there is not a reasonable quantity of silver and gold." There is little reason to believe, however, that he verified this statement. But Alexander Forbes, in 1835 wrote, "no minerals of particular importance have yet been fonnd in Upper California nor any ores of metals," and speaking of Hijar's emigrants who arrived in in 1833, he said that "there were among them goldsmiths proceeding to a country where there was no gold." There are reports that silver was discovered in Alizal, Monterey Co., in 1802, and gold in San Isidro, San Diego Co., in 1822. In a collection of documents relative to the department of California by Manuel Castañares, a letter written by him to the Mexican Government in 1844, speaks of a deposit of gold discovered in the previous year about 45 miles from Los Angeles. He says that there were in circulation in Los Angeles about 2,000 ounces of gold taken from these deposits when he left for Mexico.

Prof. Dana, the geologist of Wilke's Exploring Expedition, says gold rooks and veins of quartz were observed by him in 1842 near the Umpqua river in Oregon, and pebbles from similar rooks along tho shores of the Sacramento river, and when speaking of the localities of gold, says that it may be found in "California between the Sierra Nevada and the Sacramento and San Joaquin rivers".

The State Legislature have established Marshall's claims as the first discoverer by giving him a pension and although the credit has been given by various persons to various others, even to "Indian Jim, a Digger Indian" it is likely that Marshall's name will go down to posterity as the man whose discovery resulted in the great "California excitement of 1849."

CORRESPONDENCE.

The Mines of Utah.

[Written for the SCIENTIFIC PRESS.]

EDITORS PRESS:—As the mines of Utah are at present attracting so much attention both at home and abroad, it may be interesting to your readers to learn some items in regard to the principal mines, and the districts in which they are situated. There is little doubt in the minds of those whose knowledge and experience in such matters entitle them to be considered competent judges, that the vast mineral treasures already discovered in these mountains are but an iota compared to the wealth still hidden in the bowels of the earth, and that the Kingdom of the Latter Day Saints is destined to become the long sought for El Dorado of the great West. New discoveries are continually being made which tend to corroborate this opinion, and the amount of

Foreign Capital

Which is pouring in is conclusive proof that business men abroad have confidence that mining in Utah is not a mere temporary excitement, but will be a lucrative and permanent branch of industry. In addition to the already computed $3,000,000 of Eastern and Western, and $7,000,000 of English capital invested in Utah mines, a large increase is confidently expected this spring, and it is rumored that financiers of other European countries are also going to enter the field. Great fortunes have already been made, and it is not presumptive to hope that many more will be made, even before the close of the present season, which is just now opening. Another advantage which we have over other mining countries, is our agricultural resources, which are adequate to a much larger population than Utah yet has, and peace reigns in the Territory, notwithstanding the false representations that life and property are insecure. Life and property are as safe here as in any part of the United States.

According to Froiseth's new mining and sectional map of Utah, there are forty-seven organized

Mining Districts

In the Territority, many of which have been organized during the past year. In some of these districts very little work has been done the past winter, on account of severe weather and unusual deep snows in the cañons, while in others the work of development has been vigorously pushed forward in spite of "wind and weather." In many districts it has been impossible to continue work, except upon those mines which were already partially developed, and those lodes which were only prospected have been obliged to lie quietly under the snow until the advent of spring weather. In the

Cottonwood Canons

The snow fell incessantly for ten to fifteen days in succession, thus occasioning well grounded fears of some snow-slides, one or two of which have occurred in Little Cottonwood. Notwithstanding these drawbacks, considerable work bas been done in both these districts, and the mines, especially those in the vicinity of Emma Hill, look very promising. The celebrated "Emma" has been turning out immense quantities of rich ore all winter, and there are other lodes which it is thought will be equally valuable when fully developed. Among the

Most Prominent Mines

of Little Cottonwood are the Flag Staff, Davenport, North Star, Savage, Wandering Boy, Montezuma, Lexington, Dexter and Mountain Queen, while in Big Cottonwood are the Highland Chief, Prince of Wales, Wellington, Reed & Benson, and other finely developed mines too numerous to mention. Some work has also been done in Uintah, Snake, Howland, Silver Lake and

American Fork Districts

With good success. This last named district is very promising and contains a large number of excellent mines, from one of which, the "Miller," immense bodies of argentiferous galena have been taken out. The Miller is owned by Vanderbilt of New York and R. N. Baskin of this city, under the organization of the Sultana Smelting Company, who have erected two furnaces at a place called Forest City, about two miles from the mine, which has been connected with a tramway for the transportation of ore direct to the smelters. In the same cañon opposite from the Miller, are the Mary Ellen and the Live Yankee. On these two mines three shafts have been sunk, besides a tunnel commenced, and an open cut, and quantities of rich ore have been taken out containing lead, silver and gold in paying quantities. The Pittsburgh is also developing finely and there are many other mines in this camp which are turning out fine bodies of ore. Perhaps one of the most promising districts in the Territory is

Camp Floyd.

This camp has the advantage over many others, in the miners being able to work all winter with little or no interruption from the snow. During the past winter the work of developing has been pushed forward with great vigor and is still being continued showing a determination on the part of the miners to maintain the prosperous reputation of this thriving camp. Business at present is very active which is based upon the actual merits of the mines and not upon wild speculation. A large 20-stamp quartz mill, built under the supervision of Captain E. H. Shaw, the general manager of the Camp Floyd Silver Mining Company (English) is now fast approaching completion, and will be in running order by May 15th. The bed of a tramway from the mill site to the mines, has recently been finished, and the laying of the track will be immediately commenced.

A New York party who lately purchased the Silver Circle, Wandering Boy and Ruby locations, in this camp, for which they paid $75,000, have also purchased a mill-site adjoining and below the mill of the camp Floyd Co. They are now vigorously at work developing their property and have already struck a rich body of ore. The mines are all situated within a radius of two miles from Lewiston, the most prominent of which may be considered the Sparrow Hawk. Here are about sixty men employed upon this great mine, sinking shafts and blasting out in the open cuts and tunnels, and it is turning out large bodies of rich ore from their different places. Recently two new places were discovered containing immense deposits of rich sulphurets of silver and horn silver, and if present indications are not very deceptive, the Sparrow Hawk will be a formidable rival in fame to the world renowned "Emma." There is, however, this difference between the mines, that the ore of the Emma is argentiferous galena, while the Sparrow Hawk is equally rich in almost inexhaustible stores of milling quartz and sulphuret ores. The Last Chance and Marion, two other very good mines as well as the Sparrow Hawk are owned by the Camp Floyd Silver Mining Co.

Other Prominent Mines.

There are so many mines in this district whose value have been established beyond a doubt during the past winter by actual development, that it is impossible to particularize, and do justice to all in one letter; therefore a brief mention of the most promising must suffice. The Camp Douglas, which bids fair to be as good as the Sparrow Hawk, has already a shaft of fifty-nine feet in depth, besides a drift of five feet in addition, which is to be continued in an easterly and westerly direction. From the surface to the present depth of shaft there is a body of vein matter the entire depth, and the showings, some twenty feet from the surface are not surpassed by any yet met with in the mines of this district. This mine is owned by Gen. Morrow & Co., the commandant of Fort Douglas Military Post. The Morrow Lode, owned by the same company, situated one mile distant from the Mormon Chief, has a shaft fifty-three feet deep, which is prospecting very well; and judging from the large outcroppings exposed to view upon the surface, this mine must prove very rich when further developed. South and west of the Sparrow Hawk are several good mines, which are very promising. Among these are the Peerless, Delaware, Elk Horn, Antelope and Red Eagle, while in a northerly direction are found the Grecian Bend, Silver Circle, Wandering Boy, Star of the West, America and Silver Cloud. Among the mines worthy of note in the

Ophir District

Are the Hidden Treasure, Silver Shield, Velocipede, Silver Chief, San Joaquin, Shamrock, Mountain Tiger, Nahoh, Mountain Lion, Monarch, Zella, Hard to Beat, and Sweetwater, all of which will be vigorously worked this season.

In the Stockton District,

Are many notable mines, among which may be mentioned the Silver King, Legal Tender, Metropolitan, Grand Cross, Great Basin and Josephine. Work on most of these mines have been suspended during the winter, but will soon be actively resumed. There is already a furnace built for this camp, on the shores of Rush Lake, about one mile from the town of Stockton, and two additional furnaces are being erected this season, one of these by Jacobs & Co., who are having the machinery brought across Great Salt Lake by the steamer from Corinne. A quartz mill has also been contracted for, and when all this machinery for the reduction of the precious metal gets fully in motion, Stockton will not be behind any of the mining camps in Utah.

The successful establishment of the Pioneer Mills in East Cañon by the Walker Bros. and the opening of a market for ores at Reno prices, has imparted new life to the whole district and henceforth we may expect substantial results. The Akin furnace is pronounced a success, which is nothing less than success for the whole district. In the

West Mountain or Bingham District,

There are many mines worthy of notice; among these are the Winnemuck mine, the Pioneer of the camp, which is proving very profitable to its lucky owners. next comes the Galena, Dixon, Yosemite, George, Merrimac, Vespasian, Fliess, Ely, Portland, Dartmotb, and Red Warrior, all of these are developing finely, and a number of these will unquestionably sell before the close of the season at a renumerative figure to the owners who have had to toil hard in opening them up. Travel to Bingham is on the increase, owing mainly to the discovery of rich silver ore in Butterfield cañon which adjoins Bingham. A car load of ore worth $10,000 came in lately, to the city; this is sufficient to attract the prospectors. The Bingham gold mines are are also expected to yield largely this season as the mines are supplied in many instances with hydraulic machinery.

The Star District,

Some 250 miles south of this city, has lately been attracting considerable attention, not only among Utah miners, but those in Nevada and California. This district was discovered two years ago, but did not create any excitement whatever. Last fall some large and very rich ledges were discovered, which have developed into splendid mines, among the leading of which are the Independence, London, Liverpool, Pitney, Taylor, Ruby, Mars, Franklin and Eclipse. The character of the mineral rock is the same as that of Pioche, and the ledges are clearly traceable for a mile and a half under the hill. Those who are interested in this district seem to think, that it will yet prove one of the richest in the Territory. Within a radius of twenty-five miles from Star District, are located the Washington, Granite, Lincoln, and Beaver districts in Beaver County; the Ohio and Warsaw districts, near the Sevier river in Pine County. All these districts show good indications of being rich in minerals.

Did time and space permit I might particularize in regard to a number of other districts, which are worthy of note, as well as those which I have mentioned. I have also been obliged to omit both the description and names of many prominent mines, but perhaps I may have an opportunity to speak of these at some future time.

"WAHSATCH."

Salt Lake City, Utah, April 22, 1872.

Craft-Schools Wanted.

To remedy the aimlessness and unfitness for life with which our education leaves our youth, we need more craft-schools, where boys can become practical engineers, chemists, printers, machinists, and even farmers. The machinist would be none the worst if he should spend his evenings over Euclid instead of lager; the blacksmith, if he knew how to drive home and clinch an argument in metaphysics as skillfully as a horse-shoe nail; or the dentist, if he could extract bidden Greek roots with the same facility as grumbling molars. Educated men would dignify any of these employments, and make them sought and not shunned by those worthy to fill them. A man who wants to run an engine ought to be educated for his business, just as much as a lawyer for his profession. We are a patient and long-suffering people, or we would never permit ourselves to be blown up by hundreds by ignorant engineers, who know nothing more of the monsters which they control than enough to feed them with wood and water, and oil up their creaking joints; or suffer ourselves to be sent to our graves by striplings in short jackets, who give us arsenic for paregoric, and strychnine for the elixir of life. The time is coming, and we trust is not far distant, when all these positions of responsibility will be filled by men of education, and can he filled by none others; when ignoramuses will he obliged either to fit themselves for their proposed labors, or seek other employments.—*Scribner.*

Lead in Oregon.

The Portland *Oregonian* says: Several specimens of lead ore, discovered near the foot of the Cascades in Linn County, have been sent to this city for analysis by J. H. Fisk, assayer. From him we learn that after testing the ore he found it to contain about 60 per cent. of pure lead and also a very fair proportion of silver. According to the results of the assay, 2,000 pounds will produce 1,200 pounds of lead, and average $18 in silver. This is regarded as a very generous yield of these metals. This mine is of recent discovery. It is known as the Washington Lode. A joint-stock company has been lately incorporated in this city for the purpose of engaging in the development of these valuable mines. Mr. Fisk informs us that almost inexhaustible quantities of this same ore, with all the indications of as bounteous a yield of the same metals, have been discovered in the vicinity of Tillamook.

Captain Corno, of the Mila Boud, has contracted to bring over on his return, to this city, a large quantity of this ore. It will be analyzed here, and, if attended with satisfactory results, run into bars and sent to Europe. All these things demonstrate the fact that Oregon abounds in all the rich mineral stores which are essential in building up and developing one of the most promising States in the Union. Capital and men of energy and enterprise are what is wanted to reveal and turn into profitable channels these latent sources of a State's permanent wealth.

Sleep and Lodging.

Next to food comes lodging. To secure a comfortable bed is to the greater part of mankind still a desideratum—and yet any man of ordinary capacity may himself make the foundation for an excellent one with a few hours' labor. When we reflect on the importance of sleep, the time thus spent will not appear wasted. Without sleep insanity is certain. Nearly one-third of life must be passed in sleep. Why we are thus constituted is not to this present purpose. What relation this hours of sleep hold to the inclination of the earth's axis, or if the inhabitants of the planet Mars sleep, we shall not stop now to inquire. It is enough, with Sancho Panza, to invoke blessings on the man that invented sleep—"it covers one so like a blanket," "tired nature's sweet restorer, balmy sleep," descending as it does "like tired eyelids over tired eyes."

How strange it is that in this decade of the nineteenth century, we should first be able to compel the attendance, certainly and securely, of sleep—to realize the truth of the fable of Lethean waters. Opium gave us this boon at the expense of a feverish reaction; morphine promised it, but failed in the performance; chloroform gave it, but at a serious risk. How suddenly chloral has come into use! Almost as quickly as the shades of night, which it so aptly represents, has this invention crossed the Atlantic on downy pinions to visit the abodes of American care and distracting brain labor. This is the veritable angel of sleep. Of the bed-bottoms conducive to sleep: The foundation of the superstructure should be firm, open, elastic, noiseless; affording no barbor to insect denizens. It is of no consequence to the prominent hip-bones and short ribs of an emaciated sleeper, whether they are a few inches more or less distant from the floor; but it is of consequence that the prominent portions of the body should find for themselves corresponding depressions in the supporting medium, thus extending the surface of contact and avoiding chafing.—*Ex*

LIME IN THE HAY-MOW.—The New York *World* in one of its issues last fall published a successful experiment in saving damp hay by a little lime scattered over it when mowed. The writer kept a cow and had a patch of clover which was always cut in full bloom to save its nutriment. Although sweated in cock it was very difficult to make it dry enough to mow; but by scattering over it as it was stowed away a few quarts of dry air slaked lime it became dry and entirely free from mildew. He told many farmers of the experiment, but none tried it. It was too much like book-farming. But it is no wonder that the old fashioned farmers have such a horror of book-farming, as heretofore the most of those who followed it, continues the writer, have either failed in practice, or carried on their farming at so great an expense that the increase never paid the malting.

Mechanical Progress.

The Physical Properties of Steel.

In continning onr extracts from the recently pnblished work of M. S. Graner, of the Paris School of Mines, it may be remarked that on the authority of Caron, that it has beeu successfully demoustrated that hammering steel *hot* produces the samo effect as tempering—causing a coubinatiou of the carbon and iron. Graner, the author from which wo aro gleaning, thiuks both hammering and tempering prevents the separation of the two substauces already combined.

Peculiarities of Bessemer Steel.

It is a fact easy of demonstration that iu the Bessemer steels, made in Swedeu and Austria, hardness aud the susceptibility of heiug tempered depeud ossentially upou the proportion of carbon held in solution.

In Sweden nine grades of Bessemer steel are distinguished according to their hardness, estimated by the tempering power. Thoy are designated by the numbers 1, 1¼, 2, 2¼, etc., as high as 5, iu passing from the hardest to the softest, and, at the works of Siljanfors, analysis has shown very uear tho following proportious of carbon:

No. 1	2·00	per cent. carbon.
" 1¼	1·75	" "
" 2	1·50	" "
" 2¼	1·25	" "
" 3	1·00	" "
" 3¼	0·75	" "
" 4	0·50	" "
" 4¼	0·25	" "
" 5	0·05	" "

No. I. Links white pig metal with the hardest steel; it may, with difficulty, be forged, and does not weld.

No. 1¼. Forges tolerably well, but does not weld.

No. 2. Forges well; but does not weld.

No. 2¼. Forges well and commences to weld, although with difficulty.

No. 3. Forges very well, and may be welded in the hands of a skillful workman. It is hard steel.

No. 3¼. Forges very well and welds readily. It is ordinary steel.

No. 4. Both forges and welds readily. It is aoft steel.

No. 4¼. Forges and welds perfectly, but has slight tempering power. It is hard or granular iron.

No. 5. Forges and welds perfectly, bnt has no tempering power. It is cast wrought iron, or homogeneous metal.

It will be observed that the proportions of carbon above quoted have no absolute power as regards tbe tempering power and the facility with which the irons may be welded or drawn ont. The purer a steel is, the greater may be its proportion of carbon without destroying its welding and forging power. The greater part of foreign snbstances, excepting special metals, anch as tungsten, titaninm, nickel, etc., render eteel short and destroys its welding power when the carbon exceeds a certain limit. All things being equal, the limit in question is lower according as the foreign substances are more abnndant. This being the case, Bessemer steels made in France, and especially in England, mnst in general contain less carbon than Swedish steels. They are, in fact, made from pig iron of less purity; Bessemer steel, in England, rarely contains carbon enough to admit of being tempered, and can hardly be called steel.

When the proportion of carbon is increased the product becomes more or less short.

In Anstria, as in Swedeu, where very pnre pig irons are treated in the Bessemer process, superior prodncts are likewise obtained. Tunner, the eminent metallurgist of Leoben, has adopted a system of classification slightly differing from the Swedish. He has, however, omitted the two first Swedish numbers, which belong rather to white pig iron, and has replaced the half numbers by entire numbers increasing from I to 7.

According to him the theoretical classification is ae follows:

No. I. Containing I·5 per cent. of carbon, is malleable bnt yet not weldable steel. It corresponds to No. 2 of the Swedish scale.

No. 2. Containing I·25 per cent. of carbon, is malleable steel, but difficult to weld.

No. 3. Containing 1·00 per cent. of carbon, is very malleable steel, which may be welded by a skillful workmau. It is hard steel.

No. 4. Containing 0·75 per cent. of carbon, is very malleable steol, easily welded. It is ordinary steel.

No. 5. Containing 0·50 per cent. of carbon, is at the same time very malleable and very easily welded. It is mild steel.

No. 6. Containing 0·25 per cent. of carbon. It is granular iron, which is tempered with difficnlty.

No. 7. Containing 0·05 per cent. of carbon, is homogeneous iron, which cannot he tempered.

When the fining is carried too far, a softer metal than No. 7 is obtained. It is *short*, without tenacity. It is the *burnt iron* of the blacksmiths; according to Fremy, an oxidized and not a nitrogenized iron.

A New Solder Wanted.—The Prussian Society for the Promotion of Industrial Advancement at Berlin offer as a prize a silver medal, or its value, and the sum of 1875f. to the inventor of a yellow solder possessing the properties and quality of ordinary tin solder, and to be naed for soldering brass or similar alloys so that the seams will not be visible.

Early Iron Making in England.

A discovery of unusual interest has just taken place at Merthyr, which throws a little light on the mode, or one of the earliest modes, of mskiug irou. At the back of a row of houses, in Pontmorlais, built evidently withiu a few feet frou a long bank of earth, sufficieut soil from this bout had been sliced away to admit of drains, gardeus, aud other accommodations, leaving the rest intact, aud that this remainder was of old deposit may be inferred from the fact that the earliest tramway, for which an Act of Parliament was obtaiuod in 1804, and on which tramway Trevithick ran his first locomotive, passed over this bank.

In the rear of one of the houses occupied by Mr. John Emerys Jones, a sculptor, aud a man of more thau ordinary iutelligeuce, a further portion of this slope was cut off lately by Mr. Jones, and in the progress of the labor he came upon several huge bones and a vessel of baked fire-clay, much iu appearance like a crucible. Great care waa at ouce taken in the exhumatiou, aud the character of the discovery solved itself into the following:—In the centre of a circle of red ashes, placed on a pitched ground, was a circular vessel of baked fire-clay, I foot in diameter and ¾ of an iuch wider at the bottom than at the top. This was evenly lined within, aud at the bottom, which bore traces of great heat, were the remains of iron ciuder, lime and partially fused bones. By the side of this were pieces of rusty iron and a larger collection of bones. evidently of animals.

The pieces of iron wheu fitted together appeared much like a "tuyero" for conveying blast, and near this was a wall built a little higher than the vessel, which, when examined by practical men, supplied the key to this interesting discovery. It would seem the contrivance was an early one for iron making or for making steel. The vessel would apparently be filled with iron ore, coal, bones supplying sulphato of lime; limestone for yielding carbonate of lime, and, from the existeuce of mortared bricks in the vicinity, the vessel would next be bricked up, leaving an aperture for the blast. It is supposed that a circle of coal fire would then be brought to act on tbe vessel, aud wheu a certain degree of heat had been attained a fire kindled within, and the blast brought to bear npon it through the tuyere from a bellows erected on the wall. The vessel would yield but about fifty pounds weight of iron, a fact which hints at very primitive times in iron making. If the contrivance—certainly long prior to the Bessemer era—were for blowing in the oxygen and making steel, the discovery is even of still greater interest.

Utilization of Slags.—We referred a few weeks ago to the so-called mineral wool, produced by throwing a steam blast upon the stream of molten slag as it issues from the furnace; other means of making use of this material are also adopted. In England the slag is generally broken up by stonebreakers, and used for metalling roads. The Bessemer slags from hæmatite furnaces, on account of the large quantity of lime which they contain, make excellent concrete. They are also peculiarly suitable *for manuring potatoes and barley*, as they fall to powder under the action of the atmosphere, yielding up their silica and lime in a very finely divided state. At the blast furnaces of Osnabruck, Hanover, the slag is broken up by a method wbich, under some circumstances, might advantageously be adopted elsewhere. The molten slag is allowed to fall from a height of about eight feet, into water, and is thus formed into a large bean-shaped gravel. From the water tank it is lifted by "Jacob's ladders," and is conveyed away as fast as it is produced, and largely used for ballasting railways, or for other road purposes.

Phosphorized Bronze for Guns.—The question of the use of pbosphorized bronze as a material for guns is now engaging the attention of many of the European powers. For some time past important trials have been going on with guns of this material in Prussia, and, we understand, with the most satisfactory results. The Swiss Government have under trial a breech-loader of phospborized bronze; the Dutch Government a muzzle-loader; the Italian Government, haviug repeated the statical tests which were applied to this material by Montefiori-Levi and Kunzel of Liege, have resolved upon proceeding to the trial of guns of the material; and in Vienna some phosphorized bronze guns are about to be tested. Finally, the French Government are abont to make some guns with this bronze, supplied from Liege.

Browning Gun Barrels.—Have your barrel bright and free from grease; you cau get a pretty glossy appearance by the following mode: Applyly the fluid with a sponge, being particular not to touch it with your hands. Let it remain from six to ten hours, or until it gets a brown coat of rust. Then scrape it off with a steel brush, give it anotber coat and scratch as before until the desired color is obtained, which you will readily see when you wet it with tbe fluid. Now take half a pound of carbonate of soda to one gallon of water and boil; scald the barrel with it after it is scratched off the last time, and, while it is warm, apply grease and it is finished with a beautiful glossy appearance. Five or six coats are enought to bring the desired color.—*Scientific American.*

A man in Illinois has patented an iron shingle roof. Tbe shingles are about six by thirteen inches, lap each other so as to insure a waterproof, and are fastened by headless nails. The patent is said to be less expensive than slate.

Scientific Progress.

The Relation of Science to Religion.

The *Scientific American*, in makiug editorial allnsion to the development theory of the Darwin school, remarks as follows upon the relation which scicuce bears to religion:—All scientists have agreed that what can neither be demoustrated as a fact, nor logically inferred from facts, has no place iu scieuce. Reasouiug by aualogy can therefore havo a comparatively limited sphere in science. For although well determiued analogies are facts, the chauces are ten to one that a snpposed analogy will, when critically examined, turn out to be ouly a *pseudo* resemblance.

What we charge agaiust the teachers of this school is that, while their development theory is purely a system of analogical reasoning, they do not declare that this or that couclusion is *probably* correct, but assert it as a fact, and as dogmatically as the most ultra and fauatical religionists, whose higotry they denounce. Thus Huxley, in his address on protoplasm, asserts as positively that in this substance we have the ultimate physical basis of life, and that protoplasm has its origin in the chemieal combination of carbon, hydrogen, oxygen, and nitrogeu in the presence of living protoplasm. The whole tone of his address, though he did not say as much in words, was a sort of trinmphant self congratulation that there was no need of supposing a special creator, since chemical affinity was the general canse of animal existence.

Is then chemical affinity the cause uncaused? Have we yet, or shall we ever arrive at tbe cause uncaused? Does the development theory, the knowledge of protoplsam, help us in recognizing the first of all causes? Would even spotaneous geueration, if proved to take place, as many have sought to prove, reveal a cause behind which we can affirm no other cause can stand? From the very nature of the ease, we can answer these questions in the negative.

So long, then, as mysteries exist, and this will always be the case, man will by faith stretch ont his hands toward the hidden realm, and hope that in that realm there may be something, to satisfy the aspirations of his soul, brighter and better than what he has found through all his gropings. And this faith will form the basis of some kind of religion. The majority of men may perhaps be taught to believe that the human race sprang from apes, but so believing, and seeing the enormous distauce they have progressed from the condition of those animals, they will hardly set limits to progress, and will be little convinced that all opportunity for individual advance is limited to the few toilsome years which form the average term of human life.

Tbe skepticism of the present day is based upon as blind a faith as the belief of the orthodox. But we do not care to quarrel with this faith, or with conclusions derived from pure speculation, any more than we would quarrel with faith in revealed religion. The question of religious belief is one which has no place in scientific discussion. All scientists admit thie, yet there are many who omit no opportunity to give sly and sarcastic thrusts at the belief held by many wise and good men, which, forming the very character of the men who entertain it, is deserving of respect rather than ridicule, not to speak of its intrinsic claims to the acceptance of intelligent minds. Professor Huxley has been particularly obnoxious in this way, and has thereby greatly limited his influence as a public teacher.

It may be replied that aa the religionists attack the scientists, the latter must make some reply in self defence. We do not see the necessity. It is the business of science to discover, record, and classify facts. Whether these facts conflict with or confirm the religious faith of any, does not concern in the least the scientific iuvestigator. If he discovers that the ancestors of mankind were apes, it is his duty to announce his real or supposed discovery; it is not his proviuce to turn upon those who have held a different view and hold them up to scorn or ridicule because tbey believe they sprang from a higher source, and repndiate their anthropoid ape ancestors. If religion be false, it needs no direct attacks to kill it. If the discoveries of science be facts, they will outlive all false notions and superstitions. Science and religion should not be directly antagonized, for, besides that this is needless, neither one nor the other is benefitted by such controversies.

All this we can say, while we own to a decided leaning toward the evolution theory. It seems more consistent with the way in which au All-wise Being would work, that through eternal and immutable laws He should evolve the varied complex structures which people the uuiverse, thau that each should be the result of a special act of creation. In this we see nothing that conflicts with snch an interpretation of the Mosaic accounts as would harmonize with the now very generally conceded allegorical and poetical character of that portion of the Bible.

Prof. Owen, in a recent article, says: "Physiology can affirm no other than that bipeds enjoying(?) 800 years of life could not belong to our species.

Typhoons move in a parabolic rather than a circular course is the result arrived at by a careful investigation of the phenomena connected with the fearful storm of September last.—*Mr. Frank Armstrong.*

Brandy From Wood Shavings.—C. G. Zetterlnno hss heen making some experiments in the distillery at Hulta to make brandy ont of shavings. For this purpose they were boiled in an ordinary kettle under a pressure of 2lbs to the inch. There wss then put into the kettle:

Shavings, (pine snd fir, very wet)	9.0 cwt.
Sulphnric acid, 1.18 sp. gr	0.7 cwt.
Water	30.7 cwt.
Total	40.4 cwt.

After boiling 8¼ hours the mass of shavings contained 3.33 per cent. grape sugar, and after 11 hours cooking 4.38 per cent. A further increase in the quantity of sngar eonld not he obtained. There was obtained in all, from the 40.4 cwt., about 1.77 ewt of grape sugar, or 19.67 per cent. of the weight of the shavings. The acid was neutralized hy lime. The mash had a temperature of 30° C. when the yeast prepared from only 20 pounds of malt was added. At the end of 96 hours the mash was done fermenting, was then distilled and yielded 61 quarts of 50 per cent. brandy at ×15° C., perfectly free from all flavor or smell of turpentine, and of a very pure taste.

It is more than probable that the manufacture of hraudy from shavings on a large acale would succeed if it were ascertained by experiment with how much water the acid mnst be diluted and how long it must he hoiled, for both of these circumstances exert a great influence over the production of sugar.

If it were possible to convert the whole of the cellulose in the shavings into sugar, each hnndred weight of air-dried shavings would yield ahout seven gallons of brandy of 50 per cent. The shavings of the leaf-bearing trees would probably give the hest results.

Surface Electricity.—M. Terqnem has recently made some experiments for further elucidating the fact that the exterior surfaee of a hollow body is alone affected by electricity. Faraday showed that a small animal, placed inside a cylinder of wire gauze, was not incommoded when the cylinder was so highly electrified that sparks were freely given off by it. He also constructed a room, I2 feet in each dimension, of metallic wire, and snspended it by ropes of silk; and he found that, occupying this room, with electroscopes and electrometers at hand, there was not the slightest indication of electrical action inside the chamber, even when sparks of considerable length were given off by the metal of which it was made. M. Terquem verifies these results by taking a metal bird-cage and snspending it to sn iusnlated conductor of an electrical machine. While sparks sufficient to indicate a highly charged electrical condition were obtained from the exterior, pitch balls, feathers, and even a gold leaf electroscope remained unmoved inside. Two bundles of linen yarn were hung, one outside and one in; the inside one was nnaffected, while the outside was excited, the threads diverging from each other and giving out sparks.

Elevation of Polar Lands.—Regarding this change of level, Mr. Howarth remarks: "Not only is the land around the Pole rising, but there is evidence to show that the nearer we get to the Pole the more rapid the rise is. This has heen demonstrated most clearly in the oase of Scandinavia by Sir Charles Lyell, who carefully gauged the rise at different latitudes from Scania, where the land is almost stationary, to the northern part of Norwsy, where the rise is four feet in a century. While in Spitzbergen and the Polar Sea of Siberia, if in the memory of seal-fishers and others the water has shallowed so fast as to have excluded the right whale, we may presume that the rate of emergence continues to increase until it reaches its focus at the Pole, as it certainly diminishes until it disappears toward the south, between the 56th and 58th parallels of latitude."

A New Hygrometer.—Those who have attended chemical lectures will remember that marks made on paper with chloride of cobalt are almost invisible, bnt that on exposing the paper to warmth—as, for instance, holding it in front of a fire—the marks at once become visible. This change is owing to the varying color of this salt under variations of moistnre and temperature. Thie property of the chloride of cobalt to change its color has also been applied to the preparation of such chemical toys as fire-screens, in which portions of the views by which they are illustrated appear or disappear according as they are warmed or cooled. It is now proposed to employ it in the construction of an hygrometer which shall, by its changes in color, indicate changes in the quantity of moisture in the air.

Sulphide of Zonium.—This salt has lately been used in blowpipe analysis as a re-agent, in the following manner: The mineral nnder examination is fused with borax under the reduction flame. A small quantity of sulphide of zodium is then added, and the substance again submitted to the flame. Iron, silver, copper, lead, nickel, cobalt, bismuth, palladium, thallium, and uranium give opaqne masses of a brown or black color. Zinc gives a white mass; the product with cadmium varies from red to yellow as it cools; that of gold and platinum give a bright light brown, and that of tin a translucent yellow brown.

In ærating distilled water for the pnrposes of the table on ships, the nearer the temperatnre of the air and liqnid approach each other, the more readily do they combine.—*G. W. Baird, U. S. N.*

MINING SUMMARY.

THE following is mostly condensed from journals published in the interior, in proximity to the mines mentioned.

California.

AMADOR COUNTY.

STATE OF MAINE.—Jackson *Ledger*, May 4: As work advances the ledge increases in size and richness, hoth in free gold and sulphurets.

PHŒNIX.—The ledge is vsry large and well charged with free gold and rich gold hearing sulphurets throughout.

BRICK.—The Kennedy mine cleaned up on Wednesday $9,000. The rock producing this was taken from the 400 ft. level snd was abont 400 tons, or at an average of $18 per ton.

BUTTE COUNTY.

THE NEW MINES.—Chico *Enterprise*, May 4: Great excitement prevails over the new discoveries on Butte creek. The introduction of water into the district has brought back many old miners, whose prospecting in early years furnished evidence of rich diggings. The section of country ahout Nimshew, in Nimshew township, is rapidly filling up and the whole will soon he under work. Farther down Butte creek, ahout Helltown and Diamondville, extensive and rich grounds are heing discovered and rapidly taken up and rapid preparations making for the introduction of water.

CALAVERAS COUNTY.

PRUSSIAN HILL.—The mill in process of erection on the Prnssian Hill near Railroad and is rapidly approaching completion. The stamps will he in motion in a few days.

Operations are progressing favorably in the Calaveras Co.'s claim at Central Hill. Washing is carried steadily on, an extremely large head of water being used.

ANGELES MINES.—Operations on the mines are heing vigorously pushed forward The "Big mine" and Sickles mine are being steadily worked with good results, and a numher of arastra mills in the vicinity are paying well.

CONTRA COSTA COUNTY.

COAL MINES.—Pacheco *Gazette*, May 4: Work has never been prosecuted with more ensrgy than during the past 8 or 9 months; and the coal shipments from the Black Diamond alone, hesides those from the Pittshurgh, Union, Eureka, and Central, have heen ahout 10,000 tons per month. The pay roll of that Co. at the mines, for April was $26,000.

EL DORADO COUNTY.

RICH STRIKES.—Placerville *Democrat*, May 4: We hear of a numher of rich strikes having been made in the north part of the county, the richest of which are in the vicinity of Greenwood. In the Cederhnrg claims they have fonnd some of the richest ore ever unearthed. It is literally gold bearing qnartz instead of quartz hearing gold.

POOAHONTAS Co. at Logtown, cleaned up after a 10 days run, on the 28th, $17,600.

BONDED.— Placerville *Republican*, May 2: The Maryland, in this city, has been bonded to a S. F. Co. and a shaft is to he sunk immediately.

INYO COUNTY.

BULLION.—Inyo *Independent*, April 27: On the first day of April there were shippsd from the mill of Hiskey & Walker, Desp Spring Valley, (extracted from Lida Valley ore) 6 hars weighing 2,442 ozs., valued at $2,800. Also, from the same, April 11, 8 bars weighing 3,200 ozs., valued at $3,700.

PROGRESSING.—The work of repairing damages at the Eclipse works is progressing favorably, some 3½ miles of the canal having heen fixed up as before, while repairs to the furnace are being pushed ahead. It is expscted the whole will he in runniug order in less than 10 days.

LIDA VALLEY.—The "Mountain View" owned by Halsey & Co., had one ton of rock worked, which yielded $1,016.35 in silver, and $13.25 in gold. The Manhattan Co., of Austin, are intending to put a mill in Lida Valley, which the miners think will do a spledid business.

THE BORAX WORKS.—M. A. Hearne, of the borax works near Columbus, is making $10 to $15 a day with the emall worke in uee. He intends to enlarge his works to many times their present capacity.

LOS ANCELES COUNTY.

SANTA MONIOA.—Los Angeles *News*, April 23: It is not generally known that a rich gold quartz ledge exiets on the beach in the vicinity of Santa Monica, a favorite watering place 18 miles from this city. The ledge runs parallel with the ehore, and is only exposed for about 10 minntes at low water. For several years past, some native Californians have visited it daily, breaking off with pieces of rock they could during the brief moments of its exposure. The rock thus obtained is represented as heing exceedingly rich, having gold well distrihuted throughout.

NEVADA COUNTY.

NUOGET RAVINE.—Grass Valley *Union*, May 1: We saw yesterday, at Findley's bank, ahout $500 worth of nuggets lately out of nugget Ravne. The gold is in lumps and is washed smooth. In worth it runs over $18 an oz.

ENTERPRISE GRAVEL.—This Co. will soon have efficient steam machinery on its claims.

NORTH STAR.—Affairs are progressing very favorably. A new stsam pump was put in last Friday night and up to yesterday morning the water had been lowered ahout 58 ft.

INDEPENDENT MINE.—We saw a few days ago a fine nugget, worth ahout $25, of washed gold, which came from the Cos. claims.

Nevada *Gazette*, May 4: GENTRY'S MINE.—This mine, ahout one mile from town, is doing well. They stsrted piping last Saturday evening. 600 inches of water are used.

PLACER COUNTY.

Auhurn *Herald*, May 4: PROMISING MINE.—The Alabama Co. have let a contract to sink their shaft to 105 ft. At 40 ft. the ledge is 3 ft. 8 inches thick, at which point the last crushing of rock paid $43 per ton. This mine is ahout one mile helow Newcastle, and some 200 yards west of the Julian mine.

PLUMAS COUNTY.

Quincy *National*, April 27: INDIAN VALLEY MINE.—Over 40 men are at work. They are only running 12 stamps at present, and the rock they are crushing is low grade.

ARGENTINE.—Heath & Freeman havs commenced piping. The Talc Co. are remodeling their mill—removing engine and hoiler, and preparing to use water as a motive power. They will add another battery and use a "Leffel" wheel. They expect to start up ahout the middle of May.

BLACK HAWK.—Turner, Rice, Austin & Co., are stripping a large amount of hedrock this year, and will he ahle to keep their pipe running for some time. The Co. has already made one clean-up, this spring, of $1,200, and the indications are that the claims will pay splendidly for the season's run. Several other Cos. are at work on the creek.

MOUNTAIN HOUSE.—The water is running through the Plumas Water Co's. ditch, and the Co. will commence work in their claims at this place immediately, running 5 pipes.

PENNSYLVANIA.—Bidwell & McIntyre, of the Pennsylvania mine, near Greenville. have a force of men at work, and thsir 12 stamps are husily running on good rock, Their new tunnel is in 1,000 ft.

CHEROKEE.—Compton is still running his 6 stamp mill, on Baker rock, and is getting splendid pay. Gregg is preparing for work in the Yellow Float. Mr. Dupsy, of S. F. is sinking a shaft on the Eureka.

SAN DIECO COUNTY.

BULLION.—San Diego *Union*, April 25th: There was shipped to S. F. yesterday bullion amounting to $1,800, from the Julian mines.

THE MINES.—The miners are in the most huoyant spirits over the turn affairs have taken in connection with the Owens lead. The rock will prohably surpass $75 per ton in value. The Stonewall lead is also improviug in the character of its ore as the shafts go down. The Golden Chariot lead is heing worked vigoronsly. At present they are drifting, and the miners who have examined the lead unite in saying that there is $35,000 or $40,000 worth of rock in sight.

$10,000 CLEAN-UP.—San Diego *Bulletin*, April 27th: Mr. Defrees, who came from the Julian mines yesterday, and laid on our table 9 bars of gold, the product of eleven days run on Owen's rock. The nine bars weigh nearly $10,000, the product of 150 tons of rock; hut 50 tone of this rock was made up of slate and refuse, as they worked everything hetween the casings. This rock is taken out at a depth of 200 ft. Levels are run 130 feet each way at that depth; so the owners of the mine know they have *thousands* of tons of this rock ahove them, and the rock below is richer than any taken out above. The Owens Co. have 10 men to work in the mine and in the mill, so the average of this run is $56 daily to the man.

SIERRA COUNTY.

BALD MOUNTAIN.—Downieville *Messenger*, April 27th: H. Wallis has heen chosen Foreman of the Bald Mountain, of Forest City. The workmen have already commenced to run tunnels for the purpose of opening a hreast.

THE High Commission Co. are taking ont very rich rock.

STRUCK IT.—Plumas *National*, April 27th: Prospecting tunnel in the neighhorhood of Queen City has been driven into good paying gravel, and the indications are that the "strike" will develop an extsnsive gravel dsposit, and a very valuable olaim.

SISKIYOU COUNTY.

GOOD PAY.—Yreka *Union*, April 25th: Reynolds & Coleman are engaged in washing up on their claim on Rattlesnake, and they are receiving about $8 per day to the hand.

CRUSHING.—Cornish & Clark have just made a crushing of 50 tons of rock from their ledge at the Eliza mill. It yielded $20 to the ton.

TUOLUMNE COUNTY.

APP MINE.—Sonora *Independent*, May 4th: The capacity of the mill is twenty-five stamps, but at present, to test the ore, only fifteen stamps are in operation. They expect soon to start the whole.

RICH QUARTZ.—The Burgess, Woodman & Jones quartz lode, north of Columhia is yielding some extremely rich rock. On Thursday, Mr. Burgess exhihited two pieces of rock from the lode, weighing 64 ounces and containing $700 in gold. All the claims on the Flat, or rather on Wood's Creek, are at work and doing well.

GOLDEN GATE QUARTZ MINE.—This lode is on the south side of Sonora, above Bell's Mill's and is owned by Hon. W. G. Long, of this city. He is down on the lods ahout 20 ft. where it is 3 ft. wide.

OLD TUOLUMNE QUARTZ MINE.—This mine is in Wet Gulch, ahout 3 and 1-4 miles from Columhia, and noar Pine Log Crossing. Two shafts are being sunk, one 18 and the other 20 ft.

MINING IN TOWN.—Pugsley, Page & Co., who own a claim in the hill immediately hehind the residence of Luke Wheslock, are preparing to hydraulic it down, with good prospects of success. Ahout 50 ft from where they have started in, a Co. who formerly owned the ground, got extremely rich dirt, but were not so deep as the present Co. hy 15 or 20 ft.

Nevada.

EUREKA DISTRICT.

RICH STRIKE.—Eurcka *Sentinel*, May 2: J. H. Lyon and M. Dwyer have developed a ledge of exceedingly high grade ore in the Mayflower mine, Morgan district. We were yesterday shown an assay which gave $1,101 per ton in silver.

LEMON HILL. The new furnace will be completed hy the last of the wsek.

RICHMOND.—The Tip Top incline is being deepened so as to admit of a new level being opensd in that part of the mine.

ADAMS HILL Co.—Operations on the mines of this Co. are heing vigorously pushed. Lately a fine hody of rich ore was developed in the Wide West shaft at a depth of 100 ft. The Gen. Lee is showing large quantities of high grade ore in the tuunel, shaft, and Ellsworth shaft. A crushing of 1,000 tons of ore is to he made at an early date.

ELY DISTRICT.

PAGE & PANAOA.—Ely *Record*, April 28: The shaft is down 210 ft. with good working rock in bottom. The east drift, at 160 ft. level, shows good ledge matter shout 5 ft. in width, with pay streak of from 2 to 2¼ ft. When the shaft has attained a depth of 300 ft. a new station will he opsned and a drift will he run.

CHIEF OF THE HILL.—A tunnel has been run into the hill 50 ft., at the end of which the ledge was first enconntered. From the end of this tunnel a shaft has been sunk 40 ft.; and 150 ft. in an east, and west direction, following ths ledge. At the west end a winze has heen sunk 52 ft., following the ledge all the way. From the hottom of this winze a new level is heing opened, which showe the ledge and good ore throughout. A fine hody of ore was struck in the hottom of the east drift on the lower level, while in the west drift the ore shows much better on the roof of the drift. At present there are about 120 tons of good milling ore on the dump, assays from which have averaged from $150 to $250 per ton.

WASHINGTON & CREOLE.—The shaft is dowu 420 ft. In running a drift on the 334-ft. level west, they passed through a body of ore 20 ft. in length; and in running east on the same level another body of ore was found. Both will mill ahout $125 per ton.

PIOOHE WEST EX.—Suspended work on account of inability to procure lumber, hut expect to start np again in the early part of the present week.

RAYMOND & ELY.—The 323-ft level has been connected with the shaft and track laid in it for over 300 ft. in length. The entire body, over 450 ft. in length by 120 ft high under the 223-ft. level, is as yet untouched, there heing over a months supply left ahove it. The winzes, started from the town level, all show the same ore as above. The receipts of the mills for April will be ahout $320,000.

PIOCHE.—This mine is extracting over 10 tons of $200 ore psr day. During the last 12 days previous to the 24th inst., $25,000 was shipped as the run from the mill during that time. The stopes on the 4th level have improved very much within the 10 days, all the drifts are heing pushed ahead, and prospecting is going vigorusly on.

CONDOR.—The shaft is down 90 ft. and the ledge shows well. A large amount of milling ore is on the dump.

LOUISE.—Shaft is down 50 ft., showing 3 ft. of ledge. About 1 ft. of the ledge is good paying ore, asssying from $110 to $125.

MEADOW VALLEY.—Sinking of the shafts on Nos. 7 and 3 and at the Summit is heing pushed stesdily forward.

WARD BEECHER.—Shaft down 240 ft., and sinking on strike mentioned in our last. Have 3 small streaks of ore in bottom which show signs of widening.

CHAPMAN.—They are raising some ore and getting the mine into working shape.

MAGOIE.—The ledge shows well in the shaft and is over 2 ft. in width.

ALPS.—Work on main working shaft going rapidly ahead, and a dspth of 65 ft. has been attained.

BOWERY.—Prospecting and drifting for lsdge. Shaft down 200 ft. About 50 tons of ore on the dump.

ORLEANS.—Work will he resumed tomorrow. The shaft is down 75 ft.

ALPINE WEST EX. AND MEDASSA.—Shaft down 60 ft., and in sinking has cut through 2 ledges. Work being pushsd with good prospects.

ALPINE.—Good progress is heing made in sinking and running the drift and prospects continue very enconraging.

EXCELSIOR.—Work heing pushed ahead in lower winze and drift to make connections for air.

LAFAYETTE.—A shaft has heen sunk 190 ft., which shows ledge mattsr from the surface to the hottom. The ledge is from 4 to 6 ft. wide, and at several points in tho shaft there are fine deposits of ore.

ALPINE shaft is down 93 ft. The walls are perfect, and the ledge is over 5 ft. wide, carrying good ore. Assays ranging from $50 to $200 per ton have been obtained. A large body of ore has heen struck at 90 ft., and a drift will he run along the ledge snd across it, to determine the extent of the deposit.

PEAVINE.—This claim is improving in the lower lsvels, and the ledge is growing larger and richer as depth is obtained. The dump contains 75 tons of ore that will mill $150 to the ton. Three shifts working.

HUMBOLDT.

BULLION.—Unionville *Silver State*, May 4: Amount shipped from the Arizona, since our last issue, was $5,725.

MADRA.—This ledge, in the foothills near Humholdt City, is owned by the Starlight Co., who will soon put a force of men at work to develop it.

STARLIGHT.—This mine at Humholdt City, is the only one being worked at that place. The Co. is sinking an incline shaft on the ledge, which is down ahont 70 ft. The ledge is from 3 to 4 ft. wide, woll defined with good walls on hoth sides, and carries large quantities of iron sulphurets. The ore is composed of argentiferous galena, and occasionally chloride, black sulphurets and some gold.

REESE RIVER.

REVIEW.—Reese River *Reveille*, April 27: Pacific Co. In the Land and Fuller shaft in the cross cut at the 550 ft. level, the size of the ore body has increased. From the 400 ft. level taking out high grade ore. In the Buel North Star are stoping on the ledge in good ore; 40 tons of high grade ore will he shipped on Monday. Working 54 men,

GROVE TUNNEL.—This mine is divided up iu contracts, among whom Moor & Co., Delano & Co. and Lamb & Co. are getting good ore, and Renolds & Co. and Canterhury & Co. are doing prospecting work, being in a hreak of the ledge. Working 22 men.

MORGAN AND MUNCEY.—Hoisting high grade ore from the 400 ft. level and piling in ore house. Pay streak in the eastern part of same level has increased from 4 to 9 inches of high grade ore in a 2 ft. ledge.

SAYBROOK.—Getting ore of average grade at the 110 ft. level.

ESTHER.—The formation in the cross cut at tho 200 ft. level gives evidence of the near vicinity of ore. Working 5 men.

DIANA.—Getting ore at the 120 and 150 ft. levels. Working 15 men.

ISABELLA is getting good ore, and doing extensive prospecting work. Working 20 men.

PENOBSCOT (Central Hill).—Working 6 men and getting good ore.

SEMANTHA.—The ledge has widened considerably and the grade of the ore is much enhanced. Working 8 men.

MANHATTAN SHAFT.—Thoro are over 100 tons of good ore on the dump. Hoisting oro from the lowor levels. Working 35 men.

FLORIDA.—Getting out oro of high grade. Shipping to the Manhattan. Working 12 men.

STAR OF NEVADA.—Thero is a tunnel in 500 ft., in the oast level, whore thero is a ledge from 12 to 14 inches thick. Working 12 men.

EMIGRANT CANON—SOUTH SONOMA.—East level sinking incline, down 20 ft. in good sulphurot ore; 3 men at work.

MILLS—MANHATTAN.—Running steadily on custom ore and ore from the Co.'s mines.

WREN'S concentrator is running steadily.

VIRGINIA.—Four tons of ore worked at tho Manhattan, gave $887 per ton.

EL DORADO SOUTH CON. CO.—El Dorado mino working 26 men, running new levels north and south in good ore. Main Incline going down with dispatch, taking out a 6 ft. vein of fair ore.

ARIZONA.—Working 10 men running levels.

BELMONT CO.—Commenced work on Wednesday, repairing the old works, and preparing for vigorous prosecution of work The Transylvania miue of this Co. shows an immense body of rich chloride and Stedefeldtite ore. The yield by mill working of their ore is over $400 per ton; working 12 men. This Co. have commmenced tearing out the old machinery from their mill preparatory to putting in new machinery for a complete 20 stamp mill.

MONITOR.—Is yielding large quantities of $500 ore of which thcre are piled on the dump over 150 tons; working about 20 men.

JEFFERSON CANON.—The ledges are narrow but rich varying from 18 inches to 3 ft. in width; about 25 tons of ore on the different dumps will work from $500 to $800 per ton.

WASHOE.

LOCAL SUMMARY.—Gold Hill *News*, Msy 4: HALE & NORCROSS.—Daily yield 200 tons, from the north portion of the 1400 ft. level, with about 70 tons from the upper levels. At the 1500 ft. level, jnst being opened, the main drift east from the incline cut through the west wall 51 ft. from the incline, and has penetrated the ore vein 15 ft. Hoisting of ore from this point commenced yesterday. At this level a drife north in the west wall is in 45 ft. from the incline. The incline is not being sunk deeper at present. The vein at this lower level stands straighter, or more perpendicular than in three levels above—a very significant circumstance—and, althongh penetrated by drifts, both of the lower levels together do not flow more than a gallon of water a day.

SILVER HILL.—This mine in Lower Gold Hill is a combination of the old Waller's Defeat, Lucerne, St. Louis and Echo grounds. The ore comes from a series of veins and is essentially gold ore, with little or no silver. A new shaft 225 ft. deep is being sunk. New and excellent hoisting works are being erected.

UTAH.—The new shaft commenced 600 ft. east of the old works in the center of the mine, is being sunk at a satisfactory rate. The vein in the old workings is from 30 to 60 ft. wide, and assays about $17 to the ton. The new shaft is expected to strike the ledge on its eastern dip at 500 ft. when it will be drifted into and well prospected.

CONS. VIRGINIA.—Some favorable looking quartz, showing considerable metal is found in prospecting the 500 ft. level, especially in the cross-cuts from the north drift, also in the raise above the north drift, at which point connection is made with a drift from the Ophir, giving good circulation of air. Drifting is steadily prosecuted at the 1160 ft. level, from the Gould & Curry, with no ore as yet.

MCMEANS.—The tunnel is 600 ft. long, penetrating 65 ft. vein, and the shaft is 100 ft. deep, intersecting a black ledge over 30 ft. wide and containing spots of very rich ore.

OCCIDENTAL.—Work was resumed last week in the lower tunnel, which is being driven further north, toward the boundary line.

NEW YORK CONS.—This mine is in Lower Gold Hill. The north Ophir hoisting works have been purohased, removed thither, re-erected and put to work. The shaft is freed of water, and drifting on the ledge commenced with most excellent prospects.

CROWN POINT.—Daily yield 430 tons. This ore breasts are all looking and yielding splondidly, and an immense amount of bullion is being produced. The principal oro supply is from tho 1100 and 1200 ft. levels.

YELLOW JACKET.—Daily yield 50 tons The incline has nearly roached the 1,500 ft. level, at which point a new station is to be opened. At the 1,300 ft. level, near tho Kentuck line, some very good ore has been developed dnring the last 3 or 4 days.

PICTOU.—Situated on the Comstock, in Lower Gold Hill. Shaft 155 ft. deep, with an incline 70 ft. deeper in the ledge. Tunnel is in 550 ft. with 100 ft. further to go to cut the ledge.

GOULD & CURRY.—Drifting both north and south at the 1,500 ft. level and preparing to drift east of the same level. The incline, which starts from the shaft 80 ft. above the level, is being timbered.

ARIZONA & UTAH.—A raise has been made to the hight of 85 ft. above the tunnel, and a cross-cut from it is in 15 ft. toward the ore vein which it will intersect next week.

OVERMAN.—The 700 ft. station of the new shaft is opened, and drifting west toward the ledge commenced.

KENTUCK.—Regular yield about 35 or 40 tons a day—keeping the Devil's Gate mill running. The drift through the 1,300 ft. level being run by the Crown Point and Yellow Jaoket, Co.'s for air connection will bo completed in about a week.

IMPERIAL-EMPIRE. — Drifting into the ledge has commenced at the 1,500 and the 1,650 ft. levels from the incline. At the lower level 2 drifts branch out from the station, one for the Imperial mine and the other for the Empire.

CHOLLAR-POTOSI.—Daily yield 150 tons from the Belvidere, Blue Wing and other old ore sections. Prospecting in various parts of the mine is vigorously carried on.

SUTRO TUNNEL.—In 2,767 ft. with the face still in very hard blasting rock.

SIERRA NEVADA.—Daily yield 50 tons.

SAVAGE.—Daily yield about 60 tons, assaying on the average $38. The new ore deposit at the lowest levels is reported to be improving in quality.

GLOBE.—The work of development is being actively pressed.

DANEY.—The main shaft is down 565 ft. and it will soon intersect the ledge. The drifts at the 500 foot level look favorably.

OPHIR.—Good ore is reported found in a cross-cut from the south drift at the 1,300 ft. level.

CALEDONIA. — Still retimbering the shaft. The new works started up on Wednesday.

SUCCOR.—Only enough ore is taken out to keep the Co.'s mill running. The new shaft is sunk rapidly.

BOWERS.—Work in this old mine in Gold Hill proper will shortly be resumed.

LADY BRYAN.—Work is about being resumed, under the most favorable auspices.

STARTED UP.—Virginia *Enterprise*, April 30: The Petaluma mill, Lower Gold Hill, and the Ophir mill, on the Carson river above Dayton, both started up on Saturday.

WE yesterday noticed at the Bank of Csl. 18 bars of Crown Point bullion worth $55,155.

MERRIMAC MILL.—The mill, Carson river, is running to its full capacity—about 50 tons per pay.

ACTIVITY.—Work is being resumed in every direction on old mines which have lain idle ever since the White Pine excitement.

BULLION.—Reno *Crescent*, May 4: The shipment for 2 weeks ending last night amounted to 36,986 lbs.

WHITE PINE.

REVIEW.—White Pine *News*, April 27: BULLION.—W. F. & Co. shipped to-day from this city to S. F., for the Bowery Co., Pioche, 2 bars, valued at $2,520.51

TREASURE HILL MINES.—SECOND SOUTH EX. OF HIDDEN TREASURE.—The owners having purchased the Anchor Co's. tunnel, the principal work has been carried on through that opening on the lode. From an incline which follows down the east wall 40 ft., a drift has been run northerly upon the stratified spar wall 80 ft., disclosing a fine breast of ore. At the north end of the mine, the old shaft of the locators was continued on down to 60 ft., and drifts run off east and west, exposing bodies of qnsrtz rock. Abont 120 tons of good quality of milling rock is piled up for shipment.

NORTH AURORA.—Breasting out on the line of the South Aurora, in the Risdale chamber, and running out ore through the South Aurora lower tunnel to the tramway station. The winze in the Ward Beecher will be connected next week. The total shipment by tramway from the Co's. mines is about 80 tons per day.

EBERHARDT.—Snow accumnlated in the tunnel from the Keystone shaft to a depth of 25 ft. Tho force of men employed breasting out is at work clearing out the snow and placing the tracking of the tramway in working order. The ore piled back in the shaft will then be run out and shipped to mill.

NOONDAY.—Working a force of 4 men, breasting out. The ledge is 5 to 6 ft. wide, showing the usnal grade of ore. Hoisting and piling on dump. There is about 300 tons of ore on top.

MAMMOTH.—The ledge averages 7½ ft. wide, showing ore that averages $50 per ton assay.

Arizona.

MINES AND MINING—Prescott *Miner*, April 20: Yavapai Co. The Vulture, Tiger, Del Pasco, Benjamin and other Co.s are hard at work.

The miners of Castle Dome are extracting ore and shipping it to S. F.

Colorado.

BOULDER CO.—Central *Register*, April 24: In the Grand View a rich body of mineral has been struck.

Jo. Irwin, W. Stephens and others, have purchased a half interest in the Gray Eagle lode. It shows a large vein and some rich mineral.

THE Church Bros. have the water pumped ont on the Gunnell Central mine, on the Gunnell lode.

THE whole length of the Bobtail tunnel is 625 ft. Fifteen ft. is the weekly rate of advancement. The Fiske lode is cut about 588 ft. from the mouth. A drift has been run east on this lode about 30 ft., 12 ft. high.

THE new stamp mill of Wheeler & Sullivan's on North Clear creek, is approaching completion and will be in operation early next month. There are five 5-stamp batteries.

THE B. and C. Co.'s works treat daily 25 tons of ore.

Hulverson & Dierdoff will start up their 6-stamp mill on James Creek, in about 2 weeks. Eric Bottolfson will start up his 10-stamp mill as soon as the road is open.

Idaho.

LOCAL RECORD—EMPIRE.—Silver City *Avalanche*, April 20: The new shaft has been partially timbered to the adit level, which is 90 ft. from the surface, and sunk 10 ft. below the level. The new shaft is being sunk 280 ft. from the south line, and as soon as drifts can be run from this shaft under the old stopes, there will be an abundance of first-class ore that can be easily taken out. The stopes being worked from the cross-course toward the new shaft look splendid.

NORTH ORO FINO.—The drift has been run north from Oro Fino lines 118 ft. Fifty-five ft. behind the present end, a rise has been started to communicate with an old shaft which was sunk in former workings 80 ft. below the adit level. From the 2 level drift to the bottom of the old shaft is 75 ft.

ORO FINO.—The ledge looks well, averaging for whole depth of winze 20 inches in width. The old stopes are being pretty well worked out, but they will commence stopes from the winze as fast as there is room.

ELLMORE.—The shaft has been sunk 18 ft. below the 7th level, and should the ground continue as good for sinking it will not be long ere drifts will be running under the rich ore now found in sinking the winze. The ledge holds its own, is 2 ft. wide and good milling rock. The 7th level is progressing rather slowly the ground is hard and the ledge very solid, but the ore is first-class.

GOLDEN CHARIOT.—The winze in the bottom of the 8th level is down 48 ft. They are at work cutting down the shaft at the 5th, 6th, and 7th levels, both up and down.

MINNESOTA.—The stopes in back of 2d level continue good and there is being daily shipped to the mill 15 tons of good ore.

SOUTH CHARIOT.—The shaft has been sunk 6 ft. below the 4th level, and straightened at the same time 60 ft. below the 2d level. The 4th level drift is being run north, showing the ledge to be about one inch wide, but not very rich.

MAHOGANY.—The 5th level south has been run 24 ft. where the ledge ranges from 15 to 20 inches in width. The north drift is in 18 ft.—ledge 16 inches wide. The rock from both these drifts is first quality, and will mill fully $100 per ton. This mine is shipping daily to mill 20 tons of good milling ore.

OMEGA.—Work has been resumed and ore being taken out north of the shaft for reduction.

THE ore which is piled up on Treasure Hill, in White Pine, awaiting transportation to the mills, is estimated to be worth $1,250,000. The condition of the road prevents shipment.

S. F. Stock and Exchange Board.

THURSDAY, MAY 9.

An account of the fall in mining stocks this week will be found in another column. The sales at the Board for the week ending Wednesday the 1st inst. were $2,600,000 less than for the previous one, amounting to $8,580,000. The receipts for April from the Raymond & Ely mining company were $317,434, equal to $10,581 per day. The April receipts from the Meadow Valley mine aggregate $110,000. On May 3d $30,000 was shipped from the Chollar Potosi, and last week the mine produced 1,100 tons of ore. The largest dividend ever paid in a single month by any mining company was paid by the Crown Point; it was $40 per share, or $800 per foot aggregating $480,000. The Hale & Norcross mine yielded last week 1,000 tons of ore and the Savage 600 tons. The dividend of 50 cents by the Yulc Gravel company amounts to $5,000. A shipment of bullion from the Mahogany arrived to-day. The Enreka Cons. Co. produced last month 1,855 bars of bullion weighing 213,400 pounds. The amount of ore on hand is 1,725 tons. Over 3,000 tons of ore was raised from the Crown Point mine last week estimated at $133,000. Stocks this morning show a partial recovery from yesterday's depression.

A number of companies have announced meetings for the purpose of increasing their capital stock. The Empire M. & M. Co. will meet in June 10th to consider a proposition to increase their stock from $1,000,000 in 12,000 shares to $5,000,000 in 50,000 shares. The St. Louis M. Co. will meet June 6th to raise their capital to $1,000,000 in 10,000 shares. The Del Rey meet June 10th and propose increasing the stock from $100,000 in 1,000 shares to 3,000,000 in 30,000 shares. The Kentuck Co. meet on the same date and propose increasing the stock from $400,000 in 2,000 shares to $4,000,000 in 20,000 shares. The Alamo G. & S. M. Co. meet June 4th and propose increasing their stock from $300,000 in 3,000 shares to $3,000,000 in 30,000 shares. The Green G. & S. M. Co. will meet June 3d to decide a proposition to increase the stock from 600,000 in 2,400 shares to $2,400,000 in 24,000 shares. The Overman Co. propose on the 5th of June to increase their capital from $1,280,000 in 12,800 shares to $2,400,000 in 64,000 shares. The Confidence M. Co. propose increasing their stock from $780,000 in 1,500 shares to $2,496,000 in 24,960 shares. The Adriatic Co. meet June 8th to take into consideration a proposition to increase their stock to $2,700,000 in 27,000 shares. The Gold Cañon Cons. Co. propose increasing their stock from $700,000 in 35,000 shares to $3,500,000 in 35,000 shares.

Comparative Prices—Extremes. Advance and Decline.—S. F. Stock and Ex. Board.

	May 2.	*Highest.*	*Lowest.*	May 9.	*Adv.*	*Dec*
Alpha	$170	180	70	90	—	80
American Flag	23	28	16	—	—	—
Belcher	1400	1400	1105	1200	—	200
Buckeye	10	10	9	—	—	—
Chollar-Potosi	270	270	150	152½	—	117½
Caledonia	127	140	60	100	—	27
Cons. Virginia	128	128	80	90	—	38
Crown Point	1700	1900	1500	1750	50	—
Daney	6	7½	4¾	—	—	—
Eureka Cons	37½	37½	30	—	—	—
Eureka	20	20	18	—	—	—
Exchequer	65	85	50	—	—	15
Gould & Curry	510	510	360	360	—	150
Golden Chariot	—	16½	15	—	—	—
Hale & Norcross	365	380	280	280	—	85
Ida Elmore	20	22	20	—	—	—
Imperial	365	425	285	300	—	65
Justice	35	35	20	—	—	—
Kentuck	507½	720	465	—	—	—
Mammoth	1	1¾	1	—	—	—
Meadow Valley	19	19	16	—	—	—
Mahogany	25	32	23	—	—	—
Ophir	112½	140	75	85	—	27½
Orig. Hid. Treas.	17	17	13¾	—	—	—
Overman	185	215	120	150	—	35
Pioche	17	17	12½	—	—	—
Raymond & Ely	119	120	116	—	—	—
Savage	590	590	475	530	—	60
Sierra Nevada	48	48	29	35	—	13
Succor	—	8	6¾	8	—	—
Wash. & Creole	6¾	6¾	5¾	—	—	—
Yellow Jacket	280	340	185	200	—	80
Seg. Belcher	205	210	115	142½	—	62½

Latest Prices—Bid and Asked.

	BID.	ASKED.		BID.	ASKED.
Alpha Cons	85	85	Ida Elmore	20	22
Amador	—	—	Imporial	300	300
Belcher	1200	1200	Kentuck	470	480
Chollar-Potosi	140	150	Meadow Valley	16½	17
Crown Point	1700	1750	Ophir	80	83
Oaney	5	7½	Orig. Hid. Treas	—	—
Eureka Cons	30	31½	Overman	145	150
Eureka	18	—	Savage	500	506
Golden Chariot	15	15	Raymond & Ely	117	118
Gould & Curry	350	360	Sierra Nevada	31	32
Hale & Norcross	270	280	Yellow Jacket	170	180

UTAH NEWS.—The warm weather in Utah is causing the snow to disappear rapidly from the cañons, and the miners are resuming work in all quarters. Prospecting parties are starting out, and mining matters all look favorable. Nine smelting furnaces, costing in the aggregate $300,000, are now in operation near Salt Lake City. It is understood that the work of building the first section of the Salt Lake & Pioche Railroad is to be commenced immediately. Grading on the Utah Southern Railroad progresses rapidly.

The Wild Pigeon of California.

(*Estopistes Migratoria.*)

The wild pigeon of the Pacific coast differs from its prototype, the pssseuger pigeon of the Atlsntic States, only in heing a larger hird, with a darker plnmage. It is equally migratory in its habits, but never seen collectively in snch large numbers as charscterize the assemhlsges and migrations of the passenger pigeon in other parts of the world. A few hundreds at most, being as many as sre ever seen together for any length of time in one plsce.

They are found in the foothills and lower monntains of the Sierra Nevsda and Cosst Range, principally in Autumn, at the sesson of the ripening of the madrone berries. Their food consisting of herries, the seeds of weeds and grasses, and grains. The Cslifornia pigeon is remsrkable for its symmetry of form, the exreme rapidity snd elegsnce of its flight. It propels itself hy quickly repeated flappings of the wings, hringing these at times closely to the body with firm strokes, and, before alighting, breaks the force of its flight hy several rapid beats, as though fearing injury from coming too snddenly into contact with the ohjectupon which it may desire to rest.

The male of this species has the throat, hresst and sides brownish red; sometimes with a purplish tint, under parts of the body pale slate color or bluish white. Head hlue; hind part and sides of neck changing to gold, green and hright crimson. Upper part of body blue; wing coverts marked with black spots; quills dark slate, almost black; tail feathers dark brown and blue. The female has a similar distribntion of colors, hut very mnch duller than the male.

The eastern pigeon, thongh not possessing the strength, size or weight of the California bird, is nevertheless capable of moving throngh the air at a mile a minute; and it has been killed in New York with its crop yet filled with rice collected from the fields of Georgia or South Carolina, which it must have left only five or six hours hefore. We say *only*, because as they digest their food rapidly, they must necessarily have travelled the distance within the time allowed, in order to have arrived with the rice still in its perfect, unsoftened state.

The shape of their body is oval, with a sharp pointed tail, admirably constructed for rapid evolutions, and also furnished with a pair of long wings, moved with large and powerful muscles. The rapidity with which this bird will pass through a wood is perfectly astonishing, threading its way among the closely-grown branches with nnerring course, it flashes upon the sight like a meteor, and is gone from our gaze.

The flesh of the California pigeon is dark, bnt its juices are rich, and by many is much liked. The young, or squobs, as they are termed, are very tender and delicate, and much more esteemed as food than the adult birds. They generally select the tallest trees they can find to breed in, and as many as a hundred nests are often seen on a single tree. The conduct of the male at this time is much like that of the domestic pigeon, elevating and depressing the body, swelling out the throat, and expanding the tail, he moves arouud the timerons female, uttering the soft coo-coo-coo, so familiar to everyhody who has ever been near a dovecote. They lay only two eggs, elliptical in form snd pure white. The pigeon never nests at auy great distance from water, to which it resorts several times during the day, and when it drinks immerses its bill up to the eyes, and remains until its thirst is satisfied.

THE WILD PIGEON OF CALIFORNIA.—ESTOPISTES MIGRATORIA.

We Commend the Pleasures of the Glass.

The cost of a pocket msgnifying glass is but trifling, yet its possession is almost invaluable ss a source of plessure and instruction. If, while walking in the garden or the field, we apply its power to the leaf, the fruit, the flower, or the form of the minutest insect life, it brings out the wonders of creative skill, of adaptation of means to ends, marvelous ingenuity and complications of wisdom, of which we had previously no knowledge or conception.

Nor is it necessary that we confine its use to living vegetable or animal forms, but take the hroken crystal, the grain of sand, the snowflake or the frost upon the window-pane, and these see through the glass as an aid to ohservation, will teach us lessons teeming with wonder and delight. To our young readers particularly we commend the pleasures of the glass; carry it in your pocket, apply it to whatever of interest or curiosity you meet with, animate or inanimate; the budding leaf, the opening petal, insects emerging from their wondrously formed habitation, the wing of the hee or the hutterfly, in fact everything upon which you can bring your glass to hear and which you can take time to examine, and it will increase your knowledge, multiply your sources of intelligent recreation and imhue your mind with larger and more exalted conceptions of the power and wisdom of the Almighty.

The idea of reclaiming the Colorado desert hy means of artesian wells is being mooted in San Diego. It is helieved by those acquainted with the topography of the country that a large subterranean stream runs under the desert, and that all that is necessary is to bore deep enough to strike it. Congress will be applied to for a land grant as a recompense for boring these wells.

Wild Flowers.

Although nearly the whole list of California wild flowers are entirely odorless and single petaled, in distinction from double flowers, the result of cultivation, yet there are very many of rare heauty; exquisite from their very singleness and simplicity of form aud hight of coloring; they would, if growing hy the side of their more gaudy, double-sisterhood of cultivated flowers, cause a blush—if flowers can hlush—upon their flouncing petals.

May pic-nic-ers from the cities to the country cau attest the beauty of the wild flowers, as worthy the attention, love and fun of picking them; and very many, yesr by year return to city homes from these excursions, fully determined that another year they will have these wild beauties growing in their own gardens. And nothing would he easier if it were possihle to ohtain the seed. But in this lies the difficulty. The seeds are not ripened till mid-summer or autumn, and then all is dried and withered; and with the lost heauty of the flower goes all thought of its possesion as a garden adornment. And thus we go on from year to year, renewing our admiration of them with every returning spring-time, only to be again forgotten. And yet with all our ueglect and forgetfulness, the beautiful wild flowers come again, conducing to our happiness and pleasure because the Giver of flowers will have it so. We ought to love flowers, if only in gratitude to the great Giver who, though wholly unsolicited, annually renews the charming gift.

An interesting trial recently took place in England, wherethe water from a canal found its way into a coal mine, and the owners bronght suit against the canal company for damages. The judge held that although the owner of the mine had been compensated for the use of the surface ground by the company, any damage to the mine must be paid for by the company, the canal company had the right to carry the water over the mine, but were responsible for any injnry that might occur.

A powerful disinfectant, especially adapted to the destruction of insects, is prepared by passing sulphurous acid into alcohol.

Artesian Wells in Nevada.

Hon. C. W. Kendall, member of Congress for Nevada, has introduced into the House of Representstives, a bill to encourage the sinking of artesian wells upon the public lands in the State of Nevada, and supported it with a very interesting speech showing the general utility of such wells and their special applicstiou to the Great American Basin, near the center of which the State of Nevada is located. We think there can be no question as to the feasibility of a general system of irrigstion being established for that region by the sinking of such wells. The country is almost destitute of rivers, at least to such an extent as to render any extensive cultivation impossible hy any other mesns than the one suggested.

The "encouragement" asked for is simply a fee to a certain extent of land adjoining any wells which msy he sunk to a depth which will yield a sufficient qnantity of water for their irrigation. The amount of lsnd to be donated is left hlank in the hill, to be filled up as it msy be deemed advisable from suggestions and facts which may be brought out in the course of debate and consideration of the hill, previous to its final pssage in the House. We certainly can see no reasonable objection to the passge of such a bill, provided no more land is taken than any given well can properly irrigate. The land is generally worthless without such wells, and as the government does not propose to go into the hnsiness of well digging, it had better give a little to any one who will give a value to the land, and thus add to the taxable property of the country.

With regard to the amount of land which shonld be granted to each well, the Humholdt *Register* says:—"This is not an easy question to answer satisfactorily. If the estimated cost of each well is five thousand dollars then it would reqnire a grant of six sections of land to cover the cost; estimating the land at Government price. Then again, it is believed that a well flowing twenty inches of water, miner's measurement, would not he sufficient to irrigate more than 100 acres, while some ranchmen say that 20 inches of water will not more thau sufficiently irrigate 80 acres. As 160 acres in all probahility, will he all that can be irrigated by one well, we would suggest that amount as the size of the grant. It will make no material difference, whether the grant is for 160 or 640 acres, as a well would have to be sunk on each quarter section to make the land of any value. The land, without irrigating is of no value whatever, and it will he a wise act on the part of the Government to give all such land to settlers who will nndertake to reclaim it."

Conflagrations have frequently originated in England from the ignition of the illuminating gas at the meter by a lightning spark. It is therefore advisahle always to establish a good counection between the lightning-rods and the gas or water mains outside of the building.—*H. Wilde.*

Cotton Seed Meal.—English farmers consider cotton-seed meal one-third more valuable for feed to stock than the best corn meal.

Useful Information.

Facts About Glue.

The best method of preparing and using a substance which enters so largely into wood working processes as that above named, is a matter which should be thoroughly understood by those who have occasion to handle it. Some difference of opinion has existed on the question whether an admixture of carbonate of lime, or Paris white, which is the form in which it is generally employed, is an improvement to the quality of the glue. The most reliable experiments, however, have apparently established the fact that if very fine and pure Paris white is used, in limited quantity, and thoroughly incorporated with glue, the result will be highly advantageous, not only the appearance but the sticking quality also being improved. Bone dust has been proposed instead of Paris white, but its gritty nature is an insuperable objection; it refuses to unite with the glue, and renders it less serviceable. Similar injurious effects have resulted from employing certain chemicals, such as carbonate of soda, sulphate of zinc and oxalic acid, which have been experimented upon in compounding an opaque glue.

Transparent glue may be tested by holding it to the light, when it should show no specks, but be perfectly clean and clear. When immersed in cold water it will, if of the best quality, swell without melting, and when dried will return to its former size. After being swelled in cold water, its tenacity may be increased and liability to injury by dampness prevented by immediately immersing it in linseed oil, and heating it until dissolved. When dry, it will be proof against moisture.

In preparing glue for use, it should be first cut into small pieces, and immersed in cold water for about twelve hours. It is then placed over a fire and the temperature gradually raised until the glue is all dissolved, the softening having been accomplished by the previous steeping in cold water.

A strong liquid glue is made by combining three parts of the glue with eight parts of cold water, letting it stand for a few hours to soften the glue, then adding half a pint of muriatic acid and three-fourths of a part of sulphate of zinc, and keeping the whole mixture for ten or twelve hours at a heat of 185 degrees Fahrenheit. When cool it will remain liquid, and is highly recommended as an adhesive agent were wood, crockery or glass is to be subjected to its action. A superior quality of liquid is also obtained by dissolving gelatin or dextrin in acetic acid and alcohol. The best liquid glues, it has been found by scientific analysis, require to be surrounded by tepid water to make them assume the liquid form; those which present that condition at an ordinary temperature being usually of an inferior grade.

A somewhat novel test of the quality of glue is described by an English writer, who proceeded on the hypothesis that the glue which will take up most water is the best. He took 50 grains of glue, dissolved it in three ounces of water in a water bath, and when dissolved left it for twelve hours to gelatinize. He then placed an ounce chip box on the surface of the gelatin, and put shot into the box until it sank so far as to bring a mark previously made on the side to the level of the gelatin. The comparative strength of the different kinds of glue thus tested is denoted by the amount of shot which each will sustain before the mark is brought down to the surface. The finest glue tried by the experimentor referred to bore up six ounces of shot at a temperature of 58 degrees.

For cabinet makers' use, black glue is often selected; but the amber colored article has been proved by thorough experience to be the most suitable for that kind of work.—*Mechanic and Inventor.*

Brilliant Achievement in Wool Manufacture.—A story is told by English papers which, if true, or nearly so, very forcibly exemplifies the near approach of perfection in woolen machinery, so far at least as the annihilation of time is concerned. The story is to the effect that a gentleman in Newberry, England, recently made a wager of $5,000 that at eight o'clock on a particular evening he would sit down to dinner in a well-woven, well-dyed, well-made suit of clothes, the wool of which formed the fleece on sheep's backs at five o'clock that same morning. Two sheep were shorn; the wool was washed, carded, stubbed, roved, spun and woven; the cloth was scoured, fulled, tented, raised, sheared, dyed and dressed; the garments were made. At quarter past six he set down to dinner, at the head of his guests, in a complete damson-colored suit—thus winning the wager with one hour and three-quarters to spare. In this achievement the improved sewing machine is entitled to a full share of credit.

A Hint for Settlers.—Eighty acres is all that can now be held under the homestead act on the even sections within thirty miles of the railroad line, the odd sections being railroad land, except such as are ready secured by pre-emption. A pre-emption claim is only good to the original settler, until complete, or if conveyed to others, must run the regular time without counting the original settler's time in such purchase of an incomplete pre-emption right. One hundred and sixty acres, however, can be pre-empted on government land within the railroad line, by paying $2.50 an acre.

Useful Hints.

Why are some things of one color and some another? As every ray of light is composed of all the colors of the rainbow, some things reflect one of these colors and some another.

Why do some things reflect one color and some another? Because the surface is differently constructed, both physically and chemically, and therefore some things reflect one ray, some two rays and some none.

Why is the rose red? Because the surface of the rose absorbs the blue and yellow rays of light, and reflects only the red ones.

Why is the violet blue? Because the surface of the violet absorbs the red and yellow rays of the sun and reflects the blue only.

Why are some things black? Because they absorb all the rays of the light and reflect none.

Why are some things white? Because they absorb none of the rays of light, but reflect them all.

What is the cause of the wind? The sun heats the earth, the earth heats the air resting upon it; as the warm air ascends the void is filled up with a rush of cold air to the place, and this rush of air we call wind.

Hints on House Building.—A paper on this subject, read by Edward Roberts, F. S. A., before the Royal Institute of British Architects, closes as follows:—

1. Never allow pervious drains in pervious soils.
2. Never allow a cesspool or drain near a well.
3. Never select gravel as a building-site if well drained clay can be obtained.
4. Never allow drinking water to be drawn from a cistern supplying a water-closet.
5. Never allow waste-pipes to be inserted into water-closet traps.
6. Never allow rain-water to run to the ground if it is required above.
7. Never allow water to stand in pipes exposed to frost.
8. Never allow pipes to be fixed so that they cannot empty themselves.
9. Never ventilate except by pipes or tubes; inlets and outlets being of equal size.
10. Never use glazed earthenware pipes for upward flues.
11. Never allow chandeliers to be the exclusive light merely because it has been customary.

The following extraordinary case of spontaneous combustion is related by the New York *Insurance Journal:* A lady watching at the bedside of her husband, was astonished, about midnight, to perceive flames burst from the surface of a dressing-table from no apparent cause. Upon the table was some writing paper and the table-cover, with an open newspaper spread above them. Although alarmed, the lady was not unnerved, and cast the burning mass into a contiguous vessel, where the flames were soon extinguished. In searching her memory for a cause for this perilous incident, she remembered that a day or two previously, she had saturated some linen with sweet oil to be laid over a blister, and had left it for a short time upon the table, occasioning a grease spot on the cover. The paper was laid upon this spot. Probably, accelerated by the temperature of the room, combustion commenced on the greased cloth, communicated to the paper, and slumbered until the oxygen of the atmosphere was the final cause of the flame.

Potatoes a Century Ago.—Here is some information about the status of potatoes a century ago: This root increases prodigiously, and is very proper for feeding and fattening cattle. They are boiled in water, and require but little boiling, though they may have been kept two months in the store. Cattle eat them raw, but for the table they are wholesome boiled. I earnestly recommend the culture of this plant to husbandmen, as it is not only excellent food for cattle but good for men in years of scarcity. After a little use the taste becomes at least as agreeable as turnips, and particularly if the potatoes are boiled with bacon and salt pork. The consumption of them in the English islands is astonishing, and many are eat in the French provinces. They yield a very white meal, which mixed with wheat meal makes good bread. I have eat it when there was no more meal in it than was necessary to make it rise.

Artificial Incubation.—Those wiseacres who are forever puttering over egg-hatching machines, imagining they are going to beat mother nature, will finally learn to respect her ways. An egg has been happily pronounced a masterpiece of creation, but it is no more so than is a feather. The covering of birds combine in a wonderful manner, lightness and complete ventilation. It is a first rate non-conductor of heat, and repels dirt. Then the vital fires, consuming grain for fuel, keep up a heat gauged with more nicety than the clap trap of valves and self-regulating lamps can ever attain. We admire your ingenuity, inventors, but we want none of your artificial appliances so long as good motherly biddy is available.—*Poultry World.*

The depopulation of the Arctic coasts by the removal of the chief means of subsistence of the inhabitants is a question involving only a short time, if the rate of destruction of the seals and walrus is not soon diminished.

The cost of leeches, sold in Europe, exceeds $10,000,000 per annum. The finest are said to come from the Murray River, Australia.

Good Health.

Sleeping.

It is nothing short of murderous for one person to sleep habitually in a room less than twelve feet each way; and even then the fireplace should be kept open, and a door ajar, or the windows raised at bottom, or lowered at top, (both better;) this creates a draught up the chimney, and carries off much of the foul air generated during sleep. A little fire, or a lamp, or jet of gas burning in the fire-place, increases the draught. As the air we breathe is the chief agent for removing all impurities from the blood, the more effectual as it is purer, it must be plain to all that the room in which we spend a clear third of our entire existence should contain the purest air possible, and that this must have an immense influence on the health. Hence, our chambers should be large and airy—the higher above the ground the better—with windows facing the south, so as to have all the benefit of sunlight and warmth, to keep them dry and cheerful. Besides a few handsome pictures or paintings on the walls, illustrating what is beautiful and elevating, there should be no furniture except a table, a dressing bureau, and a few chairs, all without covering. With the exception of the bedding and a clean dry towel, there should be no woven fabric, neither carpet, curtains, nor hanging garments; for these, especially if woolen, retain odors, dust, dampness, and seeds of corruption and disease for months. There should be a hearth-rug at the bedside, to prevent the bare feet from coming in contact with the cold floor, on getting out of a warm bed. No liquid except a pitcher of cold water should be allowed to remain five minutes in a sleeping-room. The deadly carbonic acid gas which comes from the lungs at every outbreathing of the sleeper, rises to the ceiling in warm weather, but falls to the floor when the room is freezing cold. Hence, in summer, the purest and coolest air in a room is near the floor; in winter the foulest.

To Sleep Soundly.

With many the inability to sleep, as a growing habit, is the first step toward certain madness: in every disease it is an omen of ill. Hence, to cultivate sound sleep, do not sleep a moment in the daytime; go to bed at a regular hour, and never take a "second nap" after waking of yourself in the morning. Take nothing after dinner but a piece of cold bread and butter, and one cup of hot drink—*not* China tea, as it makes many wakeful. Never go to bed cold or very hungry, nor with cold feet. Read nothing after supper, listen to nothing, talk about nothing of a very exciting character; avoid carefully every domestic unpleasantness, as to child, servant, husband, or wife. Let no angry word be spoken or thought harbored for a single instant after tea-time, for death may come before the morning-light. Grown persons generally require seven hours' sleep in summer, and eight in winter. Few indeed, except invalids, will fail to sleep well who go to bed at a regular early hour, on a light supper, in a large room, and clean, comfortable bed, if there is no sleeping in the day-time, and not more than seven hours in any twenty-four are passed in bed. One week's faithful trial will prove this. Children, and all persons at school or engaged in hard study, should take all the sleep they can get, and should never be waked up in the morning after having gone to bed at a regular early hour.

Coln on the Lungs.—If a cold settles on the outer covering of the lungs it becomes pneumonia, inflammation of the lungs, or lung fever, which in many cases carries the strongest man to his grave within a week. If a cold falls upon the inner covering of the lungs it is pleurisy, with its knife-like pains, and its slow, very slow recoveries. If a cold settles in the joints, there is rheumatism in its various forms; inflammatory rheumatism, with its agonies of pain, and rheumatism of the heart, which in an instant sometimes snaps the cords of life with no friendly warning. It is of the utmost practical importance, then, to know not so much how to cure a cold as how to avoid it. Colds always come from one cause—some part or the whole of the body being cooler than *natural* for a time. If a man will keep his feet warm always and never allow himself to be chilled, he will never take cold in a lifetime, and this can only be accomplished by due care in warm clothing and the avoidance of draughts and undue exposure. While multitudes of colds come from cold feet, perhaps the majority arise from cooling off too quickly after becoming a little warmer than is natural from exercise, or work, or from confinement to a warm apartment.—*Wood's Household Magazine.*

Health of Farmers.—There are seven reasons why farmers are healthier than professional men, viz:

1. They work more and develop all the muscles of the body.
2. They take exercise in the open air and breathe a greater amount of oxygen.
3. Their food and drinks are commonly less adulterated and far more simple.
4. They do not overwork the brain as much as professional men.
5. They take their sleep during the hours of darkness, and do not try to turn night into day.
6. They are not ambitious and do not wear themselves out so rapidly in the fierce contest of rivalry.
7. Their pleasures are simple and less exhausting.

Destruction of the Germs of Disease.—As the result of a series of experiments on the destruction of low forms of life by heat, Dr. Crace Calvert demonstrates that the germs of disease will withstand a temperature of 300 degrees Fahrenheit. Exposure to such a heat as this injures the fibers of all kinds of cloth so seriously that they are unfit for further use. It is therefore evident that the mere agency of heat cannot be depended upon for the destruction of the germs or corpuscles attached to the clothing of persons who have suffered from any contagious disease.

The necessity for a change in opinion regarding the power of chlorine gas to accomplish this purpose is urged in a recent report of the New York Board of Health on the disinfection of clothing and rooms that have been exposed to contamination by small-pox. In the report in question carbolic acid is especially recommended for the disinfection of clothing and bedding, and sulphurous acid gas prepared by burning sulphur for the disinfection of rooms. The latter substance especially seems to have the power of utterly destroying the germs of small-pox, while chlorine frequently fails altogether or only accomplishes the object in an imperfect manner.

Treatment of Sun Stroke in India.—A late writer in *Public Opinion* says: "On one of the very hot days we had recently no fewer than nine men were struck down by sun stroke in the Lahore Central Jail. They were all quite insensible, and only able to breathe in the stertorous way peculiar to the ailment. The Superintendent, Dr. Lethbridge, had them laid out in a row on the cool floor of the Hospital, and there watered them copiously and continuously for five hours by means of bheeties with mussucks, before much improvement was perceptible. Every man recovered, and it is to be noted as a circumstance of considerable importance, that although all the cases were of the most serious kind, the simple remedy of a continuous and long continued supply of cool water was at last sufficient. The remedy, continued only for half an hour, and perhaps interrupted every time the mussuck was empty, would evidently have been of no avail. We recommend the account to the attention of all travelers, and, indeed, of every one liable to be exposed to the heat of the sun."

Treatment of Rheumatism.—*Cassell's Household Guide* says the treatment of rheumatism should vary, according as the rheumatism affects the muscles or the joints, and relatively to the age of the patient, and the general state of health. People of a rheumatic constitution may greatly save themselves by care in regard to a few particulars. First, the avoidance of exposure to cold, and especially to cold and wet together—flannel and other kinds of warm clothing being obviously proper. Their food, while it should be nourishing, should be simple. Beer and porter, as a rule, should be avoided—they are rheumatic drinks. When the patient can command a change of climate, one that is mild, uniform, and above all, dry, will be the best. For rheumatic pains in the muscles, as of the back or neck, one of the best remedies is to cover the affected part with a piece of flannel, and rub it over with a hot iron every night before going to bed.

Severed Toes Replaced.—A writer in the Wilmington *Commercial* says: In relation to the man whose toes were cut off, and after conveying them nearly two miles to his home and having the use of them afterward by being replaced, you wish to know if there ever was anything on record similar to it.

In reply, I would state that in 1855, while playing with a hatchet in the yard, I cut the two fore fingers of my left hand entirely off. They remained off till Dr. Baker arrived, when he sewed them on nearly one hour afterward—the same doctor that replaced the toes.

The hatchet being dull, it tore the fingers more than to cut them clean off, consequently it was more difficult to unite them, but for the past sixteen years I have had free use of them both, and the marks of the wound are scarcely perceptible.

Every humane parent will make it a religious duty to arrange that every child shall go to bed in an affectionate, loving, and glad spirit. If wakeful during the night, get up, draw on the stockings, throw back the bed-cover to air it, walk the floor in your night-gown, with the mouth closed, all the while rubbing the skin briskly with both hands, until cooled off and a little tired. Except from August first to October first, in fever and ague localities, a chamber window should be open two or three inches in length.—*Dr. Hall, on "Sound Sleep."*

The Teeth in the insane are prone to undergo certain changes. Dr. Langdon Down, who read a paper on this subject recently before the Odontological Society, states therein that from the examination of nearly one thousand cases he has found that he could in the majority of instances state the period at which the imbecility or insanity began.

Poisoned Air, that so frequently gains access to rooms from the sewers, is the cause of many an attack of fever. All contamination from this source may be avoided by relieving the pressure on the traps of the waste-pipe by means of a tube communicating with the open air at the top of the house.

The Insane in the Surrey County Asylum, England, have been treated to a course of private theatricals with excellent results. The patients were spectators, not performers.

Scientific Press.

W. N. EWER.....SENIOR EDITOR.

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ILLUSTRATIONS AND REPORTS OF MINING ENTERPRISES WANTED.—Drawings or photographs of mining works that are of general interest to our readers are solicited for publication in this journal. Official reports of Companies, and description of mines of importance, or of special interest, are also desired. Sketches of any new method and discoveries will be very acceptable.

San Francisco:

Saturday Morning, May 11, 1872.

Gold and Legal Tender Rates.

SAN FRANCISCO, Wednesday, May 8, 1872.—Legal Tenders buying, 90¼; selling, 91. Gold in New York to-day, 112.

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RICH SPECIMENS.—A number of beautiful specimens are on exhibition in a jeweller's window on Montgomery street, from the Cedarburg mine, in El Doredo county. The gold is leaf and thread gold, and the appearance of the rock is very handsome. The specimens are very appropriate for cabinets, and will doubtless find their way into numerone collections. A howl of gold, 69 onnces, is also shown, and attracts considerable attention.

THE FREAR STONE.—We would call the attention of builders and others interested, to an advertisement of a company of gentleman about to commence the manufactnre of thie patent stone in San Francieco. It ie an important enterprise, and we shall have more to say about it after seeing specimens.

MASTODON IN COLORADO.—Capt. Berthoud has recently discovered a portion of an elephant or mammoth tusk two feet, eight inches long, and eight inches in diameter, ten or fifteen feet below the surface, in the gold-bearing gravel of the Patch or Hill diggings, in Clear Creek Valley, five miles above Golden, Colorado.

THE French Corral Ditch, when completed, will be about 50 miles long, and he of great importance to the mining interests of Sierra and Nevada counties. It will furnish water to many claims along the line which have been lying idle for want of it.

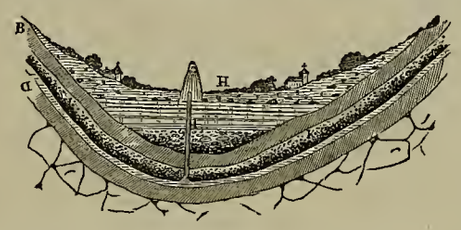
WE have received a box of specimens from W. C. McDougall which we have not yet had time to examine.

Mining Stocks.

The long expected decline in the mining stock market has come at last, and everything has dropped to a comparatively low fignre, most of them to the prices ruling before the excitement. For the last few weeke those who had loet by etock speculatione were few, now the exception has become the rule, and long faces are plenty on California etreet. The only advance to note in the market ie the Crown Point, the value of which is admitted by all, and which most probably assisted in infleting many other descriptions far above their real value. There is no doubt, however, of the existence of large and valuable bodies of ore in some of the mines that have dropped, and it is to he eupposed that those deecriptions will again rise to a properly proportionete value, and es usual cerry up adjacent mines with them.

On Friday, the 3d, etocks were generally strong, and Crown Point rose to $1,750 cash and 1,800, huyer 30. Crown Point advanced over the previous day $150, Imperiel $60, Confidence $55, Yellow Jacket $50, Hele & Norcroes, Overman and Savage, each $25, Alpha and Segregated Belcher, each $10, Exchequer $20, Caledonia $5, Eclipse $4, Sierra Nevada and Trench, each $6, Chollar Potosi $250, Belcher declined $50, Gould & Curry $30, Ophir $8, Consolidated Virginia $5.

On Saturday the 4th inet., the market was weak and nearly everything wae lower.



Hale & Norcross declined $105 from previoue day'e eales, Kentuck $70, Bullion and Imperial, each $50, Cholla Potoei $42.50, Savage $65, Alpha $40, Gold & Curry and Yellow Jacket, each $30, Exchequer $22, Caledonia $21, Overmen $20, Consolidated Virginia $13, Segregeted Belcher $5, Sierra Nevada $4, and Buckeye $3.

On Mondey the 6th inst., the market was again weak. Alpha advenced $15, Choller Potosi $5 to 10, Crown Point eold at $1,900, Hele & Norcroes advanced $25, Gonld & Curry $20, Ophir $8, Savage $20, Yellow Jecket $5, Belcher declined $50, Caledonia from $5 to $7.50, Consolidated Virginia $25, Kentuck $60, Overmen $20 and Exchequer $3.

On Tueeday business was very light, the lighteet for eome time pest. Gold & Curry declined $70, Yellow Jacket $75, Imperial $85, Confidence $65, Segregated $60, Belcher $50, Overman and Savage, each $45, Alpha $20, Exchequer $10, Caledonia, Hale & Norcrose and Ophir, each $5, Sierra Nevada $8, Choller Potosi gained $50, and Crown Point sold at 1,825 against the lest previoue cach sale of $1,750.

We dnesday everything went down fear fully and the generel weak tone of the market resulted in a panic. Beicher declined from noon the day hefore $300, Alpha, Ophir and Yellow Jacket, each $40, Kentuck $75, Savage $35, Consolidated Virginia, Hale & Norcroee and Segregated Belcher, each $25, Caledonia $32.50, Chollar Potosi $82.50, Exchequer $10, Sierra Nevada $7, Imperial $5, and everyth ing else in proportion.

On Thursday stocks recovered slightly from the day hefore, though the market was still weak; Crown Point sold from $125 to $175 lower than on Tuesday. Gould & Curry dropped $45 from eame Board, and Imperial $85; Hale & Norcrose wae $5 and Chollar Potoei $250 lower.

From the closing eeles on Wedneeday noon Belcher advanced $200, Caledonia $40, Segregated Belcher $27.50, Kentnck $25, Savage $320, Confidence $20, Alpha and Exchequer each $15, Ophir and Overman each $10, and Sierra Nevada $5.

The chief reaeon in the break in etocks is most probably a want of confidence in the unusnally high prices which have prevailed for eome time and a general desire to realize. The reports from the most of the mines are encouraging, although out of the 150 mines called at the Board only four or five are paying dividends. The Belcher declares $312,000 payahle on the 10th inst., and has paid five this year, one of $10, two of $15, one of $20 and this one ie $30, making in all $936,000. The Crown Point paid one of $10, two of $15, one of $25, and the one payable this month ie $40, aggregating $1,260,000. The Meadow Valley hae paid two dividende of $1.50, and one of $1, aggregating $240,000. The Reymond & Ely in four dividends has paid $660,000. The total for four months of all these minee ie $3,036,000. The decline in Yellow Jacket occurs in the fece of important discoveries, and the connection of the ore in the Hale & Norcross, and Chollar ie known, yet the latter etock is depreesed. The Raymond & Ely yielded $317,710 in April. Reports from White Pine minee are favorable, ae the roeds are open and the accumnlated ore on the dumps will now be milled. The Washoe mines are all in a flonrishing condition as the local papers would eeem to indicate.

The nnmber of newly incorporated mining companiee this week is large, ehowing that confidence in mining mattere is not lost, and eeveral companies are about increasing their cepital etock. Whether pricee will go lower or again rise, remaine to be eeen. The rise in etocks resulted beneficially in one way at least—that of creating new companies to develop mines in known regions under the eupervision of men well known in the community. Some of theee enterpriees will of course amount to nothing, hut among them all, they cause an activity of trade, and eome of them ought to increase the demand for labor end at the same time increese our bnllion product. The new mining law has given considerable impetus to mining affairs, and has inspired confidence among investore, and it ie to be hoped that the actual development of ore will be the object of new organizations end not the profit likely to ecrue from the fluctuations of stock. Stock dealing itself does not assist in the increase of generel wealth, but by attracting the attention of men of meane to our mineral resources it will exert a beneficial influence.

The excitement that has lately existed, has however, had a demoralizing tendency on the community, for everybody went in on general principlee without regard to anything, eave the chance of making money rapidly. Many people now find themeelves considerahly poorer if not wiser. Still eome continne to buy largely, in hopee of realizing by a turn in the downward movement. The large amount of money expected from dividends and the general prospects from the mines, inspire many with a helief that the tone of the market will again change favorahly, and confidence be renewed. The recent excitement is unprecedented in the history of our mines, and pricee have reached a figure that few ever dreamt of, though it ie eomewhat singular that etock in minee ehowing no immediate prospect of paying a dividend, eell higher than those which are actnelly paying them now.

The dividende this month are handsome ones and the owners of eome of the mines are fully justified in their expectation of a continuance. It is eeid thet the money market here ie eesy and there is no difficulty in legitimate borrowers getting accommodated. The bullion yield continuee unabated. We hope new that the excitement is over that many of those persons who have tried their luck in etocke will turn their attention to mining itself as a legitimate investment not ae a etock operetion, for the mining intereete of this Coaet fer from being on the decline or an experiment are jnst beginning to become what they should be—the leading interest. Stock epeculations are to be deplored by all mining men eince they generally do more harm than good to the bueineee. As we go to prees etocke again ehow an upward tendency, and it ie eupposed by many that they will regain the lately ruling high prices.

Artesian Wells.

What are arteeian welle? According to Buckland, in hie celebrated Bridgeweter treatise on geology, the name of Arteeian well ie applied to any perpetually flowing artificial fountain obteined by boring through etrata, that are destitute of water which will ascend to the surface, into lower etrate charged therewith. The name is derived from *Artois*, (the Artesium of the ancient Latins) where the making of euch wells has for a long time been practiced.

The reaeon why water will eometimes rise to or above the eurface, throngh a bore hole in the earth, is shown by the following diegram: Suppoee *B* and *D* to be two etreta of clay, or eome formation impermeable to water, and *K* be a stratum of eand or gravel hetween them. The rain that falls on the hille at either side will filter down through this sand or gravel, and collect in the hollow between the cley etrate where it cannot eecape. If now we bore down to *K*, the water thus confined will rise to the enrface at *H*, or coneiderably above it. The hight will depend upon the pressure of water which has accumulated in the eloping epece between the impervioue beds. It will be readily understood that it is only where the natnre and arrangement of the geological etrata are euch ae we have described, that an artesian well is possible.

Artesian Wells 4,000 Years Old.

Although artesian wells took the name by which they are now known from a French proviuce, where they were firet employed in Europe, only about 600 yeare ago, there are euch wells actually exieting which are known to be thousands of years older than the history of Artoie. Artesian wells were sunk in the vicinity of ancient Thebes, when thet city was at the hight of its prosperity, or not less than 4,000 yeare ago. They were sunk hy firet excavating shafts or wells from eix to eight feet in diemeter, through about 80 feet of clay and marl, from the bottom of which six and eight inch wells were bored or drilled through ahout 300 feet of limeetone. At the bottom of this limestone the water-hearing sands were met from which the water seemed to have risen and run over the top of the excavated well.

According to Professor Anstead, some ench wells which were sunk in the Libiyan Deeert have been cleaned out in modern times, and euccessfully restored to nee. Other wells, of very ancient but unknown date, were suuk by the Chinese, who have long known and used this method of ohtaining water.

The Sitka silver excitement is likely to euhside eince the rock from there has been assayed.

The Earthquake Underground.

One of our correspondents in Inyo Co. writes us and says that he has seen a statement that is going the rounds of the press, that the earthquake of March 26th was not felt in the mines at Benton at a depth of 200 feet. He says that it is true the shock was not felt there, for the simple reason that no one was in the mines at the time, but subsequent ones have been very distinctly perceived underground. This statement, from a reliable gentleman, will overthrow the misstatements which have heretofore appeared, and which were likely to mislead those who usually look below the surface of all questions of a scientific nature.

Another correspondent writing on the same subject says that the statement that the miners underground at Cerro Gordo did not feel the shock of the 26th of March, is far from being the case. The big shock was felt quite as severely 400 feet below the surface as it was in the open country above. Nearly all the miners dropped their tools instantly and hurried to the surface with all possible dispatch, nor did they venture below again until the second day after the shock. In the Union Mine a cave of 20 tons or more of dirt occurred, completely shutting up the main shaft from the tunnel. The whim horses in the mine, stalled some 500 feet from the surface, were so badly frightened as to become quite unmanageable, nor did they acquire their usual feeling of security for several days afterward.

Although many of the subsequent shocks were not felt by the miners of the Cerro Gordo underground, it is noticeable that some of the lighter shocks—mere vibrations—were felt at a depth of 400 feet, vertically from the surface. Our correspondent states that in order to satisfy themselves in this point the miners constructed two self-registering indicators, placing one in the place of residence on the surface, and the other at the end of an adit, where perfect stillness prevailed, and at a depth of 450 feet vertically from the surface. The result of the first trial of twelve hours was a record on each at the same hour and minute—five shocks being recorded in the twelve hours. But one of the five was felt by the miners working 100 feet distant. Only three were felt by persons above ground. The second trial corroborated the first—three shocks being recorded in each place. The general opinion there is that with properly constructed instruments that at no depth attained in the mines do the shocks cease to be felt.

Death of a Capitalist.—F. L. A. Pioche, well known as a capitalist and friend to the mining interests of this coast, and in whose honor the town of Pioche was named, committed suicide in this city last week. By a provision of his will his paintings, drawings, sketches and engravings and objects of art, his books and mineralogical, geological and conchological collection are to be given to the University of California. He bequeaths, also, $5,000 to cover the costs of arranging and classifying them, and requests that a room be set apart for their special accommodation, which shall be open to the public freely at fixed and frequent periods, as is the case with museums in Europe, so that students and patrons of the arts and sciences may there instruct themselves and increase the sphere of their studies and their knowledge of facts that may be of use to hasten the progress and development of this country. The collection of minerals, etc., is a fine one and will be a valuable addition to that already belonging to the University. It might be well for the Regents to add a little more to the money left by Mr. Pioche, and make a place large enough for them to exhibit their whole collection, which now lies out of sight in the rooms of the State Geological Survey, and is of no practical use as far as instruction to students is concerned.

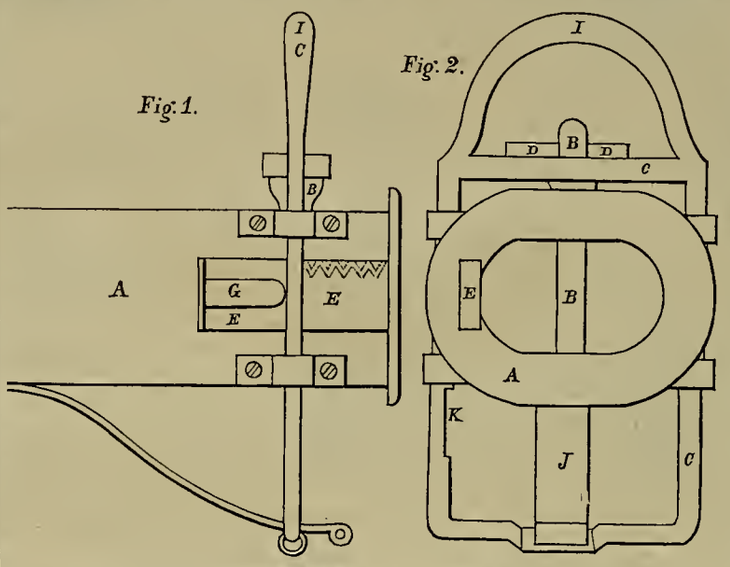
An Improved Car Coupling.

The accompanying cut represents an improvement in car couplings, recently patented, which is operated automatically, and is intended to facilitate the coupling together of a train of cars without danger to life or limb, and to facilitate the uncoupling of the same by an attendant on top, or at the side of the cars.

Figure 1 is a side elevation, and figure 2 an end view of the car coupling. *A* represents the bumper, *B* the coupling pin, secured to the vertical sliding frame *C*, by the key *D*. *E* is a sliding bolt, provided with a suitable spring, shown in the dotted lines, and also provided with a stop lug, or projection, *G*. To the handle *I*, forming part of the frame *C*, suitable rods or chains lead to the top of the car, or may be attached to the side by means of a pulley, bell-crank or lever, as deemed advisable.

The drawing represents the position of the different parts when the cars are coupled; the car having the usual link is secured to the coupling in this improvement by means of the pin *B*, the pin *B* and the frame *C* being held down by the spring *J*.

When the handle *I* is grasped, and the



AN IMPROVED CAR COUPLING.

frame *C* is drawn upward until the notch *K* comes opposite the stop *G*, the spring shown by the dotted lines will cause the bolt *E* to move upward and project beyond the face of the bumper; and the lug, or stop, *G*, will prevent the frame from being drawn downward by the spring *J*, when the handle is released and the bolt, or coupling-pin, *B*, has been drawn up so as to release the link, the uncoupling will have been effected and the apparatus ready set for automatically coupling the next car, by the impact of the bumper of said car with the projecting end of the sliding bolt *E*. This sliding bolt will be forced back by the impact until the stop, or lug, *G*, has passed out of the notch *K*, when the frame *C* is drawn by the spring *J* to the position shown in the cut.

By the means above described the old-fashioned method of making a man go between the cars, hold the link and put in the pin, is entirely done away with, and a safe and convenient one adopted. The cars are coupled by the impact and are uncoupled by a person stationed on top of the cars, or by means of a chain or rod leading to any desired position, without danger to the operator. No attendant is required, of course, to couple the cars. Further information concerning this patent may be had from R. O. Tripp, of Woodside, San Mateo county, Cal.

An important suit is now in progress in Nevada between the Hidden Jewel and Lemon mining companies for the possession of a valuable mine in Eureka District.

A Sensational Affair.—Quite a sensation was created in this city on Wednesday by the publication of a series of rumors, which had been quietly circulated in stock circles for several days previously, relative to the alleged origin of the fire which occurred in the Yellow Jacket mine some three years ago, and by which thirty-eight lives were destroyed. The principal parties involved in the trouble are two well-known and wealthy mine and stock operators—William Shaw and J. P. Jones. It is alleged that the former gentleman charges the latter with having caused the fire alluded to, and has endeavored to suborn a witness to testify in the matter. The charge is indignantly repudiated. An unfortunate condition exists in the fact that the two are bitter political rivals, and have been on unfriendly terms for some time past. Disclaimers are put in all round.

The effect of the publication was the creation of an intense excitement on the street and a breaking down in the stock market. Public sympathy is mostly with Mr. Jones, against whom the shaft has been hurled. We refrain from entering into any particulars, as we presume the whole matter will be made the subject of judicial investigation, whereby the full facts will be elicited, and justice be meted out to all parties concerned. The affair appears to be one of a purely personal and partisan nature since affidavits seem to be sought for publication, rather than information for the procurement of indictments, by which the ends of justice, simply, might be reached.

The Cedar Creek Gold Mining Company have put their stock on the London market, with a capital of £200,000 in 40,000 shares. The mines the new company propose to purchase, are in Dutch Flat and Gold Run, in Placer county, and are gravel claims to be worked by hydraulic process. The water rights of the company are extensive. The purchase price is £190,000, of which £90,000 is in shares.

The Peat Discoveries.—A dispatch from Los Angeles states that the commission appointed by the Common Council to examine the peat deposits, recently discovered between that place and Wilmington, have returned with samples of a fair quality. Investigations will be made to ascertain its true thickness and value at different points between Los Angeles and the sea coast.

The House Mining Committee in Congress have agreed to report favorably on the bill, providing that the United States shall guarantee the payment of the interest on the Sutro Tunnel at a par value of $2,000,000.

Patents & Inventions.

Full List of U. S. Patents Issued to Pacific Coast Inventors.

[From Official Reports to Dewey & Co., U. S. and Foreign Patent Agents, and Publishers of the Scientific Press.]

For the Week Ending April 30th, 1872.

Knee-Brace for Sewing Machines.—Francis E. Mills, New York, N. Y., assignor to Mills Treadle Manufacturing Company, San Francisco, Cal.; antedated April 18, 1872.

Apparatus for Amalgamating Precious Metals.—Edwin J. Fraser, San Francisco, Cal.

Stave Machine.—Lamartine R. Fulda, San Francisco, Cal., assignor to himself, Martin Fulda, and Henry C. Fulda, same place.

Water-Wheel.—Morgan Hungerford, San Francisco, Cal.

Wagon-Tire Tightner.—John Kafader, Jacksonville, Oregon.

Note.—Copies of U. S. and Foreign Patents furnished by Dewey & Co., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency

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Scientific Works.—The Mercantile Library received by last steamer a collection of scientific and miscellaneous works from Victoria, Australia, most of them printed under the auspices of the Colonial Government. Among them is a book embodying the results of meteorological observations taken there from 1859 to 1860, and the nautical observations collected at the Flagstaff Observatory, Melbourne, during the same period; a work by Ferdinand Muller with analytical drawings of Australian maps, plants indigenous to Victoria; vegetation of the Chatham Islands, Victoria; matters relating to the gold fields of Victoria; abstracts of specifications in connection with the preservation of wood, etc., etc. There are eighteen volumes and four pamphlets, some of the scientific works being fine specimens of typography and containing superior engravings.

Discoveries.—The Merced *Tribune* says that a gravel claim with good indications was discovered two weeks since on the Merced River, in Merced county, about 1½ miles above Merced Falls.

A rich gravel strike south of the Canada Hill Mill is reported by the Nevada *Transcript*. The channel is supposed to run through Grass Valley, and into the Rough & Ready Townships, and to be the same which the Murchie Bros. have been working with such good results. The gold is very coarse, and the last run cleaned up $15 per day to the hand.

Quicksilver.—The Oakville quicksilver mine has recently developed a fine body of rich ore, which has so far been sunk upon 20 feet without the miners having gone through it. It is to be hoped that all the mines in that section of country will be equally as successful, when we may hear of this essential metal being quoted at much less than 85 cents per pound. It is said that this mine has 1,300 tons of ore on the dump, including 200 tons of a very rich quality. A new furnace is shortly to be erected.

Fires.—A fire occurred in the Uncle Sam shaft, at Gold Hill, on the 26th ult. No work has been done through the shaft for some time, and the hoisting works were being removed at the time of the fire, having been purchased by the Baltimore Company.

The IXL mill, near Unionville, Montana, was burned down recently. It was built in 1866, and cost $30,000; was worth, at the time of destruction, about $20,000. The origin of the fire is unknown.

Oregon Lead.—Some of the ore from the newly discovered lead mine at the foot of the Cascades in Linn county, Oregon, has been assayed, and, according to the *Oregonian*, yielded 60 per cent. lead, and about $18 per ton in silver. The mine is known as the Washington, and has been incorporated. The same class of ore is reported to have been discovered near Tillamook.

Domestic Economy.

Relishes for Tea.

Spiced Veal.—Chop three pounds of veal steak, and one thick slice of salt fat pork, as fiue as sausage meat; add to it three Boston crackers, rolled fine; three well-beaten eggs; half a teacup of tomato catsup; a teaspoonful aud a half of fine salt; a teaspoonful of pepper; and one grated lemon. Mould it into the form of a loaf of bread, in a small dripping-pan; cover with one rolled cracker; and baste with a tea-cupful of hot water and melted butter, with two tablespoonfnls of the butter. Bake for three hours, basting every little while (this makes it moist). Make the day before it is desired for the table; slice very thin, and garnish with slices of lemon aud bits of parsley.

Melton Veal.—This is a standard dish at the Melton Races in England, and is composed of alternate slices of veal and ham. Butter a good-sized bowl, and slice as thin as possible six hard-boiled eggs, then line the bowl with the slices. Place in the bottom a layer of raw veal steak in thin slices, and sprinkle over it a small quantity of salt, pepper, and grated lemou-peel; proceed in the same way with thin slices of raw ham, but leave out the salt. Fill up the bowl in this manner. Cover it with a thick paste of flour and water, so stiff as to be rolled out. Tie a double cotton cloth all over the top and boil three hours, putting it into boiling water at the first, and keeping the water just below the level of the bowl. When cooked, take off the cloth and the paste, and let the veal stand until the following day; then turn it on to a platter, and cut very thin after it comes to the table; garnish with sliced lemon and parsley. It is "a dainty dish" to set before a king. It is also delicious as a side dish for dinuer, aud makes a good breakfast.

Potted Shad.—Cut a fine shad into three or four pieces, omitting the tail and head; place a piece iu a small stone jar, sprinkle well with salt, and whole allspice, aud whole pepper-corns; fill up the jar in this manner, and cover the shad with sharp cider vinegar. Cover the jar with a stiff paste, and bake iu a slow oven for three or four hours. If the vinegar is strong it will dissolve all the small bones of the shad, and the large oue should be removed before baking. This will keep, in a cool place, if tightly covered, for five or six weeks; so it is well to pot three or four shad at once. It is a delicious relish for either breakfast or tea.

Potted Beef.—Take eight pounds of lean rump steak, put it into a stone jar, with a tea-cup of boiling water, a level table-spoonful of salt, a teaspoonful of pepper, and a few whole allspice, with one onion chopped fine. Cover with paste and bake for three hours. Turn out all the liquor, and take out the meat into the chopping-bowl. Pound it fine with the pestle; season with half a tea-cup of catsup. Taste it, and if not highly seasoned add more salt and pepper. When perfectly fine press iuto moulds, or small cups; and if desired to be kept for six weeks, cover the tops with melted butter so thickly that no meat is seen. Wet the moulds or cups with water, and the beef will turn out in form.—*Scribner.*

A Most Excellent Domestic Confection.—This is the season for oranges. The peel of this fruit, preserved in sugar, is one of the most delightful confections which a family can use, far euperior to the extracts sold in the shops. The peel should of course should be perfectly clean, and should be cut in loug thin strips. Stew in water till all the bitterness is extracted. Throw away the water and stew again for half an hour in a thick syrup made of a pound of sugar to one of peel, with just water enough. Put away, in a cool place, for flavoring puddings, pies, etc. For this purpoeo, it should be chopped very fine. No better or cheaper flavoring can be furnished to a household.

Storing Ashes in Woonen Vessels.—A great many conflagrations originate from the embers of wood ashes. When a few quarts of embers are thrown into a barrel of ashes, or into a bin of wood ashes, a second combustion often occurs slowly, until many bushele have been burned over. Then, as the smouldering fire reaches the boards or the staves, the wood will soon be ignited. Insurance ageuts should make particular inquiry on this point; and, if the insured will persist in the practice of storing their ashes in wooden vessels, they alone should be the losers if their buildings take fire from such a cause.

Cracker Pies.—Roll six crackers fine and put them in a four-quart pail or kettle, pour over them three-fourths of a pint of vinegar, two cups of molasses, and a quart of boiling water. Boil on the stove half an hour, adding more water, if necessary, to make quite thin. Add salt, raisins and all kinds of spice, and make short crust for four pies. Bake about twenty minutes, or until the crust is done. A little sugar may be added before the top crust is put on.

Corn Bread.—Take four cups of sour milk, one of these partly filled with cream; one egg, a little salt, two even teaspoonfuls pulverized soda; mix the soda with a little corn meal, and stir altogether, till it foams; then add corn meal till a thin batter is obtained, and pour into hot tins, oiled, an inch deep, and bake in a quick oven.

Hints for House-Furnishing.

With the return of spring the hearts of housekeepers are turned to their houses. It is astonishing how dingy now appear articles of furniture that have hitherto quite satisfied us; how we long to renew the freshness of our rooms as the earth renews her verdure. It is easy enongh to do this where there is plenty of means at commaud,—to do it, at least, in a certain way,—but to do it satisfactorily requires no less taste than money. Some of the ughest rooms we have ever seen, have been those on which no expense has been spared. The compensations of a limited income may often be seen in the thoughtfulness which it compels both in dress and house-furnishing. Very few of the tradesmen concerned with the fitting up of interiors are to be wholly trusted in matters of taste. It is worth while for all, especially those with moderate means, to make these things a study; to educate the eye, as far as possible, so that they may not make mistakes of color and form which they cannot afford to repair speedily.

Philip Gilbert Hamerton, in his *Thoughts About Art*, drops many useful hints on the decoration and furnishing of houses. "A house," he says, "ought to be a work of art, just like a picture. Every bit of furniture in it should be a particle of a great composition, chosen with reference to every other particle. A grain of color the hundredth of an inch across, is of the utmost importance in a picture, and a little ornament on a chimney piece is of the utmost artistic importance in a house. A friend of mine, who really understands painting, is so exquisitely alive to harmony of color, that I have seen him exclude a penholder from a large room because its color was discordant. This may be carrying matters a little too far, but the principle is correct. There shonld, of course, be some dominaut color in every room, and whatever fails to harmonize with it should be kept as much as possible iu the background if it be impossible to exclude it." But the harmonies of color, according to Mr. Hamerton, are just what are least understood, and he goes on to teach us by illustrations from Nature, that blue and green, contrary to the milliner's dictum, are, or may be, in exquisite harmony when used in the decoration of our houses. —*Scribner.*

To Bake Tongue.—Parboil the tongue and skin it as for roasting; trim it neatly, mince two boiled onions, a bunch of parsley; mix with these three tablespoonfuls of fine crumbs seasoned with a drachm of cayenne, aud a blade of mace and six cloves pounded; spread the seasoued crumbs over the tongue, and cover them with bacon cut as thin as possible. Roll up the tongue with the thick part in the middle, put it into a small baking-pan, cover it with broth or stock, put it into the oven and let it bake slowly from three to four hours. When taken out, put it into the mould and press it till cold. It makes a pretty dish for breakfast or lunch.

Oyster Soup.—Take one quart of oysters and separate them from the liquor, wash them thoroughly in a pint of water, strain the liquor, add one pint of milk, some mace, nutmeg and pepper, with three crackers pounded fine, and one-fourth pound of butter, boiled all together about five minutes; take it off the fire; when about to serve up the soup, put in the oysters and let it boil one minute. The soup will then be ready for the table. For each quart of oysters a pint of milk must be added, and every other ingredient in proportion to the quantity required. Three pints of oysters are sufficient for eight persons.

Meat Balls.—A savory way of preparing meat, is in the form of meat balls made thus: Cold boiled or raw beef or pork chopped very fine, put into a dish, together with eggs—one to each half pound of the meat—crumbs of light bread, soaked and mashed fine, a couple of medium sized onions chopped, (may be omitted, if not liked), season to taste, with salt, if the meat is fresh, pepper, nutmeg and allspice, and form into egg-shaped balls with the hand; if too moist to form well, add a little flour, and fry in plenty of lard.

Wet Coal Dust.—Coal dust burns better when moistened. The moisture helps it to coke, and if the back part of the fire is bright red, the steam being decomposed, acts as so much additional fuel, the oxygen promoting the combustion, and the hydrogen inflaming.

Tomato Custard.—This is said to be a beneficial diet for consumptives. It is made by straining finely stewed tomatoes through a course seive, and adding two pints of milk and one pint of tomatoes, for four eggs and one teaspoonful of sugar. Bake in small cups quickly.

Excellent Crackers.—To fourteen cups of flour, add one cup of lard, two teaspoonfuls of soda, four of cream tartar. Rub the ingredients well into flour, then add three cups of water, work thoroughly and back quick.

Omlette.—Six eggs, beat the whites and yolks separately until very light, then stir together; add no salt as it will make it heavy. Put on a hot griddle slightly greased with butter; when nicely browned, turn—serve hot.

Muffins.—Three eggs, one cup sweet milk, one small teaspoonful of soda, two of cream of tartar, a piece of butter the size of an egg, three cups of flour. Bake in muffin rings, in a quick oven.

Washing Summer Clothing.

Summer suits are nearly all made of white or buff linen, pique cambric or muslin, and the art of preserving the new appearance after washing is a matter of the greatest importance. Common washerwomen spoil everything with soda, and nothing is more frequent than to see the delicate tints of lawns and percales turned into dark blotches and muddy streaks by the ignorance and vandalism of a laundress. It is worth while for ladies to pay attention to this, and insist upon having their summer dresses washed according to the directions which they should be prepared to give their laundresses themselves. In the first place, the water should be tepid, the soap should not be allowed to touch the fabric; it should be washed and rinsed quick, turned upon the wrong side, and hung in the shade to dry, and when starched (in thin boiled, but not boiling starch) should be folded in sheets or towels, and ironed upon the wroug side, as soon as possible. But linen should be washed in water in which hay has been boiled or a quart bag of bran. This last will be found to answer for starch as well and is excellent for print dresses of all kinds, but a handful of salt is very useful also to set the colors of light cambrics and dotted lawns; and a little beef's gall will not only set, but brighten the yellow and purple tints, and has a good effect upon green.—*New York World.*

Potato Yeast.—Pare, wash and grate four good-sized potatoes, add to them one-half teacupful of salt, two-thirds teacupful of sugar, pour over this mixture one quart of boiling water, and when luke-warm add one cup of good yeast, and let it riso. It does not keep quite as long as hop yeast in hot weather, but makes sweeter bread. If kept in a cool place it will keep two or three weeks in summer and double the time in winter.

Cookies.—One teacupful of butter, one of thick cream, two of sugar, one coffee-cup of milk, one teaspoonful of soda, two of cream of tartar, half a nutmeg, and flour to knead soft. Bake in a quick oven.

Butter Sponge Cake.—One cup butter, two cups sugar, one and one-half cups flour, six eggs, one teaspoouful of soda. Dissolve the soda in a tablespoonful of milk; rub the cream of tartar evenly in the flour.

Cocoanut Jumbles.—One pound of butter, three-quarters of a pound of sugar, three eggs, one pound of flour; add by degrees a grated cocoanut, so as to form a stiff dough. Bake in a quick oven.

The following short rules for the care of furniture are from an article in the *Technologist:* "Keep water away from everything porous, alcohol from varuish, and acids from marble."

Lemon Cake.—Three cups sugar, one cup butter, one cup milk, five eggs, one teaspoonful of soda, four cups flour; peel and then grate three lemons, with very little of the rind.

Bar soap should be cut into pieces of a conveuient size, and laid where it will become dry. It is well to keep it several weeks before using it, as it melts fast when it is now.

Cream for Coffee.—Beat one egg, sweeten with one spoonful of sugar, pour on to this one pint of water. Make over night for use in the morning.

Graham Biscuit.—One pint of sour milk, one large teaspoonful of soda, salt, stir very thick, and bake on a griddle. They are delicious.

How to Preserve Soap Grease.—Fill a cask half full of good strong lye and drop all refuse grease therein. Stir up the mixture once a week.

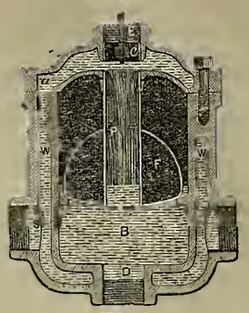
The Useful and Beautiful.

There are really two ways to do a thing well. The one studies utility and economy without any regard to how it will look. The other includes both, and in addition, the doer is often influenced by taste, giving the preference ever to that way of doing a thing, which shall most directly promote the beautiful in union with the useful. Taste displays itself in the selection of the site for building, the plan and style of architecture, planting trees, making fences, laying out grounds, the color of buildings, etc. Some in these display taste; others seem to show an utter want of, or disregard of it, everything seeming to be done with reference only to the most short-sighted utility.

Attention to matters of the kind mentioned, would soon produce a favorable change in all our rural regions. Much has indeed been already done, toward the bringing about of this desirable change, but much more can be done. What we would say then is,—let every farmer study to make his home as beautiful and attractive, as his farm is useful and productive.

Changing the Colors of Flowers.—The Mirror of Science says that a case is known of a yellow primrose which, when planted in a rich soil, had the flowers changed to a brilliaut purple. It also says that charcoal adds great brilliancy to the colors of dahlias, roses and petunias; carbonate of soda reddens pink hyacinths, and phosphate of soda changes the colors of many plants.

CRAIG & BREVOORT'S
Patent Condenser for Steam PUMPS, &c.



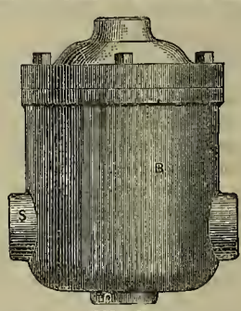
NO. 1.

The annexed engravings represent a Coudenser intended to he attached to the ordinary steam pump, thereby bringing it within the class of low pressure, or more properly speaking, of condensing engines; the steam, when it has done its work in the cylinder, instead of being exhausted into the atmosphere, is conducted to the condenser, on its entry into which, it meets the water drawn by the pump, and is immediately condensed.

The Cut No. 1 represents a vertical section of the Condenser, and No. 2 an elevation.

The flange D is holted to the suction orifice of the pump, and the flange S to the pipe leading to the well, or whatever source of supply the pump may have; W is a water jacket surrounding the main chamber of the condenser, B, and with which the suction pipe, S, communicates, permitting a free circulation of water within the jacket and into the hollow cover or top through the series of openings, one of which is shown at A, and from thence into the body of Condenser, B, through pipe P, carried by float F; the pipe P also acts automatically as a valve to enlarge or contract the space through which the water enters it, by which means the possibility of the condenser being at any time flooded is avoided. The pipe P, it will be observed, also acts as guide to float F.

The valve, C, (shown in Cut No. 1), which is raised or lowered by means of screwed stem—shown coming through elbow in Cut No. 2—is for the purpose of increasing or decreasing the flow of water according to the capacity of the pump to which it is attached.



NO. 2.

The exhaust pipe from steam cylinder is screwed into cover at E; the exhaust steam is thus thrown directly into contact with the water entering the condenser on its way to water cylinder of pump through D. A vacuum being of course immediately formed, acts on the exhaust side of the steam piston, aiding it in its work. If at any time it is desirable to run the pump without the condenser, it is only necessary to turn the three-way cock, which is placed in the exhaust pipe into such a position as to cause the steam cylinder to exhaust into the atmosphere; when this is done the pump is perfectly free from the condenser, and acts as if it were not attached. This condenser is specially useful for pumps running in mines, or any other position where trouble is experienced in getting rid of the exhaust steam. Address H. L. BREVOORT,
6v23eowly 128 Broadway, New York City.

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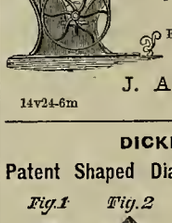

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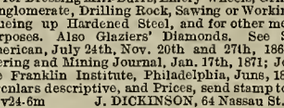
Fig. 1 *Fig. 2* *Fig. 3* *Fig. 4*



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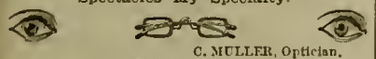
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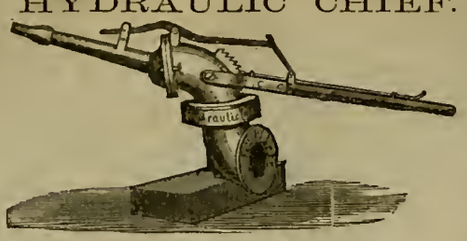

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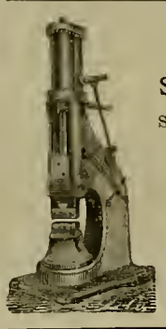

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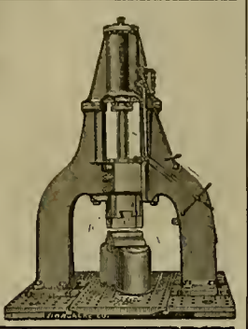

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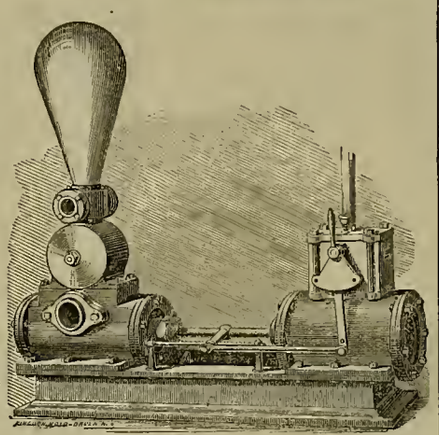

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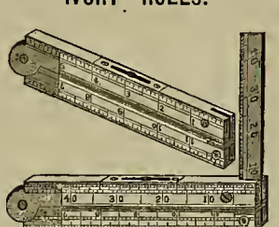
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Alleghany Consolidated, Cal. Ap. 20, 25c.	June 3	June 24*
Balto. M. Co., Storey Co., Nev., Ap'l 30, $1.	June 5	June 28
Buckeye M. Co., Nev., Mar. 23, $1.	25	April 26
Cona. Virginia M. Co., Nev., Mar. 19, $3.	Apr. 24	May 18
Crown Point R. S. M. Co., May 3, $5.	June 20	July 20
Daney M. Co., Lyon Co., April 3, $1.50.	May 9	May 27
Eagle Quicksilver, May 8, $40.	July 11	July 15*
Francia M. Co., Cal., April 6, $1.	May 14	June 4*
Gen. Lee S. M. Co., W. Pine, Ap'l 27, 10c.	June 11	July 2
Golden Chariot, Idaho T., April 12, $1.50.	May 22	June 18
Grand Duke M. Co., U. T., Mar. 5, 25c.	April 15	May 15
Huhn & Hunt S.M.Co., Nev., Mar. 20, 25c.	Apr. 29	May 27
Ingomar S. M. Co., Ely, April 2, 25c.	May 8	May 31*
Imperiatrice Eugenie, Cal., April 26, 25o.	June 2	June 17
Jackson M. Co., Nev., April 3, 25c.	May 6	May 25
Julia G. & S. M. Co., Nev., April 22, $5.	May 25	June 15
Kincaid Flat, Cal., April 23, $3.	May 27	June 17*
Knickerbocker, M. Co. Nev., Mar. 23, 50c.	Apr. 27	May 17
Lemon M. and M. Co., Eureka, Apr 1, $1.	May 7	June 12
Lord Byron G. & S. M. Co., Nev., Apr. 29, 25c.	June 3	June 22
Louise M. Co., Nevada, April 6, 10c.	May 14	June 10
Lyona & Wheeler Co., A. T., April 6, 10c.	May 15	June 3*
Magnolia S. M. Co., Nev., April 22, 25c.	May 25	June 20
Mina Rica M. Co., May 8, 20c.	June 10	July 1*
Mt. Jefferson M. Co., Cal., Apr. 3, 30c.	May 6	May 22*
Nevada L. & M. Co., Nev., March 28, 4c.	May 2	May 24*
Ophir S. M. Co., Nev., April 17, $5.	May 22	June 13
Overman S. M. Co, Gold Hill, Mar. 18, $4.	Apr. 13	May 13
Pacific Borax Co., Nevada, May 4, 20c.	June 6	June 29
Page & Panaca, Nev. April 12, 50c.	May 20	June 15
Peker Walter M. Co. Placer Co. Mar. 11, $1.	Apr. 18	May 6
Phœnix S. M., Nye Co., Mar. 19, 75c.	April 24	May 15
Piermont M. & M. Co., April 16, 40c.	May 20	June 19*
Pride of Mt. M. Co. Nev., May 7, 25c.	June 17	July 10
Rialng Star S. M. Co, Idaho, Ap'l 27, $1.	June 1	June 29
San Buenaventura Co. Cal., Jan. 19, $1.	Feb. 29	Mar. 29
Siempre Viva Co., Max., Mar. 25, 30c.	May 2	May 20*
S. Gold Hill M. Co., Nev.. Apr 1, $2.50.	May 6	May 27
S. F. M. Co., Utah Ter., April 13, 25c.	May 16	June 8*
Silver Sprout M. Co., Cal., April 29, 50c.	June 1	June 22*
Silver Wave, W. P., Nev. Apr. 10, 50c.	May 14	June 13*
Spring Mt. Tunnel Co., April 11, 15c.	May 20	June 10*
Sneoor M. & M. Co., Nev., Mar. 20, $2.	April 23	May 15
Sunnar, Kern Co., April 11, $10.	May 22	June 21
Talluiah M. Co., Nev., April 8, $1.50.	May 7	June 4
Tecumach G.S & C.M. Co. Cal. Mar. 20, $3.	Apr. 23	May 14*
Tecumseh M. Co., Cal., April 24, $5.	May 29	June 17*
Union G. M. Co., Cal., April 11, $1.	May 13	June 3*
Washington M. Co., May 8, $3.	June 11	June 29*

MEETINGS TO BE HELD.

Adriatic G. & S. M. Co.	Special Meeting, June 8
Alama G. & S. M. Co.	Special Meeting, June 4
Belcher S. M Co.	Special Meeting, May 24
Best & Belcher M. Co.	Meeting May 13
Calaveras Hydraulic M. Co.	Annual Meeting, May 29
Confidence S. M. Co.	Special Meeting, June 4
Consolidated Virginia	Special Meeting, May 20
Del Rey M. Co.	Special Meeting, June 10
Empire M. & M. Co.	Special Meeting, June 8
Empire M. & M. Co.	Special Meeting, June 10
Empire M. Co.	Annual Meeting, May 13
Golden Age & Empire M. Co.	Annual Meeting, May 27
Gold Canon Cona. M. Co.	Special meeting, May 31
Green G. & S. M. Co.	Special Meeting, June 3
Hale & Norcross.	Special Meeting, May 30
Hartford G. & S. M. Co.	Special meeting, May 28
Highland S. M. Co.	Annual Meeting, June 4
Ingomar S. M. Co.	Annual Meeting, May 20
Imperial S. M. Co.	Special meeting, June 3
Kentuck M. Co.	Special Meeting, June 10
Kinston M. Co.	Annual Meeting, May 18
Lyona & Wheeler M. Co.	Annual meeting, May 13
Nevada Land & M. Co.	Annual meeting, may 13
Orient S. M. Co.	Annual Meeting, May 13
Overman S. M. Co.	Special Meeting, June 5
Peavine S. M. Co.	Annual Meeting, May 13
Riaing Star S. M. Co.	Annual Meeting, May 20
Servator S. M. Co.	Special meeting, May 31
Silver Sprout M. Co.	Special Meeting, June 3*
St. Louis M. Co.	Special Meeting, June 6
Tecumseh G. S. and O. C.	Special Meeting, June 12*
Wellington M. Co.	Annual Meeting, June 4

LATEST DIVIDENDS—(Within Three Months).

Belcher M. Co., $30.	Payable May 10
Belcher, $20.	Payable April 10
Chollar Potosi, $1.	Payable Feb. 10
Crown Point G. & S. M. Co., $40.	Payable May 11
Eastport, Coose Bay, Coal M. Co.	1 per ct. Payable Feb. 12
Eureka Gold M. Co., $1.	Payable March 11
Keyatone M. Co,, $7.50.	Payable April 10.
Meadow Valley M. Co., $1.50.	Payable April 13
North Star G. M. Co., $7.	Payable April 9
Raymond & Ely M. Co., $7.	Payable May 6
Raymond & Ely, $5.	Payable March 8
Raymond & Ely M. Co., $7.	Payable April 9
Yule Gravel M. Co., 50c.	Payable April 10
Yule Gravel M. Co, 50c.	Payable May 1

—*Advertised in this journal.

Meetings and Elections.

The annual meeting of the Original Hidden Treasure Mining Company was held on the 8th inst., and resulted in the election of the following Board: A. Hayward, William B. Bourn, Robert Sherwood, J. H. Crocker, S. Pinkham, J. E. de la Montagnie and W. Laidlaw, W. B. Bourn was elected President and D. A. Jennings was continued as Secretary.

The Adams Hill Consolidated Mining Company held their annual meeting on the 6th inst., when the following Trustees were elected: G. T. Lawton, J. B. Haggin, O. F. Giffin, Joseph Clark and J. H. H. Williams. W. W. Traylor was continued as Secretary and A. M. Ellsworth as Superintendent.

The Cayuga Chief Mining Company on the 7th inst., elected the following Trustees: J. Nightingale (President), E. L. Smith, R. C. Brown, George O. Ecker and W. E. Deane. William H. Watson was retained as Secretary and Treasurer.

The Oneida Company have elected S. Steinhart (President), A. H. Rose, S. Heydenfeldt, Sr., J. B. Fargo and James Morgan. Louis Kaplan was continued as Secretary.

Trustees for the Pioche Company have been elected as follows: J. D. Fry, (President), Robert Sherwood, A. K. P. Harmon, C. N. Felton and J. E. de la Montagnie. Charles E. Elliot was chosen Secretary and John R. James, Superintendent.

State University.—The next term of the Preparatory Department will begin April 20th, 1872.

The course of study embraces the Ancient and the Modern Languages and the higher Mathematics, and is especially adapted to the University curriculum.

Terms, $12 a term. GEORGE TAIT, Oakland.
13v3bp-tf

Daily Weather Record,

BY THE U. S. ARMY SIGNAL SERVICE, FOR THE WEEK ENDING WEDNESDAY, MAY 8, 1872.

Place of Observation.	Date.	Observation taken at 9 A. M.	Highest Barometer.	Thermometer.	Rel. Humidity.	Direction of Wind.	Vel. of Wind, Miles per Hour.	Force of Wind, red to Beaufort's Scale. Approximate.	Amount of Cloud. Lower Clouds.	Rainfall since last Report.	State of Weather.
San Fran'co.	Thu..	2	29.98	61	71	Calm					Clear
	Fri...	3	29.97	53	80	W.	4	Gentle			Clear
	Sat...	4									
	Sun..	5	29.91	49	78	Calm			4-4		Cloudy
	Mon..	6	29.81	48	70	W.	22	Brisk	4-4		Cloudy
	Tu...	7	29.89	48	75	W.	8	Fresh			Fair
	Wed..	8									
San Diego.	Thu..	2									
	Fri...	3	30.04	59	81	S. W.	8	Fresh			Foggy
	Sat...	4									
	Sun..	5									
	Mon..	6	30.08	55	08	W.	1	Light	4-4		Cloudy
	Tu...	7	29.96	56	08	S. W.	12	Fresh	1-4		Cloudy
	Wed..	8									
Portland, O.	Thu..	2									
	Fri...	3									
	Sat...	4									
	Sun..	5	30.37	33	90	S. E.	1	Light			Fair
	Mon..	6	30.08	45	60	N.	2	Light	1-2		Fair
	Tu...	7	29.98	44	84	Calm			4-4	.08	Lt. Rain
	Wed..	8									
Virg'a, M. T.	Thu..	2	30.03	36	55	Calm					Clear
	Fri...	3									
	Sat...	4	29.66	43	51	Calm			1-4		Fair
	Sun..	5	29.57	37	68	Calm			4-4		Cloudy
	Mon..	6	29.70	30	66	S.	6	Fresh	4-4		Cloudy
	Tu...	7									
	Wed..	8									
Cormac.	Thu..	2	30.37	37	71	N.W.	4	Gentle			Clear
	Fri...	3	30.14	39	63	N.W.	3	Light			Clear
	Sat...	4	29.94	37	62	E.	8		1-4		Fair
	Sun..	5	29.92	49	71	N.W.	15	Fresh	4-4		Cloudy
	Mon..	6						Brisk			
	Tu...	7	29.78	48	77	N.W.	4	Gentle	4-4	.6	Threat.
	Wed..	8									
Cheyenne.	Thu..	2	30.34	36	55	S. W.	4	Gentle			Clear
	Fri...	3	30.19	44	30	W.	3	Gentle			Clear
	Sat...	4	29.99	45	39	N.W.	7	Fresh			Clear
	Sun..	5									
	Mon..	6	30.00	37	61	E.	13	Fresh	4-4		Cloudy
	Tu...	7	29.90	41	99	S. E.	7	Fresh	1-4	.01	Foggy
	Wed..	8									
Denver.	Thu..	2	30.38	34	52	S. W.	4	Gentle			Clear
	Fri...	3	30.22	42	42	S.E.	6	Fresh			Clear
	Sat...	4	30.04	52	35	S.	6	Fresh	4-4		Cloudy
	Sun..	5									
	Mou..	6	30.04	50	58	N.E.	9	Fresh	4-4		Cloudy
	Tu...	7	29.93	48	78	Calm			4-4		Cloudy
	Wed..	8									
Omaha.	Thu..	2	30.27	43	51	N.W.	7	Fresh			Clear
	Fri...	3	30.00	53	61	Calm					Clear
	Sat...	4	29.86	69	55	S. E.	5	Gentle			Hazy
	Sun..	5									
	Mon..	6	29.89	50	82	S.E.	5	Gentle	4-4	.08	Lt. Rain
	Tu...	7	29.90	57	94	N.W.	2	Light	4-4	.60	Cloudy
	Wed..	8									
Davenport, I.	Thu..	2	30.19	42	61	N.W.	4	Gentle			Clear
	Fri...	3	30.03	55	47	S.E.	9	Fresh	4-4		Fair
	Sat...	4	30.31	46	54	E.	4	Gentle			Clear
	Sun..	5									
	Mon..	6	30.11	65	62	S.W	2	Light			Clear
	Tu...	7	30.09	63	71	S.	1	Light	4-4		Fair
	Wed..	8									

San Francisco Metal Market.

Corrected weekly by Hooker & Co., 117 and 119 Cal. street

PRICES FOR INVOICES

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

THURSDAY, May 9, 1872

IRON.—			
Scotch Pig Iron, ₱ ton	$70 00	@	— —
White Pig, ₱ ton	52 00	@	— —
Refined Bar, had assortment, ₱ lb	— 05½	@	— 06
Refined Bar, good assortment, ₱ lb	— 06	@	— 07
Boiler, No. 1 to 4	— 05	@	— 06
Plate, No. 5 to 9	— 08	@	— 09
Sheet, No. 10 to 13	— 06½	@	— 07
Sheet, No. 14 to 29	— 07	@	— 09
Sheet, No. 24 to 27	— 06	@	— —
Horse Shoes	8 00	@	
Nail Rod	11		
Norway Iron	9		
Rolled Iron	8		
Other Irons for Blacksmiths, Miners, etc.	6	@	7
COPPER.—			
Sheathing, ₱ lb	— 24	@	— 28
Sheathing, Yellow	— 24	@	— 26
Sheathing, Old Yellow	— 11	@	— 11½
Composition Nails	— 24		—
Composition Bolts	— 24		—
TIN PLATES.—			
Plates, Charcoal, IX ₱ box	12 00		— —
Plates, I C Charcoal	10 00		10 50
Roofing Plates	11 00		— —
Banca Tin, Slabs, ₱ lb	— —		— 45
STEEL.—English Cast, ₱ lb	— 16		— 17
Drill	— 16		17
Flat Bar	17		20
Plough Points	3 75		
Russia (for mould boards)	12½		
QUICKSILVER, ₱ lb	— —		— 85
LEAD.—Pig, ₱ lb	— 06		— 06½
Sheet	— 08		— 8½
Pipe	— 9		— 10
Bar	— 08		— 09
ZINC.—Sheets, ₱ lb	— 10		— 10½
BORAX.—Refined	— 25		— 30
Borax, oruda	— 5		— —

Leather Market Report.

[Corrected weekly by Dolliver & Bro., No. 109 Post st.]

SAN FRANCISCO, Thursday, May 9, 1872.

SOLE LEATHER.—The demand is good, with an advance in Eastern market, which will probably soon be felt here.

City Tanned Leather, ₱ lb	25@29
Santa Cruz Leather, ₱ lb	26@29
Country Leather, ₱ lb	25@28
Stockton Leather, ₱ lb	26@29

French skins are firmer with an advance in some grades. Heavy California skins are firm, with an upward tendency.

Jodot, 8 Kil., per doz	$60 00@	
Jodot, 11 to 19 Kil., per doz	72 00@	90 00
Jodot, second choice, 11 to 15 Kil. ₱ doz	60 00@	76 00
Lemoine, 16 to 18 Kil., ₱ doz	75 00@	77 50
Levin, 12 and 13 Kil., per doz	68 00@	70 00
Cornellian, 16 Kil., per doz	70 00@	
Cornellian, 12 to 14 Kil., per doz	60 00@	68 00
Ogerau Calf, ₱ doz	54 00@	
Simon, 18 Kil. ₱ doz	85 00	
Simon, 20 Kil. ₱ doz	68 00	
Simon, 24 Kil. ₱ doz	72 00	
Robert Calf, 7 and 8 Kil	35 00@	40 00
French Kipe, ₱ lb	1 10@	1 30
California Kip, ₱ doz	60 00 to	80 00
French Sheep, all colors, ₱ doz	15 00	
Eastern Calf for Backs, ₱ lb	1 15@	1 25
Sheep Roans for Topping, all colors, ₱ doz	9 00@	13 00
Sheep Roans for Linings, ₱ doz	8 50@	10 50
California Russett Sheep Linings	1 75@	5 50
Best Jodot Calf Boot Legs, ₱ pair	5 25	
Good French Calf Boot Legs, ₱ pair	4 50@	5 00
French Calf Boot Legs, ₱ pair	4 00	
Harness Leather, ₱ lb	30@	37½
Fair Bridle Leather, ₱ doz	48 00@	72 00
Skirting Leather, ₱ lb	34@	37½
Welt Leather, ₱ doz	30 00@	50 00
Buff ₱ foot	18@	21
Wax Side Leather, ₱ foot	18@	20

RICHARD H. BUEL, Consulting Mechanical Engineer, 7 Warren Street, New York. Advice and assistance given to those who desire to invest funds in meritorious and valuable Patent Rights. Machinery of all kinds bought and sold. Unusual facilities for testing engines, boilers and other machinery. I refer particularly to Professor R. H. Thurston, of the Stevens Institute of Technology, who has consented to associate himself with me in consultation on matters of special importance.
10v24-13t

New Incorporations.

The following have filed certificates with the County Clerk, San Francisco:

SAILOR M. Co.—May 2. Location: Virginia M. District, Nevada. Capital stock, $2,200,000, in 44,000 shares. Trustees—W. F. Myers, — Pritchard, W. D. Townsend, W. H. Sears and E. B. Rail.

AMAZON S. M. Co.—May 2. Location not given. Capital stock, $3,000,000, in 30,000 shares. Trustees—Wm. H. Gleeson, Wm. H. Smith, George D. Roberts, H. McPherson and M. J. McManeus.

NORTH COMSTOCK G. AND S. M. Co.—May 2. Location: Eureka District, Storey Co., Nevada. Capital stock, $200,000, in 50,000 shares. Trustees—G. A. Coursan, E. J. Baldwin. W. F. Meyers, Robert H. Lindsay and Joseph Wolf.

GENESEE M. Co.—May 2. Location: Devil's Gate M. District, Lyon county, Nevada. Capital stock, $3,000,000, in 30,000 shares. Trustees—James A. Pritchard, Chauncy B. Land, John Gilligg, C. W. Kellogg and H. H. Flagg.

SWANSEA M. Co.—May 2. Location: Kelsey M. District, El Dorado county. Capital stock, $3,600,000, in 36,000 shares. Trustees—Charles E. Elliott, Washington Ayer, H. C. Kibbe, G. L. Bodley and Ira G. Hoitt.

SOMERSET M. Co.—May 2. Location: Grass Valley M. District, Nevada county. Capital stock, $1,200,000, in 24,000 shares. Trustees—B. F. Kroy, E. J. Weeks, A. D. Carpenter, J. M. Buffington and A. A. Downer.

FREAR STONE Co., May 2.—Objects: The manufacturing and selling of stone, under the Frear patent. Capital stock, $5,000,000. Trustees—N. W. Spaulding, James Gamble, A. N. Perine, L. A. Booth, George C. Potter, C. F. McDermott, E. Tripp, W. E. Miller, George W. Beaver and Egbert Judson.

BAKER M. and M. Co., May 3.—Location: Cherokee District, Plumas Co., Cal. Capital stock, $3,000,000 in 30,000 shares. Trustees—J. D. Fry, W. H. Sears, Thomas Nelson, M. D. Townsend and W. F. Myers.

WINNEMUCCA CHIEF S. M. Co., May 3.—Location: Nevada. Capital stock, $4,000,000 in 40,000 shares. Trustees—George D. Roberts, Alexander Forbes, L. L. Robinson, A. C. Peachy and Thomas J. Poulterer.

MIDAS G. AND S. M. Co., May 3.—Location: Devil's Gate M. District, Storey and Lyons counties, Nevada. Capital stock, $1,600,000, in 16,000 shares. Trustees—R. C. Wilcox, D. L. Hastings, R. M. Black, J. G. Liberty and J. A. Pritchard.

GOLD HILL TUNNELLING G. ANN S. M. Co., May 3.—Filed and amended certificate of incorporation, by which it avails itself of the Act of 1870, entitled "An Act relating to certificates of incorporation."

HARPER M. Co., May 4.—Location: Lincoln Co., Nevada. Capital stock, $1,500,000 Trustees—Robert Sherwood, C. F. Hamilton, S. Dixon, W. L. Higgins, P. E. Conner.

MONITOR-BELMOMT M. Co., May 4.—Location: Nye Co., Nevada. Capital stock, $5,000,000. Trustees—J. B. Haggin, C. J. Brenham, C. H. Burton, J. Clarke and B. B. Minor.

SAPPHIRE S. M. Co., May 6.—Location: Gold Hill District, Nevada, and the Devil's Gate District. Capital stock, $2,400,000, in 24,000 shares. Trustees—E. B. Rail, A. J. Bryant, E. C. Catherwood, T. B. Lewis and George D. Roberts.

PLYMOUTH ROCK M. Co., May 6.—Location: Little Cottonwood District, Salt Lake county, Utah Territory. Capital stock, $2,000,000 in 20,000 shares. Trustees—Moses H. Benjamin, John J. Marks, James L. King, A. J. Bryant and F. J. Thibanlt.

KEYSTONE S. M. Co., May 6.—Location: Gold Hill District. Capital stock, $2,500,000, in 25,000 shares. Trustees—J. B. Haggin, Samuel B. Martin, J. West Mailen, C. J. Brenham and B. B. Minor.

WOONVILLE G. AND S. M. Co., May 6.—Location: Gold Hill District. Capital stock, $2,800,000, in 28,000 shares. Trustees—James A. Pritchard, M. D. Townsend, W. H. Sears, W. F. Myer and Charles Juarez.

PROVIDENCE G. AND S. M. Co., May 6.—Location: State of California. Capital stock, $3,000,000, in 30,000 shares. Trustees—B. C. Whiting, A. D. Hatch, L. J. Lewis, E. C. Fellows and E. O. Brown.

THE CERBAT CONS. G. AND S. M. Co., May 7.—Location: Wallapai District, Mojave county, Arizona. Capital stock, $4,000,000, in 40,000 shares. Trustees—W. H. Raymond, R. B. Gray. C. S. Deering, W. H. Smith and Samuel L. Theller.

ORIGINAL GOLD HILL G. AND S. M. Co., May 7.—Location ;Gold Hill M. District. Capital stock, $3,000,000 in 30,000 shares. Trustees—E. D. Roberts, R. F. Morrow, C, B. Hand, James O'Donnel and J. B. Overton.

BISMARCK S. M. Co., May 7.—Location: Sacramento District, Humboldt County, Nevada. Capital stock, $5,000,000, in 50,000 shares. Trustees—D. L. McDonald, I. G. Messic, P. J. White, C. L. Place and T. J. Poulterer.

NORTH COMSTOCK M. Co., May 7.—Location: Truckee District. Capital stock, $2,000,000, in 20,000 shares. Trustees—E. J. Baldwin, Robert Harrison and G. A. Coursen.

THE SUTRO M. Co., May 8.—Location: Virginia M. District, Storey Co., Nevada. Capital stock, $2,400,000, in 24,000 shares. Trustees—S. Heydenfeldt, M. Morgenthau, A. K. Grim, John B. Waters and P. J. White.

CONTINENTAL Life Insurance Co., 302 Montgomery street, corner of Pine.

If you want pictures or fine frames, cheap, send to Sanborn, Vail & Co., 31 Kearny street, S. F. 18v24-3m

PACIFIC STONE COMPANY.

Ransome's Patents,

For which Commissioners for the International Exhibition of 1862 awarded the Prize Medal, and Gold Medal at the Mechanics' Institute Fair, 1871, of San Francisco.

REMOVAL.

This Company have removed from the corner of Turk and Larkin streets, to their new and Commodious works corner of Greenwich and Octavia. They have established an office and salesyard at the Junction of Market and Bush, where they will keep constantly on hand an assortment of ORNAMENTAL, BUILDING, CEMETERY and GRINDSTONES. Orders will be received at the above office from all who wish to get good work at low prices. Send for Circular. 5v24-3amalamrly

Dupont's Gunpowder, Safety Fuse,
—AND—
WINCHESTER REPEATING ARMS.

DUPONT'S Superior Mining Powder (saltpetro), F-FF-FFF.

DUPONT'S Blasting Powder, in air-tight corrugated Iron Kegs, C-F-FF-FFF.

DUPONT'S Celebrated Brand, Diamond Grain, Nos. 1 2, 3 and 4, in 1 lb. and ½ lb. canistera.

DUPONT'S Unrivalled Brands, Eagle Duck and Eagle Rifle, Nos. 1, 2, 3, in half kegs, qr. kegs, 5 lb. tins, and in 1 lb. and ½ lb. canisters.

DUPONT'S Standard Rifle, Fg-FFg-FFFg, in kegs, half kegs and qr. kegs, and in 1 lb., ½ lb., and ¼ lb. canisters.

DUPONT'S Superior Rifle, A. F. & Co., F-FF-FFF, in kegs, half kegs, qr. kegs, and in 1 lb., ½ lb. and ¼ lb. canistera.

DUPONT'S Cannon, Musket, Meal and Fuse Powder.

EAGLE SAFETY FUSE (manufactured near Santa Cruz, Cal., by the L. S. & P. Co.) Constantly on hand full supplies of their Celebrated Branda, Waterproof and Submarine, Triple Taped, Double Taped, Single Taped and Hemp Fuse. Fuse made especially to explode the Giant Powder and Hercules Powder Caps.

The above named Fuse are warranted equal to any made in the world.

WINCHESTER REPEATING ARMS (Henry's Improved) and FIXED AMMUNITION.

A large and complete stock of these celebrated arms constautly on hand, to wit:

Repeating Sporting Rifles—Oiled Stocks.

Repeating Sporting Rifles—Varnished Stocks.

Gold, Silver and Nickle-plated Rifles—beautifully Engraved,

Repeating Carbines—Oiled Stocks.

Repeating Carbines—Gold, Silver and Nickel-Plated and Engraved.

Muskets—Angular or Sword Bayonets.

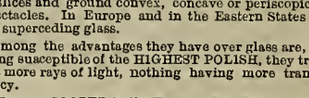
Full stock constantly on hand of all the different parts of the Winchester Arms.

Cartridges in cases (Brand H), manufactured by th W. R. A. Co. expressly for their arms.

A full and complete stock of the above named merchandise always on hand and for sale by

JOHN SKINKER, Sole Agent,
5v24-6m-1amr 108 Battery street, S. F.

"Clear as Crystal."



PEBBLES ARE MADE from Rock Crystal cut in slices and ground convex, concave or periscopic, for Spectacles. In Europe and in the Eastern States they are superceding glass.

Among the advantages they have over glass are, that being susceptible of the HIGHEST POLISH, they transmit more rays of light, nothing having more transparency.

They are COOLER to the Eyes—a very important gain.

They are much harder than glass, and DO NOT SCRATCH.

The best quality of Crystal is found in Scotland and the Brazils, and is manufactured into lenses by the best workmen in England and France, for

Thomas Houseworth & Co.,
OPTICIANS,
No. 9 Montgomery street, Lick House,

Where they can be obtained, already fitted, in frames, or may be fitted to order.

Persons sending their Spectacles can have Pebbles inserted of the same grade as their glasses.

Illustrated Circular for style of frames sent to any address free.

☞ Pebbles sold as anch by us, are Warranted.
15v3awbp3m

$1,000 REWARD! For any case of Blind, Bleeding, Itching, or Ulcerated Piles that **Dr Bing's Pile Remedy** fails to cure. It is prepared expressly to cure the Piles and nothing else. Sold by all Druggists. Price $1.00.
C. F. RICHARDS & Co., Agents, corner Clay and Sansome streets, San Francisco, Cal.

Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the Scientific Press we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

Alleghany Consolidated Gold Mining Company—Location of works, Alleghany, Sierra County, Cal.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 24th day of April, 1872, an assessment of twenty cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at his office, 37 New Merchants' Exchange, California street. Any stock on which said assessment shall remain unpaid on the third day of June, 1872, shall be deemed delinquent, and will be duly advertised for sale, at public auction, and unless payment shall be made before, will be sold on Monday, the 24th day of June, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. M. BUFFINGTON, Secretary.

Office, No. 37 (third floor), New Merchants' Exchange, California street, San Francisco ma4-4t

Eagle Quicksilver Mining Company---Location of works, Santa Barbara County, California.

Notice is hereby given that at a meeting of the Board of Trustees of said company, held on the 8th day of May, 1872, an assessment of $40 per share was levied upon the mines of said company, payable immediately in gold coin of the United States, to the Secretary at his office, room 5, No. 302 Montgomery street, San Francisco, California.

Any shares upon which said assessment shall remain unpaid, on Thursday, July 11th, 1872, shall be deemed delinquent, and will be duly advertised on Saturday, July 13th, 1872, for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 15th day of July, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

Office—Room 5, No. 302 Montgomery street, San Francisco California. WM. H. WATSON, Secretary. ma.11.

Francis Mining Company---Location of works, Mariposa County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 6th day of April, 1872, an assessment of one dollar per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary of the company, 409 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 14th day of May, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 4th day of June, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. C. CRONISE, Secretary.

Office, 409 California street, San Francisco, Cal.

Ingomar Silver Mining Company.—Location of Works: Ely Mining District, Lincoln County, Nevada.

NOTICE.—There are delinquent upon the following described stock, on account of Assessment (No. 1) levied on the second day of April, 1872, the several amounts set opposite the names of the respective Shareholders as follows:

Names.	No. Certificate.	No. Shares.	Am't.
Adams, L S	18	200	$50 00
Cavallier, J F, Trustee	217	100	25 00
Cavallier, J F, Trustee	237	100	25 00
Cavallier, J F, Trustee	238	100	25 00
Cavallier, J F, Trustee	239	100	25 00
Cavallier, J F, Trustee	245	50	12 50
Cavallier, J F, Trustee	247	50	12 50
Cavallier, J F, Trustee	248	50	12 50
Cavallier, J F, Trustee	249	50	12 50
Cavallier, J F, Trustee	251	50	12 50
Cavallier, J F, Trustee	266	50	12 50
Cathcart, A B, Trustee	177	25	6 25
Charles, H A, Trustee	297	50	12 50
Church, H C	98	500	125 00
Church, H C	99	100	25 00
Church, H C	103	100	25 00
Church, H C	105	100	25 00
Church, H C	106	100	25 00
Church, H C	108	100	25 00
Church, H C	111	50	12 50
Church, H C	112	50	12 50
Eaton, W L	208	50	12 50
Kent, R F, Trustee	306	25	6 25
Neal, Chas S, Trustee	9	250	62 50
Neal, Chas S, Trustee	10	250	62 50
Neal, Chas S, Trustee	11	250	62 50
Neal, Chas S, Trustee	14	100	25 00
Neal, Chas S, Trustee	23	300	75 00
Neal, Chas S, Trustee	33	250	62 50
Neal, Chas S, Trustee	34	100	25 00
Neal, Chas S, Trustee	35	100	25 00
Neal, Chas S, Trustee	36	100	25 00
Neal, Chas S, Trustee	37	100	25 00
Neal, Chas S, Trustee	39	50	12 50
Neal, Chas S, Trustee	42	25	6 25
Neal, Chas S, Trustee	85	100	25 00
Neal, Chas S, Trustee	86	100	25 00
Neal, Chas S, Trustee	87	100	25 00
Neal, Chas S, Trustee	89	20	5 00
Neal, Chas S, Trustee	92	10	2 50
Neal, Chas S, Trustee	94	10	2 50
Neal, Chas S, Trustee	131	100	25 00
Neal, Chas S, Trustee	133	100	25 00
Neal, Chas S, Trustee	136	100	25 00
Neal, Chas S, Trustee	137	100	25 00
Neal, Chas S, Trustee	142	100	25 00
Neal, Chas S, Trustee	143	100	25 00
Neal, Chas S, Trustee	149	100	25 00
Neal, Chas S, Trustee	150	100	25 00
Neal, Chas S, Trustee	151	100	25 00
Neal, Chas S, Trustee	152	100	25 00
Neal, Chas S, Trustee	154	100	25 00
Neal, Chas S, Trustee	156	100	25 00
Neal, Chas S, Trustee	172	25	6 25
Neal, Chas S, Trustee	183	100	25 00
Neal, Chas S, Trustee	188	100	25 00
Neal, Chas S, Trustee	189	200	50 00
Neal, Chas S, Trustee	192	100	25 00
Neal, Chas S, Trustee	194	100	25 00
Neal, Chas S, Trustee	200	100	25 00
Neal, Chas S, Trustee	209	10	2 50
Neal, Chas S, Trustee	224	200	50 00
Neal, Chas S, Trustee	225	200	50 00
Neal, Chas S, Trustee	226	200	50 00
Neal, Chas S, Trustee	228	100	25 00
Neal, Chas S, Trustee	229	100	25 00
Neal, Chas S, Trustee	231	100	25 00
Neal, Chas S, Trustee	232	100	25 00
Neal, Chas S, Trustee	233	100	25 00
Neal, Chas S, Trustee	234	100	25 00
Neal, Chas S, Trustee	235	100	25 00
Neal, Chas S, Trustee	236	100	25 00
Neal, Chas S, Trustee	250	200	50 00
Neal, Chas S, Trustee	254	100	25 00
Neal, Chas S, Trustee	257	100	25 00
Neal, Chas S, Trustee	258	100	25 00
Neal, Chas S, Trustee	259	100	25 00
Neal, Chas S, Trustee	260	100	25 00
Neal, Chas S, Trustee	261	50	12 50
Neal, Chas S, Trustee	268	100	25 00
Neal, Chas S, Trustee	269	50	12 50
Neal, Chas S, Trustee	296	50	12 50
Neal, Chas S, Trustee	302	50	12 50
Neal, Chas S, Trustee	329	50	12 50
Perry, John, Jr, Trustee	175	50	12 50
Richardson, E A, Trustee	300	25	6 25
Sleeper, George, Trustee	170	300	75 00
Sides, B F, Trustee	284	50	12 50
Sides, B F, Trustee	285	100	25 00
Sides, B F, Trustee	286	100	25 00
Sides, B F, Trustee	310	40	10 00
Sides, B F, Trustee	311	40	10 00
Sides, B F, Trustee	312	40	10 00
Sides, B F, Trustee	314	40	10 00
Sides, B F, Trustee	315	10	2 50
Sides, B F, Trustee	316	10	2 50
Sides, B F, Trustee	318	10	2 50
Sides, B F, Trustee	319	10	2 50
Sides, B F, Trustee	320	10	2 50
Sides, B F, Trustee	321	10	2 50
Sides, B F, Trustee	322	10	2 50
Sides, B F, Trustee	323	10	2 50
Sides, B F, Trustee	324	10	2 50
Sides, B F, Trustee	339	45	10 25
Sides, B F, Trustee	340	35	8 75
Sloan, H H	118	50	12 50
Sloan, H H	123	20	5 00
Sloan, H H	124	20	5 00
Sloan, H H	125	20	5 00
Sloan, H H	127	20	5 00
Tibbey, E S, Trustee	223	25	6 25
Uhler, J Clem, Trustee	290	500	125 00
Uhler, J Clem, Trustee	292	500	125 00
Uhler, J Clem, Trustee	293	500	125 00
Uhler, J Clem, Trustee	294	100	25 00
Uhler, J Clem, Trustee	325	100	25 00
Wiederhold, C	63	100	25 00
Wiederhold, C	64	50	12 50
Wiederhold, C	66	25	6 25
Wiederhold, C	69	10	2 50

And in accordance with law, and an order of the Board of Trustees, made on the second day of April, 1872, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the office of the Company, Room 21, Hayward's Building, 419 California street, on Friday, the thirty-first day of May, 1872, at the hour of one o'clock, P. M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

CHAS. S. NEAL, Secretary.

Office, Room No 2, Hayward's Building, 419 California street, San Francisco, California.

Kincaid Flat Mining Company—Location of works, Tuolumne County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 23d day of April, 1872, an assessment of Three Dollars per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, No. 329 Clay street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 27th day of May, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 17th day of June, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

R. H. CORNELL, Secretary.

Office, No. 329 Clay street, San Francisco, Cal. ap27-4w

Lyons & Wheeler Mining Company—Location of works, Maynard Mining District, Mohave County, Arizona Territory.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 6th day of April, 1872, an assessment of Ten cents per share was levied upon the capital stock of said Company, payable immediately, in United States coin, to the Secretary, at the office of the company, Room 3, No. 419 California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on Wednesday, the 15th day of May, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 3d day of June, 1872, to pay the delinquent assessment, together with the costs of advertising and expenses of sale. By order of the Board of Trustees.

T. W. COLBURN, Secretary.

Office, Room 3, No. 419 California street, San Francisco, California. ap13

Mina Rica Mining Company—Location of works, Auburn District, Placer county, State of California.

Notice is hereby given, that at a meeting of the Trustees of said company, held on the 8th day of May, 1872, an assessment of 20 cents per share was levied upon the capital stock of said company, payable immediately in United States gold and silver coin, to the Secretary of the company, at the office of the company, No. 320 California street, room No. 5, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Monday, the 10th day of June, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday the first day of July, 1872, to pay the delinquent assessment, together with cost of advertising and expenses of the sale. GEO. R. SPINNEY, Secretary.

ma11-4t No. 320 California St., San Francisco, Cal.

Office of the Silver Sprout Mining Company—San Francisco, April 29, 1872.

In accordance with a resolution adopted at a meeting of the Board of Trustees of the Silver Sprout Mining Company, held this day, a special meeting of the stockholders of said company is hereby called, the same to be held at the office of the company, No. 318 California street (Room No. 1, second floor), San Francisco, California, on Monday, the 3d day of June, 1872, at 1 o'clock P. M., to take into consideretion and decide upon the proposition to increase the capital stock of said company, from three million five hundred thousand dollars, divided into five thousand shares, of the par value of seven hundred dollars each (the present capital stock), to five million dollars, divided into fifty thousand shares, of the par value of one hundred dollars each.

NATHANIEL PAGE,
A. WINGARD,
B. F. TUTTLE,
} Trustees.

ma4-4t

Spring Mountain Tunnel Company.—Location of Works, Ely Mining district, Pioche, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 11th day of April, 1872, an assessment of fifteen (15) cents per share was levied upon the capital stock of said company, payable immediately in United States gold and silver coin, to the Secretary, at the office of the company, Room 37, Merchants' Exchange, California St., City and County of San Francisco, State of California. Any stock upon which said assessment shall remain unpaid on Monday the 20th day of May, 1872, shall be deemed delinquent, and will be duly advertised for sale, at public auction, and unless payment shall be made before, will be sold on Monday the 10th day of June, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. M. BUFFINGTON, Secretary.

Office, Room 37, New Merchants' Exchange, California Street, San Francisco, Cal. ap20-4w

Stockholders Notice---Office of the Tecumseh Gold, Silver and Copper Mining Company. San Francisco, May 6th, 1872.

In accordance with a Resolution adopted at a meeting of the Trustees of the Tecumseh Gold, Silver and Copper Mining Company, held this day, a special meeting of the stockholders of said Company is hereby called, the same to be held at E. Magriech's Hall, S. W. cor. of Kearny and Clay Sts., opposite the Plaza, San Francisco, Cal., on Wednesday, the 12th day of June A. D. 1872, at 2 o'clock P. M., to take into consideration and decide upon the proposition to increase the capital stock of said Company from one hundred fifty-three thousand and five hundred dollars, divided into six hundred and fourteen shares of two hundred fifty dollars each, the present capital of the Company, to three millions of dollars, to be divided into thirty thousand shares of one hundred dollars each.

J. TH. HELMKEN,
J. F. G. EGGERS,
JACOB HAHN,
F. SCHUMACHER.
} Trustees.

Silver Wave Mining Company----Location of works, White Pine Mining District, White Pine county, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the Tenth (10th) day of April A. D. 1872, an assessment of fifty (50) cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of said company. Any stock upon which said assessment shall remain unpaid on Tuesday, the fourteenth day of May, A. D. 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the Thirteenth (13) day of June, A. D. 1872, at the office of the company, at 2 o'clock P. M., to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. W. CLARK, Secretary.

Office, No. 418 California street, San Francisco, Cal. ap-4w

Mt. Jefferson Milling and Mining Company.—Location of works, First Garote, Tuolumne county, California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment (No. two (2) levied on the third (3) day of April A. D. 1872, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Am't.
Creamer, J. M.	63	75	$22 50
Galloway, W. T. Trustee	60	50	15 00
Lewis L. J. Trustee	40	100	30 00
Lewis, L. J. Trustee	57	75	22 50
Lewis, L. J. Trustee	64	25	7 50
Lewis, L. J. Trustee	65	125	37 50
Martin & Lane	12	200	60 00
Richardson, E. A. Tr.	16	1380	414 00
Richardson, E. A. Tr.	18	200	60 00
Richardson, E. A. Tr.	19	200	60 00
Richardson, E. A. Tr.	20	200	60 00
Richardson, E. A. Tr.	21	100	30 00
Richardson, E. A. Tr.	22	100	30 00
Richardson, E. A. Tr.	23	100	30 00
Richardson, E. A. Tr.	24	100	30 00
Richardson, E. A. Tr.	25	100	30 00
Richardson, E. A. Tr.	26	100	30 00
Richardson, E. A. Tr.	27	100	30 00
Richardson, E. A. Tr.	28	50	15 00
Richardson, E. A. Tr.	29	30	9 00
Richardson, E. A. Tr.	34	100	30 00
Richardson, E. A. Tr.	36	100	30 00
Richardson, E. A. Tr.	38	100	30 00
Richardson, E. A. Tr.	46	300	90 00
Shattuck, D. D.	55	13150	3945 00
Shattuck, D. D.	62	150	45 00
Stiles, A. G.	9	500	150 00
Stiles, A. G.	42	1130	339 00
Woolsey, E. W.	10	100	30 00

And in accordance with law, and an order of the Board of Trustees, made on the third day of April, 1872, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the office of the Company, on the twenty-second day of May, 1872, at the hour of 2 o'clock P. M., of said day, to pay said Delinquent Assessment thereon, together with costs of advertising and expenses of sale.

J. W. CLARK, Secretary.

Office, 418 California St., Room No. 2. ma11-2t

Ophir Copper, Silver and G. M. Company.—Location of Works, Ophir, Placer County, Cal.

NOTICE.—There are delinquent upon the following described Stock, on account of assessment levied on the 18th day of March, 1872, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. shares.	Amount.
Allen, M W	336	25	$ 15 00
Brown, Chas. F	342	7½	4 50
Bunker, G F	341	220	132 00
Brush, R G	222	100	60 00
Brush, R G	289	65	39 00
Brush, R G	230	30	18 00
Brush, R G	239	50	30 00
Brush, R G	246	38	22 80
Brush, R G	288	62	37 20
Brush, R G	291	65	39 00
Bloomer, Theo. H	232	30	18 00
Braudt, Mrs. E	315	50	30 00
Bufford, H L	315½	5½	3 30
Baum, Chas	316	100	60 00
Brush, R G, Trustee	329	100	60 00
Brush, R G, Trustee	331	50	30 00
Everson, Wallace	338	200	120 00
Garniss, Jas, R	283	100	60 00
Garniss, Jas. R	337	40	24 00
Hinckley, Oeo. E	334	50	30 00
Kip, Jr. W I	337	500	300 00
Meade, C	244	25	15 00
Purdy, G W	215	50	30 00
Quade, A	299	100	60 00
Reynolds, W O	210	19	11 40
Rogers, Geo P	324	25	15 40
Swain, H O	79	137	82 20
Swain, H O	80	137	82 20
Swain, H C	238	200	120 00
Swain, H C	245	100	60 00
Swain, H O	294	50	30 00
Swain, H C	295	50	30 00
Swain, H C	296	20	12 00
Swain, H O	303	50	30 00
Swain, H C	318	50	30 00
Swain, H C	319	50	30 00
Swain, H C	320	50	30 00
Swain, H O	326	50	30 00
Swain, H C	327	50	30 00
Swain, H C	340	2½	1 50
Swain, W B	11	5	3 00
Swain, W B	10	5	3 00
Stackpole Thos	335	25	15 00
Wightman James	—	400	240 00

And in accordance with law, and an order of the Board of Trustees, made on the 18th day of March, 1872, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the office of John Middleton & Co., No. 310 Montgomery Street, on the 17th day of May, 1872, at the hour of 1 o'clock P. M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

R. G. BRUSH, Secretary.

Office: N. E. Cor. Sansome and Halleck Streets. Entrance on Halleck Street. apr27-3w

San Francisco Tunnel and Mining Company.—Location of Works, Little Cottonwood Mining District, Utah Territory.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the thirteenth (13th) day of April, A. D., 1872, an assessment of Twenty-five (25) cents per share was levied upon the assessable stock of said company, payable immediately to the Secretary, at the office of the company. Any stock upon which said assessment shall remain unpaid on Thursday, the 16th day of May, A. D., 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the 25th day of June, A. D., 1872, at the office of the company, at the hour of 2 o'clock, P. M., to pay the delinquent assessment, together with costs of advertising and expenses of said By order of the Board of Trustees.

J. W. CLARK, Secretary.

Office—No. 418 California street, San Francisco, California. ap20-4w

SAN FRANCISCO TUNNEL AND MINING COMPANY—POSTPONEMENT—The day for deeming stock delinquent on the above assessment is hereby postponed until Tuesday, May 21st, A. D. 1872, and the sale thereof until Monday, the 10th day of June, A. D. 1872. By order of the Board of Trustees.

ma4-3t J. W. CLARK, Secretary.

Union Gold Mining Company.---Location of works, Howland Flat, Sierra county, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 11th day of April, 1872, an assessment of one dollar ($1.00) per share was levied upon the capital stock of said Company, payable immediately in United States gold coin, to the Secretary, at the office of the Company, Room No. 22, Merchants' Exchange Building, California street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the 13th day of May, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 3d day of June, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

ALFRED K. DURBROW Secretary.

Office—Room No. 22, Merchants' Exchange Building, California street, San Francisco, California. ap13-4d

Piermont Milling and Mining Company—Location of works, Piermont Mining District, White Pine County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the sixteenth (16th) day of April, 1872, an assessment of Forty Cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company. Any stock upon which said assessment shall remain unpaid on Monday, the twentieth (20th) day of May, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the nineteenth (19th) day of June, 1872, at the hour of 2 o'clock P. M. at the office of the company, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. W. CLARK, Secretary.

Office, 418 California street, San Francisco. ap27-4w

Silver Sprout Mining Company—Location of works and mine, Kearsarge District, Inyo County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 29th day of April, 1872, an assessment of fifty cents per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary, at the office of the Company, Room No. 1, second floor, 318 California st., S. F.. Any stock upon which said assessment shall remain unpaid on the first day of June, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the 22d day of June, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

ma4-4t T. B. WINGARD Secretary.

Office, Room No. 1, second floor, No. 318 California street, San Francisco, Cal.

Tecumseh Gold, Silver and Copper Mining Company.—Location of works, Gopher District, Calaveras County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 24th day of April, 1872, an assessment of Five ($5.00) dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, F. J. Horrmann, at the office of the company, No. 634 Washington street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 29th day of May, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 17th day of June, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

F. J. HERRMANN, Secretary.

Office, 634 Washington street, San Francisco, Cal. Office hours from 11 A. M. to 2 P. M. ma4-4t

Washington Mining Company---Location of works and mines, Mariposa County, State of Cal.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 8th day of May, 1872, an assessment of $3 per share was levied up the capital stock of said company, payable immediately in United States gold and silver coin, to the Secretary at the office of the Company, No. 418 California street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the 11th day of June, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the 29th day of June, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. B. WINGARD, Secretary.

Office—Room No. 1, second floor of No. 318 California street, San Francisco. ma.11-4

Notice.

U. S. PATENT OFFICE, WASHINGTON, D. C., April 16th, 1872.—On the petition of Charles P. Stanford, of San Francisco, Cal.—Praying for the extension of a patent granted to him on the 27th day of July, 1858, for an improvement in Feeding Quartz, etc., to Machines for Crushing and Grinding the same.

It is ordered that the testimony in the case be closed on the 25th day of June next, that the time for filing arguments and the Examiner's report be limited to the 5th day of July next, and that said petition he heard on the 10th day of July next.

Any person may oppose this extension.

m11-3t M. D. LEGGETT, Commissioner.

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GEORGE T. PRACY,

MACHINE WORKS,

109 and 111 Mission Street,

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These Works have lately been increased, by additional Tools, and we are now able to turn out any kind of work, equal to and cheaper than any establishment in the State; that is to say:—

STEAM ENGINES,

Flour and Saw Mills,

QUARTZ MACHINERY

Printing Presses,

AND MACHINERY MADE OF EVERY DESCRIPTION.

Improved Safety Store Hoists,

Fitted with Cutting's Patent Cams, unequaled for safety, convenience and cheapness. This Hoist can be built for about half the price of any other in use. To be seen at HAWLEY & CO.'S.

ALSO, AGTUBER AND SOLE AGENT FOR

Pracy's Celebrated Governor.

TURNING LATHES, Etc., constantly on hand.

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UNION IRON WORKS,

Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR

WILCOX'S PATENT WATER LIFTERS,

Dunbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,

SACRAMENTO CITY

PACIFIC
Rolling Mill Company,

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Established for the Manufactnre of

RAILROAD AND OTHER IRON

— AND —

Every Variety of Shafting,

Embracing ALL SIZES of

Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames

— ALSO —

HAMMERED IRON

Of every description and size.

☞ Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention

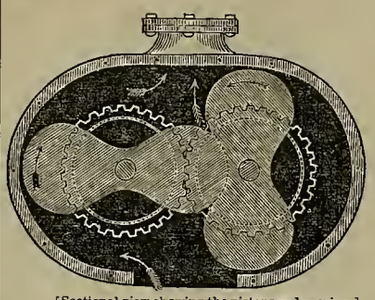
☞ The highest price paid for Scrap Iron 9v14-3m

ROOT'S PATENT FORCE BLAST ROTARY BLOWER,

MANUFACTURED AT THE

GLOBE IRON WORKS,

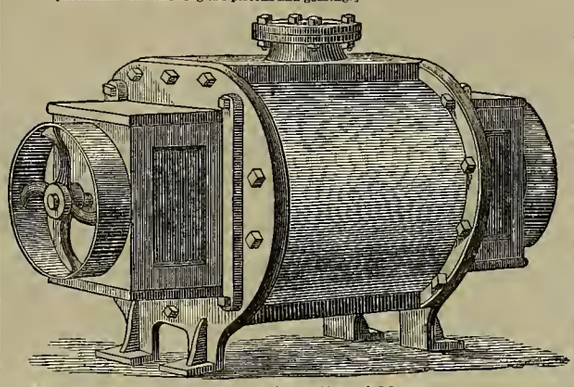
Stockton, Cal.



[Sectional view showing the pistons and gearing.]

Awarded the First Premium at the Paris Exposition.—Patented November 1, 1864; July 24, 1866; and October 9, 1866.

Adapted for Smelting, Foundry, Mining and Steamships. Requires 50 Per Cent. less power than any Blower now in use.



One of these Blowers may be seen at W. T. Garratt & Co.'e Brase Foundry, San Francisco; Gould & Curry and Savage S. M. Co.'s, Nevada; and at C. P. R. R. Co.'s Works, Sacramento; and other places on this coast.

CAUTION. — Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article. Quartz, Saw and Grist Mill, Iron, Stationary and Steamboat Engines, Horse-Power and Pumps, of all Sizes.

For Circulars and further information, Address

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CAMERON'S

STEAM PUMPS.

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Engine Regulators.

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INJECTORS.

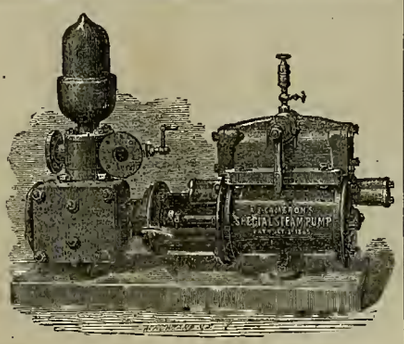
BARTOL'S

STEAM TRAP.

Surface Condensers.

DAVID STODDART,

114 BEALE STREET, S. F.



San Francisco Boiler Works, 123 and 125 Beale Street, San Francisco.

F. I. CURRY (late Foreman of the Vulcan Iron Works), Proprietor.

High and Low Pressure

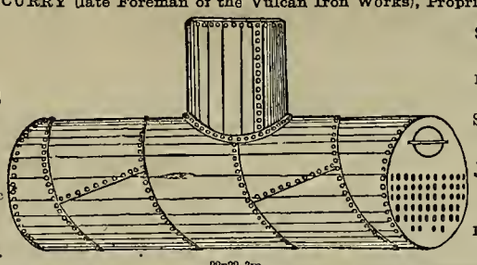
BOILERS

of all descriptions.

SOLE

Manufacturers of the CELEBRATED

SPIRAL BOILER.



Sheet Iron Work of every DESCRIPTION done at the Shortest Notice.

All kinds of JOBBING and Repairing Promptly Attended to.

22v22-3m

THE RISDON
Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1868.
CAPITAL.....$1,000,000.

LOCATION OF WORKS:
Corner of Beale and Howard Streets,
SAN FRANCISCO.

Manufacturere of Steam Engines, Quartz and Flour Mill Machinery, Steam Boilers (Marine, Locomotive and Stationary), Marine Engines (High and Low Pressure). All kinds of light and heavy Castings at lowest prices. Cams and Tappets, with chilled faces, guaranteed 40 per cent. more durable than ordinary iron.

Directors:

Wm. Alvord, C. J. Brenham, C. E. McLane,
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WM. H. TAYLOR.....President.
C. E. McLANE.....Vice President.
JOSEPH MOORE.....Superintendent.
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24v17-qy

OCCIDENTAL FOUNDRY,

137 and 139 First st., near the Gas Works, San Francisco.

STEIGER & BOLAND,

IRON FOUNDERS.

IRON CASTINGS of all descriptions at short notice.

NOTICE.—Particular attention paid to the making of Superior Shoes and Dies. 3v24-3m

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Miners' Foundry and Machine Works,

CO-OPERATIVE,

First Street, bet. Howard and Folsom, SAN FRANCISCO.

Machinery and Castings of all kinds.

COPARTNERSHIP NOTICE.

We have this day admitted Mr. William R. Eckart as a member of our firm, the business of which will be hereafter conducted under the firm name of Prescott, Scheidel & Co. PRESCOTT & SCHEIDEL.

Marysville, Jan. 3, 1872.

MARYSVILLE FOUNDRY.

Referring to the above, we respectfully solicit the patronage which has for the past twenty yeare been enjoyed by our predecessors, pledging our best attention to the wants of all who may eo favor ue.

Quartz and Amalgamating Machinery,

SAW AND GRIST MILLS,

STEAM ENGINES,

HYDRAULIC MACHINES,

HOUSE FRONTS, ETC.

Repairs upon all kinds of machinery promptly made and at moderate charges. Having unrivalled facilities, we are prepared to make to order, at short notice, everything required in our line.

Specimens of our work may be seen in all the mining regions on thie coast.

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CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Mlnna,

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ALL KINDS of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch

☞ PRICES MODERATE. ☜

J. H. WEED V. KINGWELL.

H. J. BOOTH & CO.,
UNION IRON WORKS,

(The Oldest and most Extensive Foundry on the Pacific Coast).

Cor. First and Mission Sts.,

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Marine, Locomotive and Stationary Engines Quartz Crushing and Amalgamating Machines, Mill Irons and Brass and Iron Castings, of every description, made to order.

Steamboat Repairing, Boiler Making, Turning and Finishing,

EXECUTED WITH DISPATCH.

Beet Sugar Machinery completo in every part—made a specialty.

OIL MACHINERY.

A complete set of Machinery of our own design and patent for extracting oil from Castor Bean, dispensing with Hair Cloth. Also Machinery for Flax Seed Oil, Mustard Seed Oil, and Sun Flower Seed Oil.

MARBLE MACHINERY

For sawing Marble of any thickness or size.

Irrigating Pumps. Steam Pumps.

Plans, Estimates, and Advice promptly supplied.

H. J. BOOTH. GEO. W. PRESCOTT. IRVING M. SCOTT

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MANUFACTURERS OF ALL KINDS OF

Machine Bolts, Bridge Bolts, and Ship or Band Bolts.

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THOMPSON BROTHERS,
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129 and 131 Bealo street, between Mission and Howard, San Francisco.

LIGHT AND HEAVY CASTINGS,

of every description, manufactnred 24v15qr

FERRACUTE MACHINE WORKS,

Bridgeton, N. J.

PRESSES, DIES and all FRUIT CANNERS TOOLS a specialty.

Improved 3-lb. Can Press for $65; Rotary Solder Cutter, $15, etc. 13v24-13t

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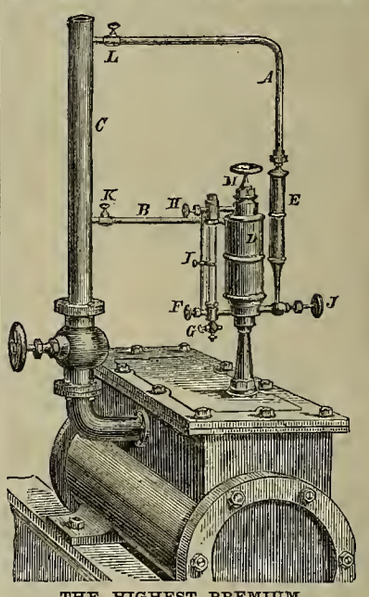
Machinery.

N. Seibert's Eureka Lubricators.



THE HIGHEST PREMIUM

Awarded by the Mechanics' Institute Fair, San Francisco, and State Fair, Sacramento, 1871.

These Lubricators are acknowledged by all engineers to be superior to any they have ever used; feed constantly by pressure of condensed water, supplied by pipe A, regulated under the oil by valve J, and forced out through check valve and pipe B into the steam pipe C; it then becomes greasy steam, passes to all the valves and cylinder at every stroke of the engine; glase tube I indicates amount used per hour. Packing on rods and stems lasts longer, and the rings on the piston will not corrode. One pint of oil will last from three to six days, according to speed and size of engine; I, sliding gauge; K, valve to shut off when engine stopps; H, F, valves to shut off in case of frost; steam does not enter the cup; it is always cool; warranted to give satisfaction. Patented February 14, 1871. Manufactured by California Brass Works, 125 First street, S. F. 24v23tf

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Notice is hereby given, that the copartnership heretofore existing between A. J. Severance, Charles W. Randall and J. Gus. Burt, under the firm name of "Severance, Holt & Co.," is this day dissolved by mutual consent. A. J. Severance, having purchased all the interest of his late partners, will continne the business of manufacturing and selling Diamond Drills, as before, under the style of A. J. Severance & Co.

Dated San Francisco, Nov. 24, 1871.

Office, 315 California street. A. J. SEVERANCE,
CHAS. H. RANDALL.
22-v23-tf J. GUS. BURT.

POWER, TAINTER & CO.,

MANUFACTURERS OF

WOOD-WORKING MACHINERY,

3003 Chestnut street (West end Chestnut street Bridge)
PHILADELPHIA.

☞ Woodworth Planers a Specialty. 2v23-1y

McAFEE, SPIERS & CO.,

BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st. between Fremont and Beale, San Francisco.

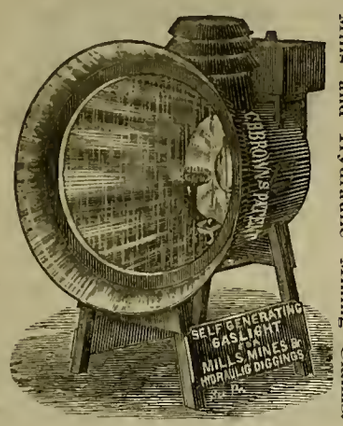
CALDWELL'S

Improved Stop Governor,

Manufactured at the CYCLOPS MACHINE WORKS, 113 and 115 Beale street, San Francisco.
3v24-3m WM. CALDWELL.

BROWN'S PATENT LAMP.

BROWN'S PATENT LAMP, FOR Mills and Hydraulic Mining Claims.



One of these Lampe, when placed at a distance of 200 feet from the bank, will light up a bank surface 250 feet in length and 100 feet high, and to a much better advantage than any other light heretofore tried, and at an expense not to exceed five cents per hour. Lampe furnished at short notice.

For further particulars address

C. B. BROWN,
7v24-t Placerville, Cal.

Varney's Patent Amalgamator.

These Machines Stand Unrivaled.

For rapidity pulverizing and amalgamating ores, they have no equal. No effort has been, or will be spared, to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottome, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the apperture and between the grinding surfaces.—Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

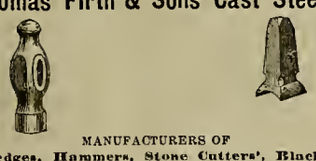
Setlers made on the same principle excel all others They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill-men are invited to examine these pans and setlers for themselves, at the office, 229 Fremont Street, San Francisco.

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.



MANUFACTURERS OF

Sledges, Hammers, Stone Cutters', Black smiths' and Horse-Shoers' Tools.

13 and 15 Fremont street, near Market, San Francisco
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THE

Risdon Iron and Locomotive Works

Corner Howard and Beale Streets,

Are prepared to make SHEET IRON AND ASPHALTUM PIPE, of any size and for any pressure, and contract to lay the same where wanted, guaranteeing a perfect working pipe with the least amount of material.

All kinds of CAR WHEELS, AXLES and RAILROAD WORK made to order. Standard sizes of Wheels constantly on hand. Wheels bored and pressed on, Axles turned, etc., at Reasonable Rates.

☞ All kinds of Machinery made and repaired.

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Manufacturer of

PATTERNS AND MODELS,

(Over W. T. Garratt's Brass Foundry).

N. W. corner Natoma and Fremont streets, S. F. Entrance on Natoma street. 6v23-3m

BLAKE'S PATENT STEAM PUMP.

From the Report of the Committee on Steam Pumps, at the Seventh Industrial Exhibition of the Mechanics' Institute, San Francisco :

BLAKE'S STEAM PUMP.—This Pump yielded the best results as to the quantity of water discharged as compared with its measured capacity. The valves are of brass, and well arranged. The steam valves are well arranged for operating the pumps, either fast or slow.

We recommend that a Medal be awarded to it, as THE BEST STEAM PUMP. [Awarded a SILVER MEDAL, the first premium.] (Signed) JAS. SPIERS,
WM. H. BIRCH.

From the Report of the Committee on Steam Pumps, at the Eighth (or *last*) Industrial Exhibition of the Mechanics' Institute, San Francisco :

BLAKE'S MINING PUMP.—This is an excellent Pump, well made, and gives a high per cent. of duty. We recommend a Diploma for this Pump. (Signed by the Committee.)
O. W. DICKIE, H. B. ANGEL, CHAS. R. STEIGER,
W. EPPELSHEIMER, MELLVILLE ATWOOD.

[No other Steam Pump received other than a Diploma or honorable mention at the LAST Mechanics' Exhibition, *all other assertions to the contrary notwithstanding.* Hooker's Hand Pump was the *only* Pump, of any kind whatsoever, that received a MEDAL and FIRST PREMIUM (highest award to pumps) at the *last* Exhibition, for which we are also selling agents.—*See official Report of the above Committee.*]

The trial of Steam Pumps at the Eighth Industrial Fair in San Francisco, by a committee of five of the most thoroughly practical mechanics on this coast (as above named), showed that the Blake Pump gave 86 per cent. of utilized power, while others gave but 60 per cent., showing great difference in economy.

The Blake Pump is the ONLY *Steam Pump that* EVER RECEIVED A SILVER MEDAL *at any Exhibition of the Mechanics' Institute ever held in San Francisco or California.*

☞ A complete stock of all sizes constantly on hand at the Machinery Warehouse of the Agents,

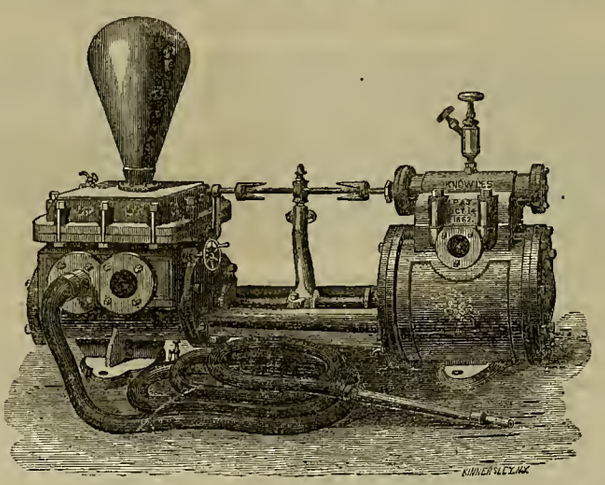
TREADWELL & CO.,
12v3-awbp Market street, corner of Fremont, SAN FRANCISCO.

KNOWLES' PATENT STEAM PUMP.

THE TRUTH!

A. L. FISH, Agent Knowles' Steam Pump—Dear Sir: In answer to your inquiries, we state that the highest award for Steam Pumps at the Eighth or last Mechanics' Fair in San Francisco, was a *First Premium* and Diploma, awarded to the Knowles' Patent Steam Pump, as published in the Official List September 23d, 1871.

A. S. HALLIDIE, President Board of Managers.
W. H. WILLIAMS, Sec'y Board of Managers Eighth Industrial Exhibition, M. I.



It has no Cranks or Fly-Wheel, and has no dead points where it will stop, consequently it is always ready to start without using a starting-bar, and does not require hand-work to get it past the center. Will always start when the steam cylinder is filled with cold water of condensation.

The trial of Steam Pumps at the Eighth Industrial Fair in San Francisco, by a Committee of Five of the most thoroughly practical mechanics on this coast, showed the Knowles Pump to lose but 11½ per cent., while others lost as high as 40 per cent., showing great difference in economy.

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THE LARGEST STOCK OF PUMPS IN THE WORLD,

And for Every Conceivable Purpose.

A. L. FISH, Agent.

No 9 First Street, San Francisco, Cal.

P. S.—All kinds of new and second-hand Machines on hand. 3v24-eow-bp

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ADVANCES MADE

On all kinds of Ores, and particular attention

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CONSIGNMENTS OF GOODS.

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One or two pupils can receive theoretical and practical instruction in Assaying, Analysis, or any particular branch of Chemistry at the laboratory. 11v21-3m

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(Formerly of the U. S. Branch Mint, S. F.)

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J. A. MARS, Assayer.

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Richardson & Co., Copper Ore Wharves,

SWANSEA.

RICHARDSON & Co. have been for thirty years established in Swansea as Agents for the preparation, Sampling, Assaying, and Sale of Copper, Silver, Gold, Lead, Zinc, and all other Ores and Metals, for which they have extensive Warehouses and Wharves under cover, 1,000 feet of Quay Frontage within the Floating Dock, and the most complete Machinery and Appliances. They are also prepared to make advances against Ores in anticipation of realization, and to guarantee all payments when required. 11v24-1y

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C. W. STRONG & CO.,

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No. 10 Stevenson Street, near First, SAN FRANCISCO

We purchase Ores, Bullion, etc. Ores worked and Tests made with care. Also, Assays of Gold, Silver, Copper, Lead, Tin and other Metals. 23v22tf

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Platinum Scrap and Ore purchased. 22v18

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Having been engaged in furnishing these supplies since the first discovery of mines on the Pacific Coast.

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Tongs, Muffles, Cupel Moulds, Assay Moulds, Scorifiers, Roasting Dishes, Annealing Cups, French Clay, Assay Crucibles, Hessian (or Sand) Crucibles.
Dixon's Celebrated Black Lead Crucibles and Covers—all sizes.
Assayers' and Chemical Glassware and Assayers' Hardware—a full assortment.
Steel Stamps for hand cut to order.

ACIDS AND CHEMICALS.

Acid in carboys and bottles, commercially and chemically pure.
Bi Carb. Soda, Borax, Bone Ashes, Litharge.
Assay Lead in bars, rolled and granulated.
Black Oxide Manganese, Sodium and Sodium Amalgam, Sulphate of Copper, Quicksilver, and all Chemicals and Reagents required by Assayers and Milling Co.'s.

☞ Our Gold and Silver Tables, showing the value per ounce Troy at different degrees of fineness, and valuable tables for computation of assays in Grains and Grammes, will be sent upon application.

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The Scientific Press is the Oldest and Largest Practical Mining Journal in America.

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It is published in the best location in the world for furnishing the largest amount of valuable information to the gold and silver miners and metallurgists everywhere.

Its correspondents and subscribers are to be fonnd in nearly all the mining districts of CALIFORNIA, NEVADA, IDAHO, MONTANA, UTAH, ARIZONA, COLORADO, and in MEXICO and other foreign countries.

Over 10,000,000 Dollars!

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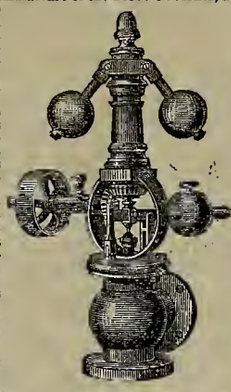

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SAN FRANCISCO, SATURDAY, MAY 18, 1872.

VOLUME XXIV. Number 20.

McDonell's Propeller.

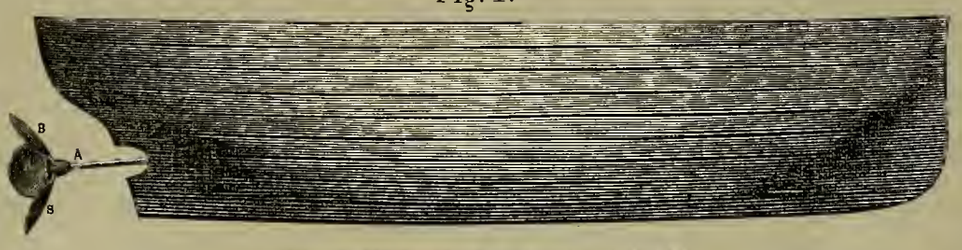
The reward of one hnndred thonsand dollars offered by the State of New York for the most feasible and practical plan for propelling canal boats has called fortb a large nnmber of improvements, within the last year, upon tbe varions plans and methods of propulsion.

Among the numberless devices heretofore snggested for accomplishing this purpose, the dncks-foot propeller has always been a favorite one, for the reason tbat it is supposed hy many to emhody all of the advantages of power and economy which it is possible to ohtain in a propeller.

This opinion originated from the fact that Natnre has supplied aqnatic fowls and animals with this class of propellers; hence the name ducks-foot propeller.

When a propeller is entirely snbmerged in water and performs its work hy a reciprocating motion, it is necessary to its snccessful operation, that the forward stroke should meet with as little resistance as possible, otherwise the effect of the stroke in one direction, would he conntereacted hy the opposite stroke, and the forces being equal the object to be propelled would remain stationary. To ohviate this the propeller is made so as to open and close antomatically hy the resistance which it encounters in heing moved back and forth in the water; thus, tbe direct stroke opens the buckets or wings so as to allow them to take full hold upon the water while the return or hack stroke closes the buckets so that they will slip through the water with little resistance.

Fig. 1.



MCDONELL'S PROPELLER WITH BUCKETS EXPANDED.

The McDonell propeller is shown in the accompanying engravings and the reader will readily perceive that it accomplishes the object in a very simple and thorough manner. The stem, *A*, in Fig. 1, extends through the stern of the boat passing through a suitable stuffing hox to render it watertight. At the outer end of the stem is formed or fixed a large flat head or end, *C*, the enlargement of the stem heing gradnally made. Just back of the head, *C*, three or more huckets, *B*, are hinged so as to open in an outward direction in the form of an inverted umhrella; when a direct hackward stroke is made the resistance of the water opens the buckets so that they take full hold upon the water; the reverso stroke closes tbe buckets so that they pass through the water with very little resistance. Fig. 1 shows the propeller at the time of the direct backward stroke, and Fig. 2 shows it when closed by the reverso action.

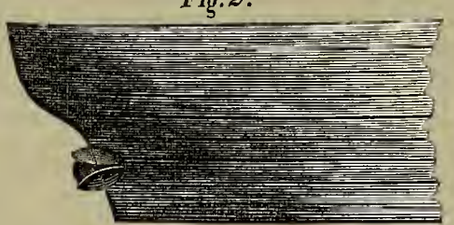
This one propeller at the stern would only be useful in driving tbe vessel forward, and in order to he enabled to back her it would be necessary to carry anotber one at the bow of the boat. This one tbe inventor proposes to entircly conceal by preparing a recess or cavity in the bow below the water line into which the propeller can be withdrawn and protected by a housing or covering when not in nse.

The inventor claims that he provides a much larger surface for taking hold of the water upon the direct stroke by employing the enlarged head, *C*, while it prevents the wings from entirely closing on the return stroke, so that they are ready to open instantly as soon as tbey meet the slightest resistance. Tbis gives the propeller greater power and consequently increases the speed of the vessel.

The inventor proposes to apply this propeller to canal hoats especislly, as he claims that it will produce no perceptihle agitation of the water, especially when it is given a downward slant while working. He also claims that it will require less power to accomplish equal results when compared with the ordinary propelling devices, and consequently a saving of fuel will be effected.

The inventor of this propeller is Mr. Thomas K. McDonell, of tbis city, who has secured United States letters patent covering his invention through the SCIENTIFIC PRESS Patent Agency. For further particulars address Wiester & Co., No. 17 New Montgomery street.

Fig. 2.



SHOWS THE BUCKETS CLOSED.

The New Mineral Land Law.

We give in another column the new mining law in the form in which it has finally passed hoth houses and received tbe signature of the President. This is a very important law and will be read and studied with much interest hy all engaged in active mining operations. The act of securing a patent to a mining claim will he greatly simplified and cheapened under the provisions of this hill. The check in land office fees is very direct and leaves no room for evasions or nndue exactions. The provision allowing testimony to be taken hefore County clerks as to the mineral character of land, recently secured by Mr. Sargent, hy especial instructions from the Land Office, have heen embodied in tbe new hill, and made still more liheral in its character.

A proviso with regard to agricultural land contignous to mining claims will he welcome to farmers. This proviso provides that when, in segregating mineral land, any legal suhdivision of a quantity of agricultnral land less than 40 acres remains, said fractional portion of agricultural land may be entered hy any duly qualified party for homestead or pre-emption purposes.

Quartz claims, hereafter located, either by one or more parties, eannot exceed 1,500 feet in length on the vein, or more than 300 feet on the surface npon each side, measnring from the middlo of the vein. Tbis restriction, however, will not prevent any number of single locations, nnder which patents may issue, to be subsequently consolidated.

In the location of placer claims, it is provided that when such claims cannot readily he made to conform to legal snbdivisions, the survey and plat may he made as in nnsurveyed lands.

The tnnnel seetion, giving the owners of tunnels the right of possession for all veins or lodes discovered witbin 300 feet of tbe face of the tunnel, and 750 feet on each side thereof, is rather hroad. This privilege was given to the Sutro tunnel as an exceptional case, and is now made universal.

Under former laws it has often occurred that there would be some drone wbo would refuse to do anything for the development of a mine, leaving all the risk to be assumed by his co-associates, wbile he came in and payed up only in case anytbing valuable was developed; in this bill a provision is inserted whereby such a person can be compelled to pay or forfeit his interest, after tbe reasonable time of one year and ninety days has elapsed. The bill, as a whole, may he considered a very acceptahle one; and will no doubt do much towards a more ready promotion of tbe mining interests of the country tban has been accomplished hy any recent National Legislation.

Corporate and Individual Mining.

The mining news from all over the Coast is extremely favorable, and work is being energetically pushed in every locality with good resnlts. It is a very significant fact that the mines which are held hy a few individuals who superintend them personally, and work them economically, without haste and in a systematic manner, are in a mnch more prosperous condition and tnrn out a larger amount of hullion proportionally than those which are owned by large corporations, who have expensive mills, superintendents at high salaries and turn ont their thousands of tons where the small mines tnrn out their tens. They do not make so much noise in the world nor do we hear of any "irregularities" of superintendents and others as among the heavy mines. The expenses are proportionally smaller, and tbe dividends larger. In fact, a company of four, six or eight men can make mining pay them handsome dividends where a large company will run in deht, althongh they may take out an ahundance of ore and get down in their ledge rapidly.

There are many reasons for this which will be evident to every mining man. Where a number of people have to pay tbe bills and the proportion of each is small, tbose who have charge of the expenditures easily fall into a convenient way of getting everytbing and anything that they tbink they want, and which they would otherwise do without. Moreover, each of these holders, when there are many, are not likely to examine the books. In small companies it is a very different thing, for each man being on tbe ground bas a personal supervision of affairs, and unless tbings are an absolute necessity they are not bought. They can canvass the question among themselves and decide upon tbe best means of overcoming any obstacle, and do so without delay. If expenditures are made tbey know where the money goes, and do not want a large commission paid them for dealing at any particular place. Tbe mine is worked slowly and systematically, and every lick of work is made to tell, while tbe ore that they get out with so much labor is carefully watcbed if crushed in a cnstom mill till the bar comes out and mill employés have no chance to levy tribute on it.

In visiting such mines as these we do not see a pile of pssable ore lying on the dumps because it will not pay a high figure, for if such ore comes out of tbe mine it has to pay its way, and if it will give anything over milling charges and hauling it is put througb. We know of plenty of mines where the owners live in a cabin near them, do a large proportion of tbe work themselves, and see tbat what they are not able to do is done properly, tbat are making fortunes for tbeir owners. It would astonish some of our "stock miners" to see the way such mines are managed, and tbeir hooks, if they kept any, would surprise them still more. The great pity is that our large mines, with their millions of capital, do not do as well proportionally as many small ventures wbich are the real life of mining industry on the coast.

Vein Phenomena.—Concluded.

[Written for the Press by A. J. Brown.]

White Pine Mineral System.

White Pine is but a small section of country, yet it furnishes a large number of distinct mineral-hearing formations. Overlying the granite on the west side of White Pine Mountain, not less than 3,000 feet of strata are exposed, up to and including the Treasure Hill dolomite, all of which is penetrated by mineral-bearing lodes and deposits. Within that space there are at least five distinct mineral zones, each furnishing a distinct and well marked type of mineral, and each accompanied by as well-marked a change in the lithological character of the formation.

The ore found in the dolomite of Treasure, Blne, Silver and Bullion Hills, is exceedingly simple in composition, being mainly a pnre chloride of silver, containing hut slight traces of either copper or lead. This is known as the free metal zone or belt, and in all cases is fonnd accompanying the dolomite. A few hundred feet west of this helt the ore gradually changes its charscter; compounds of copper, lead, and sometimes antimony, predominate. (The ore is mostly found in vertical fissures generally following the course of the outlying spurs of Treasure Hill, but sometimes crossing them as in the Imperial.) The limestone in this helt is less regularly stratified than in the free helt, is often granular, sometimes arenacious. Its color, when freshly fractured, is mostly light buff. The veins or deposits instead of coursing north and south are generally east and west vertical fissures, often showing themselves for a long distance on the surface. They are generally very irregular, varying in thickness from a line to several feet.

This coustitutes the second zone, and is situated along the western slope of Treasure Hill and the eastern slope of Bahylon Hill. The next zone is usually known as Carhonate Hill, and extends from Poyonix Cañon diagonally across White Pine Mountain in the neighborhood of the Jennie A. mine. Its whole length is ahout five miles. The formation resemhles the last, but is decidedly more areuacious. In the northern part considerable belts have heen chauged to quartzite. The ore found is principally carhonate of lead, (creusite) very poor in eilver. In the southern part of the helt,the ore rarely contains more than $15 per ton. In the northern part, however, it sometimes reaches $60 per ton. The deposits in and adjoining the quartzite contain considerahle copper and antimony and are quite rich in eilver.

Weet of this there is another intermediate zone situated in calcareous schist. Its minerals partake partly of the character of the last zone and partly of the next in order. Some parts of the veins carry red copper only, while in its immediate vicinity are found considerahle masses of argentiferous galena, cerneite and sulphide of antimouy, sometimes occurring separately, but more generally intimately associated. The veins are also intermediate between the deposits of Treasure Hill, and the true veins further west; they are fairly defined but there are no division lines separating the quartz from the wall rocks.

The next zone is in shales, and consists of one well-defined vein, cropping for over one mile iu length, with an average thickness of ahout 10 feet. The ore consisting of copper and iron pyrites (Chalcopyrite) is massive and compact throughout the whole vein. The next and last zone is situated a few hundred feet further west, iu the granite helt. There is only one known vein, which is doubtless a true fissnre. The ore found in that part wholly enclosed in granite is a compact sulphide of antimony, with ouly slight traces of any other mineral. At both the north and south end the vein passes into the stratified rocks, and the ore is valuable for its silver, while the south eud contains, in addition, traces of gold and copper.

There are several other subordinate bodiee of mineral found iu various parts of the district that are not important, excepting the French and some others in its vicinity. These deposits occur in the lower etratum of dolomite. The ore ie exoeedingly rich iu silver, geuerally ranging from $100 to $800 per ton; hut the depoeits are generally small and irregular. The ore is characterized by a strong admixture of copper, lead and antimony.

Will the Mines Continue in Depth?

As we have been dealing with the White Pine mineral system, it may not be inappropriate to refer here to a question of the utmost importance to her future prosperity, namely: May we expect a continuance of the deposits of free ore in depth. Of couree any opinion on the subject is at present hut mere speculation; hut were we better acquainted with the laws that govern the mineral world, we might answer the question with almost unerring certainty. As it is, we must judge by the knowledge in our possession. In examining the district we have found there are several thousand feet of mineral-bearing strata exposed, belonging to a lower geological horizon than the Treasure Hill dolomite. Thus proving that all the underlying strata are metalliferous. Therefore we have no reason for supposing that the strata covered hy the dolomite is less metalliferous than that from which it has heen denuded.

Furthermore, we find the minerals in the free belt arranged under certain conditions and in well-defined boundaries, showing nnmistakable ohedience to some given law. In some instances deposits were found near or on the surface, while others were discovered at varying depths up to 150 feet; but all the deep deposits are found on the east side of, and near the spar vein. Outside of that we look in vain for deep deposits, except in the base range. We have also found the "ore channel" along the spar continuous, sometimes in immense deposits, at others but a mere seam. In attaining depth we may look for the same order of arrangement, large deposits will gradually pinch to a mere seam, or perhaps give out altogether in parts of the channel, only to wedge out again, or to he succeeded by other deposits in depth. But as we find base ore in the underlying strata on both sides of the main helt, we may reasonably assume that the free ore will gradualy be replaced with baser compounds ae depth is attained and the underlying strata reached. In fact in mines where considerahle depth ie being attained, we notice a gradual change in the ore in that respect.

Schell Creek

Furnishee well-marked instances of changes in the country rock accompanied with corresponding changes in the accompanying minerals. The prevaling formation is dolomite lying upon a substance of porphyritic rock, and capped with a light deposit of calcareous shale alternating occasionally with considerahle masses of quartzite. The main helts or "ore channel" is situated along the plane of contact of the shale and dolomite, and apparently coincides with the latter in dip and strike. The minerals found in it are mainly silver glance and chloride, with very slight traces of copper (azurite and malachite). Some of the outlying deposits are encased wholly in dolomite, and the minerals are in all casee characterized hy an increased percentage of copper, silver copper glance, and compounds resnlting from its decomposi tion (azurite and malachite). South of Queen Springs hill, the dolomite is replaced hy a dark stratified limestone resembling shale, and the vein though continuing as strong as elsewhere is comparatively poorer in valuable minerals. At Ruby Hill, another change takes place in the formation. A species of greenstone is found in contact with the vein, and the ore though very rich in eilver, is characterized by a etrong admixture of antimony. Hence the name of the locality.

A Remarkable Ledge.

But, probably one of the most interesting ledges in Eastern Nevada, is situated in the Bunker Hill mining district, thirty miles south of Austin, Lander connty. One very prominent vein, evidently a true fissure, courses through the district, generally north and south. In thickness it variee from ten to sixty feet. Quite extensive developments were made in former years, and something like 2,000 tons of ore have been worked by the different companiee owning locations on the lode. The ore is abundant and of good average grade, unnsually refractory. The vein can be traced through several dietinct formations for a distance of two miles, and every change in the formation develops a different type of minerals. Thus commencing at the south end we find the enclosing rocks to be graphitic elate, and the vein ie entirely nonmetalliferous. The next formation, for about 1,000 feet, is diorite and argelaceoue ehale—the former the hanging, the latter the foot wall. The miuerals found aro argentiferous galena and anrif-erous iron pyrites. Native sulphur is occasionally fonnd in cavities or druees in the quartz. The next location is in argillaceous shale; gold is the predominating metal. The next 1,000 feet passes between a diorite hanging and a shale foot wall; minerals the same as before described for the same formation.

The somewhat noted Victoria mine occnpies the next 1,200 feet. The vein is here 30 feet thick encased in argillaceous slate, yields gold, silver, copper, lead and iron pyrites. The ledge next passes through a thick bed of limestone, and a remarkable change takes place not only in the minerals, but in the character of the ledge itself. Its vein character is wholly lost—limestone replaces the qnartz, and the ore occnrs in bunches and deposits. Moreover there is a decided change in the minerals. The gold and iron pyrites are entirely wanting, and the silver is found in combination with antimony, lead, copper, sulphur and arsenic. (Silver Fahlerz.) A few hundred feet further on, the ledge passes out of the limestone into slate, and again assumes its vein character and with it its former combination of minerals, viz., gold, silver, copper, lead and iron pyrites.

This part of the vein appears to furnish an instance where the enclosing rocks have not only had an influence on the metallic contents, but have determined the character of the vein, also, by changing a fissure in slate etc., to a system of deposits in limestone.

The San Diego Mines.

Ens. Press:—The fine rains that we have had in this region, recently, have revived the whole face of the country, and with it the hopes of the people generally, and particularly the farmers, as the crops never have looked half so well for three years past. Our minee are also improving steadily, as the work of development slowly progresses. The

Golden Chariot Co.

Of Banner District, have a shaft down 100 feet and the ore is hetter than they ever had hefore, and good judges say it will go $200 per ton. They have out now, more than 100 tone. The Madden Company had twenty-five tons of ore worked from their ledge, ten days ago, which returned $110 per ton. The

Ready Relief Co.

(Belonging to Bailey Broe.) cleaned up last week from eight tons of ore, worked in their little wooden mill, three stamps, $140 per ton. They now intend to get an iron battery, to run by water power, when they will he hetter situated to make money and work economically any mine in the country. The mine ie opened on the face of the hill in three or four different places, ehowing gold everywhere. They have it prospected about 800 feet on the face of the hill, from the opening at the hottom, and the ore is dumped from the cart, at the mill. This mine is the eouth end of the

Rsdmann Ledge

Owned by McMechan & Whitney. Work has heen suspended on the Redmann mine for the present, on account of water, for with the present machinery they cannot keep it clear. The mill is now running on 25 tone of ore from the Pacific, a ledge lately discovered by Mesers Gilbert & Lewis. The ore ie varionely estimated as worth from $60 to $100 per ton.

Other Mines.

Good rock is heing extracted from the Chapparal ledge, The "Antelope" mill etarted up on rock from the ledge of that company, estimated to he worth $100 per ton. The "Big Blue" had a crushing of ore from their ledge last week of 25 tone without aesorting, which paid in Reynolds & Co.'s mill $42 per ton. The Bueh hoye had a clean up at eame mill of 30 tons of ore which paid $47. De Frees & Moore's mill is running constantly on rock from the

Owen's Mine,

Which rock ie paying fiuely. A clean up of 100 tons made two weeks ago returned $50 per ton. The present run is taken from the 200 ft. level (the depth of the shaft,) and much hetter rock than ever was taken from the mine before. While I am writing I am told they have finished the run of 150 tons and cleaned np to-day $68 per ton, the heet return ever made from the Owen's Ledge. Since Wm. Wilson has started his sawmills and is furnishing lumber, new houees are going np, hotele enlarging, new ones heing built and merchante receiving larger stocks of goods and selling more than ever before.

L. B. M

Julian City, April 23, 1872.

Large Sales.—Dnring the last three month sales of Plumas county mining property—quartz and gravel—have been made to outside capitalists to the amount of $1,235,000. This epeake for itself, and shows that a portion of the rich deposits of our mountains, so long neglected, are about to he worked. We have always contended that our county offered a more extensive field for large paying mining operations than almost any other in the State, and now that capital is taking its place in our midst, we expect to see our predictions verified.—*Quincy National.*

The Great Bonanza.

The extensive and immensely rich body of ore developed and still developing in the Crown Point and Belcher mines, is simply an exaggerated specimen of the ore deposits lying within the limits of the great Comstock lode. The lode itself extends definitely to the distance of ahout three miles in a northerly and southerly direction, with a dip or inclination of forty-five degrees east as it descends into the bowels of the earth. Its width between the walls varies greatly, heing from fifty to three hundred feet, or thereahouts, the north end being apparently the narrowest, while at the south its real width seems more and more indefinite as fnrther developed. The general character of the vein matter between the walls is porphyry, quartz, clay and similar material, considerably mixed, with occasionally veins or pockets of water. The ore bodies are the exception to the general character of the ledge, and do not seem to he in regular chimneys or streaks, but, in independent deposits, occuring simply where ever they are found—to nse a common expression of the most experienced superintendents and mining men.

These ore bodies or bonanzas are of all sizes, and in two instances show signs of regularity or continuous connection from the surface down to the greatest depths yet attsinod. One instance is that of the Gould & Curry, appearing at the surface and following down in an almost uninterrupted chain sonthward—and eastward with the dip of the ledge—through the Savage and Hale & Norcross. and evidently into the unexplored lowest depths of the Chollar-Potosi. The other is that of the Belcher, extending from the surface or thereahouts northward down to the lowest depths of the Crown Point. Bonanzas of all sizes have been found and worked ont in various portions of the ledge, near the surface, as in the Ophir, Mexican, Chollar, the mines of Gold Hill proper, the Yellow Jackct, Overman, etc. An important specimen was the rich Belvidere body in the Chollar-Potoei, extending from at or near the eurface to about 200 feet below. It was nearly 200 feet long, and 60 or 70 feet wide, egg-shaped, and was nearly all worked out last year, yielding some millions of dollars. In the Overman several considerably smaller bunches of rich ore were worked out in times past; and, as we have stated, the prospecting exploratione in the varions mines along the great lode are liable to dovelop new hodies of greater or lesser importance at any time and where least expected.

The great chief bonanza of all, however, thus far, is that encountered in the lowest levels of the Crown Point and Belcher. Already it is known to be four hundred feet in depth, a hnndred feet or more in width, six or eight hundred feet long and its limits in any direction are far from being definitely known. Widening as it descends, it is literally one grand mountain-like mass of rich silver and gold ore, to which all the other honanzas or bunches of ore heretofore found are mere stray nodules. It gains to the north and sonth as depth ie attained, and bids fair to not only include the entire length of the Crown Point and Belcher claims, but also to extend into the Segregated Belcher and other mines south. Thue far it has exceeded the ntmost limits of the wildest and moet sanguine imagination, and no man, even now, may set a definite limit to its boundaries.—*Gold Hill News.*

Sold.—Mr. Reed, of the Black Bear Mining Company, arrived here from San Francisco on Tuesday last. From him we learn that the Black Bear mine is sold, and that the delivery of the property will be made as eoon as the transfer of the etock is completed. He thinks that one of the firet thinge which the new company will undertake after getting posession, will be the construction of a wagon road from Scott Valley to the mine. They purpose to enlarge greatly the capacity of the mill, and to do this properly a wagon road is almost indispensable. Mr. Reed left on Wednesday morning for Salmon.—*Union, Yreka 4th.*

Recent experiments in England have shown a net profit of $105 per acre upon land that was systematically irrigated; whereas, upon eimilar land of the same tract, when the irrigation was omitted, the net profit was only $45 per acre The "Great American Desert," that once occupied so large a space on the maps of Western Territories, will nearly all be made productive hy irrigation.

MECHANICAL PROGRESS.

Russia Sheet Iron.

Mr. Rodgers of Apollo, Pa.., has devised the following method of producing what is known as Russia sheet-iron. It is claimed that the process accomplishes more than any other ever devised:—

The iron, being of proper gauge, is covered on the surface of each sheet with particles of charcoal of about the size of a grain of wheat, taking care to have these particles evenly spread over the entire sheet, completely covering the surfaces with them. There is then laid another sheet of iron upon this first sheet, and, in like manner, its upper surface covered with like particles of charcoal. The operator thus continues to place sheet upon sheet, covering the upper surface of each until is formed a pack of about forty sheets. The edges are then clamped in the usual manner for forming packs of sheet iron, and the pack then placed in the heating furnace, with the under sheet of the pack resting upon a bottom plate. There is then placed around the edges of the pack wood which has been thoroughly soaked and saturated with water, forming a protecting wall of wood. The mouth of the furnace is then closed so as to prevent the admission of air into it. The fire is then started in the fire-chamber, using wood as the fuel. After the fire has become completely ignited, the damper is lowered so as to retain the heat, smoke, and gases of the fire in the furnace. After the iron has been subjected to the action of the heat, smoke, and gases of the furnace until each sheet in the pack has become red, which will require about two hours, the pack is removed from the furnace and subjected to the action of a "steam hammer," or other concussive or impinging force, for the purpose of working the oxyd which has been formed on the surfaces of the sheets into the body of each sheet. The pack is then unpacked and repacked in the same manner as in forming the first pack, taking care to bring the center sheets of the pack to the outside of the pack, and the outside sheets to the inside, thus interchanging consecutively the center sheets. The pack is again subjected to heat in the heating furnace in the same manner as in the first pack. It is then removed from the furnace, and again subjected to a hammering or other force, as in the first instance. This packing, heating and hammering process is repeated four or five times, which will, as a general rule, sufficiently work into the iron the oxyd formed on the surfaces of the sheets at each heating of the pack, and give it the necessary finish and polish. The sheets are then trimmed by the shearing process, and passed through the length of the oven will be sufficient to anneal and properly color them. The sheets are now finished and are in a merchantable condition.

The Hammer vs. the Rolls.

Quite a discussion is going on between some gentlemen connected with the American Institute of Mining Engineers, in regard to the relative excellence of hammered and rolled ingots for steel rails. As rail-blooms must be reheated before the rail can be completed, the manner of forming the best bloom becomes the question of importance. One party claims that the hammer will expel more cinder and other impurities which may be in the puddle-ball or ingot, and make a more dense and tough steel, especially because the mass can be upended and compacted by heavy blows upon all sides, whereas the rolls, with less power, simply stretch the bloom and form it. The other party contends that when a heavy squeezer is used a better effect is had upon the puddle-ball or pile than can be induced by the hammer, and that the roll then completes the work more rapidly and better, because, in stretching the mass, it causes the metal to be pressed forward and revolve upon itself as well as to be made dense, and hence no better result could be obtained. So far as the squeezer is concerned it cannot apply to the ingot, as it is not so used, and the probabilities are that the roll has not been more generally used because there have been but few large enough. Since the Bessemer process has furnished means for producing large ingots the use of the hammer is no longer a necessity, although it is preferred in some cases. With all that has been elicited upon the subject, it seems that the preference given to the hammer arises mainly from the fact that tool-steel has up to this time been made by the use of it.

A torpedo boat is to be built at Boston, 170 feet long, 35 feet wide and 15 feet deep, drawing about 12 feet of water. It will be of 350 tons burden, with two propelling engines and two propeller screws. The plow is to be made sharp and will carry a steel ram six feet under water. Above the ram there will be aperture, through which will pass a long composition spar carrying a torpedo at the end. The sides will be plated with six-inch iron, and the deck with one-inch steel armor. The estimated cost is about $300,000, to which may be added about 50 per cent. for extras and items not counted in the estimates.

A new canal has been projected for connecting the Rhine and the Weser. It is to be about eight and a half feet deep, forty-four feet wide, and over one hundred miles in length. The cost is estimated at about $7,500,000.

Glass-Lined Water Pipe.

A company has been organized in New York, for the purpose of lining pipe and tubing of iron, or any other firm metal with tubes of glass. The glass tubes are made a fraction of an inch smaller in diameter than the metal tubes, and the space between is filled with plaster-of-Paris. The plaster is mixed to the consistency of cream and poured in, after which it soon becomes a firm lining, or wall between the glass and the iron or other metals, and being a non-conductor of heat and cold is not liable to freeze or be otherwise injuriously effected by the changes in the temperature of its surroundings.

That a pipe which will convey pure water to our stomachs and systems, is a most desirable thing, there can be no doubt; and that glass will do this is certain; while the fact that lead will not, is equally sure; and yet one must remember that iron will bend, and glass tubing is brittle and will break on the least deviation from the straight line, and when plaster and particles of glass and oxide of iron come in contact with each other, what the result will be, remains to be seen, when such breakages occur, as they must in the course of handling the tubes as roughly as baggage smashers are in the habit of handling.

There is no better field for the exercise of ingenuity than the one left open by this pipe business. The parties who propose the glass lining, have selected an admirable substance for the purpose in every respect but the most important one. It is not flexible, and consequently cannot be depended upon, and in fact any practical mind would condemn it at once except for use in cases where it would be absolutely free from liability to accident or external influences.

The plaster filling, or insulation, supplies, in principle, the best of protection to the glass tube and its contents against atmospheric influences, but in practice itis subject to the same objections which are patent to the glass, in the want of flexibility, except in cases where it is not subject to disturbance.

The material which is coming to the front for the lining of pipes is rubber, vulcanized to a degree which gives it body without destroying its flexibility. But a process has not yet been discovered by which this material can be well applied to the interior of tubing.—*American Manufacturer.*

Steam Canal Towage.—The *Manufacturer and Builder* calls attention to the fact that nearly all, if not quite all, the experimentors upon the steam canal towage problem, have overlooked an important fact developed years ago on the western rivers, that towing can be done with far less power by attaching the freighted barges or flats *ahead* of the towboat than to the rear of it. In the case of river work the fact was developed by reason of the damage contributed to craft, low down in the water, by the swell made by the tow-boat. When the freighted boats are pushed ahead of the tow, far less resistence is offered by the water than when they have to be drawn through a swell.

Boiler Incrustation.—This is a subject as yet very imperfectly understood, but about which there is much empiricism. The *Railroad Gazette*, after discussing the matter at considerable length in several of its late issues, "gives it up" as follows: "Of incrustations, we in common with some hundreds of thousands of other people want information. We confess we know very little about the subject, and certainly are not aware of any sovereign remedy for the evil. We are quite sure, however, that a great deal of matter gets into boilers which should not, and does great injury there; and the man who can tell how to exclude foreign substances may be sure of having very attentive listeners."

Naval Ships of War.—The English propose building a ship of war with armor plating *on the bottom*, leaving the top sides unprotected, and, to compensate for this disposition of weight, the coals, stores and cables are to be above the water-line. The vessel is to be armed with submarine rocket tubes for the projection of rockets possessing the inherent property of preserving a given depth of immersion, and which will explode a charge of gun-powder or other explosive on coming into contact with any solid substance, such as a ship. Authority for the above statement is the *Mech. Mag.*

Melting Steel.—By experiments recently made with a small furnace of Sweet's patent make, it was found that steel could be melted in two hours, with raw semi-bituminous coal-mine slack, or the fine coal as it comes from the mine, putting the steel into the pots cold, and allowing one pound of coal for one of steel. Encouraged by these and other tests, the Sweet Manufacturing Company, of Syracuse, are at work putting in a 16-pot furnace, and will begin the business of melting steel about April 1st.—*American Manufacturer.*

A New Safety Signal invented by Mr. George B. Cumminge, is to be tried on the Boston and Maine Railroad. A dial, with figures from one to ten, nine inches in length, is set in motion by a rod being struck by a passing engine, and continues in motion ten minutes, and showing a red signal to an approaching train. The illuminated dial can be seen a great distance, and when wound up will run for ninety trains. It is designed for curves, tunnels and other dangerous places.

SCIENTIFIC PROGRESS.

The Marvels of Nature.

In attempting to write of the marvels of nature in this age of scientific development, one scarcely knows at what point, or with what element, to commence; for within the last half century, every element, as well as everything we use—our food, clothing, dwellings, modes of travel, and weapons of war as well as implements of peace, have all come within the reach of science, much to our advantage. The application of chemistry to food, agriculture, and sanitary reforms, has lengthened the life of the present generation at least five years longer than its predecessor, while the application of steam to manufactures, land and water travel, and electricity to commercial purposes, enables us of this age to conduct as much business in one year as our grandfathers could in ten. It is an undeniable truth that no race of men ever existed who have seen so many of the marvels of science, or who knew so much of nature, as this generation. Yet, withal, the very element by which all nature is seen, the very source of beauty—Light—is as great a mystery to us as it was when "God said let there be light, and there was light."

None of the elements by which we are surrounded appear to the uninstructed eye so simple as light. It is less material than air, it is infinitely less so than water, which serves our purposes as ice or vapor. Science has not yet been able to discover what light is. We don't know what light is any more than we know what the electric fluid consists of, if the subtle agent that conveys our messages across the continent really is a fluid.

Electricity gives us a pleasing tittilation, or a smart shock, or strikes us dead; coats the baser metals with glittering gold or silver; generates a motive power to work ponderous machinery; make a light of intense brilliancy, and performs a thousand services for us without our knowing exactly what it is. Light is infinitely more necessary to our comfort and happiness, serves even more important purposes; but we know no more of the nature of the one than we do of the other.

Without knowing thoroughly its nature, science has demonstrated that the simplest ray of light consists of many colored parts. Newton first split the solar rays into seven distinctly colored parts by means of the prism—although the rainbow has done the same thing since the dawn of the world's creation. Since the discovery made by Newton, botanists, chemists and photographers have derived great benefits by a knowledge of the various properties of the several rays of light. The generative ray, the heat ray, and the actinic ray, differ greatly in their effects in nature's great laboratory. Late investigations have proven that the actinic ray is more powerful in the new world than in the old. This will account for the superiority of American sun-pictures, particularly of those taken on this coast.

The boundaries of our knowledge of light, though quite circumscribed comparatively, have been much enlarged during the last twenty years by the discovery of its polarization, which, in a manner, enables us to analyze it—to concentrate its peculiar parts for our use. We know of no greater marvel than the examination of objects with polarized light, under the microscope. It renders visible minute details of structure in the most beautiful colors, and enables the student of nature to ascertain the difference of density or elasticity of substances, such as no other means could detect. It not only exposes frauds and adulterations in substances we purchase, but by its peculiar power shows us the causes of disease and death existing in what, by the uninitiated, are considered elements of health.

This is a very general misconception as to the power or principle to which certain phenomena, the result of exposure to sunshine, are to be referred. In general, *light* is regarded as the principle in such action; whereas, most frequently it has nothing whatever to do with it. The solar rays, which are commonly spoken of as light, contain, in addition to their luminous power, calorific and chemical powers, and there is good reason to believe, electric power also. All these powers are employed in the arts separately. The beautiful art of photography owes its origin to the discovery of the chemical or actinic property in the sun's rays.

One of the most remarkable proofs of the chemical nature of the sun rays is found in the action of chlorine. This element, which has worked quite a revolution in the process for bleaching linen and cotton fabrics, because of its power of removing vegetable colors, is quite powerless when out of the reach of the assistance of the sun. Flowers, cotton and linens may be kept for years in vessels containing chlorine, if kept in the dark, without losing their color. The same results follow with oxygen, sulphurous acid, carbonic acid, hydrogen and other bleaching agents, which are all powerless in the dark, while sunlight alone does not affect the colors of those substances. Another singular fact in the same connection is, that colored solutions made from mineral or vegetable substances, are much brighter when made in bright sunshine, than when made during the evening or night.—*The Miner.*

A Valuable Coal Bed.—Report says that the coal bed, near Evaneton, Utah, is from 22 to 32 feet in thickness, and constitutes one of the largest and best coal mines in the West.

The Reproduction of Eels.—Among the prizes offered by the Belgium Academy of Science for the year 1873-74 we find one mentioned for a dissertation on the reproduction of eels. It may seem somewhat singular in this era of scientific research that we are not yet acquainted with the true method in which the spawning and reproduction of the eel is accomplished. The present hypothesis is that the young are hatched in salt water, and make their way up the rivers as far as they can go for the purpose of spending their period of immaturity, returning, after the expiration of a year or more, to the salt water to lay their eggs, and never again quitting the sea. This movement is the reverse of that which occurs in the case of the salmon and shad, these ascending to the fresh water to deposit their spawn and then going down to the sea. The assertion is not unfrequently made that eels are viviparous, and that the young can be seen at times in the oviducts of the parent. This is a misapprehension, due to the fact that this species is frequently very much infested with intestinal worms like *ascarides*, which occur in great number, and appear on dissection like embryonic fish. We can only hope that the prize offered by the Belgian Academy may be successful in securing a memoir that shall solve what may now truly be called the "oppobrium" of modern naturalists.

The Phosphate Sewage Process of Prof. D. Forbes and Dr. A. P. Price, of England, has been said to be very successful. The plan consists essentially in precipitating all the solid matter of the sewage by means of a natural phosphate of alumina found in very large quantities in the West Indies. To deodorize foul sewage, the phosphate is powdered and then treated with sulphuric or hydrochloric acid, by which means it is decomposed and rendered soluble. The solution thus obtained—which is said to fully arrest putrefaction and render the most fetid matter free from all offensive odor—is mixed and agitated with the sewage in tanks. Then on allowing the sewage to remain quiet, all its solid matter previously held in solution is precipitated, and the effluent water is pure enough for discharge into streams. But to render this still surer, a still greater clarification can be effected by adding, during the operation, a little milk of lime which precipitates the phosphates in solution. When the effluent water is used for irrigation, the milk of lime is not added. It is claimed that this water is more valuable, bulk for bulk, for irrigation than the raw sewage, because, instead of losing any of its mineral fertilizing matters, it has become slightly richer in saline ammonia.

The Geological Survey of Montana.—F. V. Hayden, who is conducting the Geological Survey of Montana and adjacent Territories, under authority of the Secretary of the Interior, has just issued his fifth annual report, which is pronounced by the *Journal of Science*, as one of unusual interest. It gives a full account of his explorations of the Yellow Stone Geyser region; a digest of which is concluded in our issue of this week. Dr. Hayden's special report is followed by a preliminary report on the minerals, thermal waters, etc., by Dr. A. C. Peale, who finds that the silicious deposit of the springs, (geyserite, a variety of opal) afforded in one analysis, silica 83.83, water 11.02, chloride of magnesium 4.00, loss 98.85, specific gravity 1.8, hardness 5.

Man Work.—A man's total outward work, his whole effect upon the world in twenty-four hours, has been reckoned about 350 foot-tons. That may be taken as a good "hard day's work." During the same time the heart has been working at the rate of 120 foot-tons. That is to say, if all the pulses of a day and night could be concentrated and welded into one great throb, that throb would be enough to throw a ton of iron 120 feet into the air; and yet the heart is never weary.—*Dr. Van der Wyde.*

Rio Janeiro, and various places on the high plateaus of the interior of Brazil, indicates that the light is derived from the sun by reflection, and the absence of polarization, which is quite differently, though not positively, ascertained, tends to show that the matter reflecting the solar rays is not gaseous, but made up of solid particles, scattering the light irregularly.

The results are somewhat in conflict with some of the reported observations of Mr. A. C. Ranyard, made at an earlier date.

Ozone-Genesis.—Dr. Pincus states that if perfectly pure dried hydrogen gas is caused to burn, in a very small flame, from a jet ending in a very fine point, the smell of ozone is very distinctively perceived, and it becomes more conspicuous if a dry and clean beaker-glass is held over the flame. When, by the aid of a properly contrived apparatus, the combustion takes place in pure oxygen, the same phenomenon is observed.—*Chem. News.*

The agricultural resources of the Territories, is reported upon by Prof. Cyrus Thomas. Reports are also given on fossils, geology, paleontology, etc., by different members of the Survey. The volume contains a very large contribution to our knowledge of the physical features and condition, geology, natural history, etc., of a large part of the Rocky Mountain region.

Dana's Mineralogy.—Appendix to the last edition of *Dana's Mineralogy* has just been issued. It contains 24 pages, 8 vo., and has been prepared by Prof. G. J. Brash. It contains descriptions of 87 minerals by him during the past four years.

Mining Summary.

The following is mostly condensed from journals published in the interior, in proximity to the mines mentioned

California.

ALPINE COUNTY.

Bullion.—Monitor *Miner*, May 4th: This morning the Tarshish mill sent away 4 bars weighing 2,912 ounces, and there are 2 more bricks at the mill.

Concentration hy the use of blankets, is to be tried at the Tarshish mill.

Nice Ore in good body was struck yeeterday in the Monitor lower tunnel.

AMADOR COUNTY.

Markiee.—Jackson *Ledger*, May 11th: This mine, after a run of 16 day's with 12 stamps cleaned up a little over $13 000. This gives to the amount of rock milled a value of from $75 to $100 per ton.

BUTTE COUNTY.

Spring Valley.—Oroville *Record*, May 11th: On Monday Lathrop & Harris came down with hars of bullion valued at $40,-000, the result of cleaning np the head branches of their flume, after less than a month's ran.

CALAVERAS COUNTY.

Wolverine.—Calaveras *Chronicle*, May 11th: The 200 ft. level has struck the so-called "south chimney" at a point 160 ft. from the main shaft. The level has penetrated the chimney about 10 ft. In the end of the drift the lead is 2 ft. wide. It is a heautiful ribbon quartz, containing lead and iron sulphurets, and showing gold to the naked eye. This level in passing through the north chimney developed an almost continuous hody of pay quartz for a length of 90 ft. In the bottom of the sump, 16 ft. helow the level, the lead of qnartz is wide and very rich.

Jenny Lind.—The water ditch has recently changed hands and the new Co. intead enlarging the ditch and carrying it at such an elevation that all the gold bearing hill around Jenny Lind can be worked advantageously.

Hudson.—Calaveras *Citizen*, May 11: We were shown this week the result of an assay of some rock from this claim, which reaches the working rate of $19.43 per ton. At 145 ft. the vein widens; in fact there is another vein with a partition wall between. Work will have to be suspended in a short time in order to drain the mine.

Whisky Hill.—The Whisky T. Co. turns out 60 ibs. every clean up day.

Collins & Co., last week washed up $5,000

The Bnnker Hill Hydraulic Co. have their flume re-set with a greater fall and are again husily at work.

We hear that some new diggings will he opened up to the west of town during the coming week.

The tunnel through the hill at South Gulch, between Milton and Whisky hill, is nearly completed.

G. A. Conrad has sold his ditch to a Co. of capitalists from the Northern mines.

On this side of the river Mr. Conrad has gono to work upon his hydraulic claim; also Galaga & Co.

Valleoito.—The Bonny placer claim has commenced work, and employs ahout 15 men.

Bascigaloupi & Co., are taking ont conciderahle gold.

The claims of Miller & Co., Largo & Co., and Sanguinetti & Co., are all doing well.

NEVADA COUNTY.

Erie.—Nevada *Transcript*, May 11: The Erie quartz mine at Eureka, is paying large dividends. The Co. give employment to a large nnmber of men, and the mine looks better than ever. They clean up once a month, hut the exact amount is not known.

French Corral.—Recently some excellent quartz prospects bave heen obtained, and a ledge has been opened which indicates great richness. In running the tunnel into the ledge, owned by Eddy & Co., rock was obtained which yielded $25 or $30 per ton. The Co. has 200 tons of rock out at the mill.

Moore's Flat.—The Co's. are all at work doing first rate. In the Eagle Co's claims, recently, they have obtained some excellent specimens of coarse gold. A few days ago abont 3 ozs. was creviced out in a few minutes. The specimens were very large and the gold of fine quality; 2 of them weighed 1¾ ozs.

Grass Valley.—Cor. National *Gazette*, May 4: At the Idaho, quartz looks as well as it ever did. Work is heing prosecuted vigorously at the new mill.

PLUMAS COUNTY.

New Ditch.—Quincy *National*, May 4: A Co. has recently commenced work on a large ditch and flume, to take water from Indian Creek, above Shoo Fly, and will work some claims near the river, above Soda Bar.

SAN DIEGO COUNTY.

Bullion.—San Diego *Bulletin*, April 27: W. F. & Co. shipped by the Senator, $10,-450 from the Julian mines.

The Mines.—The Owen mill crushed, last week, 22½ tons of rock from the Washington, which cleaned up $780. The mill is now crushing rock from the Bush Boys mine, which yields $100 per ton.

The Antelope mill is at work. The first 3 tons cleaned np $480.

The Golden Chariot is heing vigorously worked. So far 160 tons have heen crushed, yielding $17,000.

The Stonewall mill is ruuning night and day on the rock from the upper level. It is decomposed quartz and works easily, yields from $20 to $25 per ton.

The owners of the Big Blue are taking out rock that pays from $15 to $150 per ton.

Pierce and Reynolds' mill is at work on rock from the Hayden.

San Diego *Union*, April 27: The proprietors of the Wilson Mill are re-setting their hattery. The Stonewall Co. intend adding 5 more stamps to their mill. The ore is improving. Work in the mines goes on with continued vigor and the Helvetia, Hayden, Excelsior, Eagle, Big Blue, Washington and many others are being worked quite extensively. The Helvetia is now again under its old management. De Frees & Co.'e mill and mine employs 25 men at present. The Count is actively developing the Excelsior. News from the mines are very favorable.

SIERRA COUNTY.

Progressing.—Downieville *Messenger*, May 4: The work of getting water to ruu a mill for crushing Good Hope ore is progressing rapidly. The mill will he ready to run hy the first of July.

TUOLUMNE COUNTY.

Rich Quartz Thread.—Sonora *Independent*, May 11: Some time since, as J. T. Ryan was prospecting near Sugar Pine, he came across a thread of rose quartz, richly studded with gold, which be began sinking upon. The thread is now about 3 inches wide, and is increasing in richness as he sinks.

Strike.—Selby Teeters, M. B. Harriman and Ben. Crosby, have struck a lode of quartz on Chili Gulch, which is exceedingly rich. The piece shown ns, about half a pound, was literally covered with fine gold.

Quartz and Talc.—Hon. W. G. Long, in his ledge on Woods' Creek, has at a depth of 20 ft. struck rock which will mill $150 per ton. The talc pays from 50 cents to over $1 per pan. On Monday 3 pans of talc, 60 ibs., yielded $3.20.

Patterson Quartz Mine.—This mine is near Tuttletown. The hoisting works are nearly completed, and the Co. will commence taking out rock next week. The vein will average from 4 to 30 ft., and from all indications will pay upward of $12 per ton. Five stamps of their 10-stamp mill are at work.

Nevada.

ELKO COUNTY.

Diamond Dist.—Elko *Independent*, May 11th: B. F. Bivins has favored us with some fine specimens of ore from the Champion. The ore is carbonate, averaging in silver $150 per ton, and about 84 per cent. lead. At 100 ft. the ledge varies from 3 to 5 ft. in width. The Co. have on the dump 300 tons.

ELY DISTRICT.

Local Record—Ely *Record*, May 5th: Bullion.—The shipments for the past week, aggregate $124,332,70.

Von Moltke & Estick.—Situated immediately next to the Ivanhoe. Main shaft down 103 ft., but not working in at present. A cousolidation has been formed between the Moltke and Estick, aud work commenced in the Estick, on a new shaft ahout fifty ft. below the original Moltke shaft. Although but 12 or 15 ft. has been attained, the ledge shows well.

Newton Booth.—Main shaft down 183 ft. Drift No. 1 in 130 ft., through ledge matter all the way. Drift No. 2 cuts the ledge at 60 ft. from the shaft, and a winze has been eunk on the same 66 ft. Assays from the ledge show from $3 to $12 in mineral. Drift No. 3 cuts a 6 ft. ledge 34 ft. from the shaft. The shaft is being cut out and squared for the reception of timhers.

Washington & Creole.—Still working on the raising from the 342 ft. level west, to connect with the winze from No. 3 of the Meadow Valley for air. The ore body spoken of in our last, on the 334 ft. level continues to widen, and has opened out to 2½ ft. After connection for air is made stoping will commence and the ore hrought on top with dispatch.

Spring Mound.—The shaft has reached 150 ft. Work has been suspended to cut and timher it.

Alpine West Ex. and Madassa Cons.—The shaft is dowu 95 ft. and still sinking. Ledge matter is coming in on the hottom, and shows a trace of mineral throughout.

Two Brothers.—The incline is down 130 ft. and still sinking. The ledge shows in shaft, and carries some very good mineral throughout.

Chapman.—The shaft is down ahout 270 ft. and they are raising ahout 8 tons of ore per day.

Newark.—Sinking, with 3 shifts of men. Ledge matter ie coming in, hut as yet is rather broken. Hoisting works will be erected over the shaft at once.

Vanderbilt.—This claim is immediately east of the Alps. Shaft is down 110 ft., and sinking through quartz on ledge. They will sink 40 ft. more and then drift.

Ivanhoe.—The old shaft is down 120 ft. and a new shaft is heing sunk about 60 ft. from the old one. A drift is being run on ore to connect the two shafts, from the 60 ft. station. The ledge shows well in the hottom of the new shaft, which is still sinking, hut the rock is very hard.

Setting Sun.—This mine lays east of the Silver Peak. The shaft is down 40 ft., and the ledge shows good ore, which averages an assay of $200. The ledge matter is about 4 ft. in width, and carries about 2½ ft. of mineral.

Norfolk.—Situate abont 2 miles from Pioche, on a ledge supposed to be a continuation of the main ledge of this camp. The shaft is down 100 ft., and a new contract has heen let for sinking it 100 ft. deeper.

San Jose Con.—It consists of 2 locations, viz.: the San José and the Justice, each containing 1,200 ft. and is about a mile and a quarter east of the Pioche. The Justice only is heing worked. The shaft has heen sunk through vein matter vertically to 28 ft., when a large and well-defined vein was struck, ehowing 3½ to 4 ft. between walls. On the Justice a depth of 50 ft. has been sunk, the entire ledge carrying assays averaging from $10 to $75 a ton. The whole ehaft is in a fine character of quartz; 6 men are at work.

Cornucopia.—Shaft has been sunk 40 ft. through ledge matter all the way. On Thursday mineral was etruck iu the hottom of the shaft assaying from $25 to $40.

Crown Point—Shaft down 40 ft. and still sinking.

Pioche.—Is looking well. Quantity and quality of ore raised is increasing all the time. About 300 tons of good ore are on the dump.

Silver Peak.—The mine has temporarily suspended work.

Page & Panaca.—Sinking of shaft still continues, with good headway. The engine will be here in place hefore the end of the month.

Red Cloud.—Shaft down 140 ft. and still sinking on contract work. Mineral is coming in through the ledge matter on the bottom.

Alps.—Sinking of the new working shaft still continues and is going ahead rapidly.

Condor.—Improving daily and looking well throughout. Assays from the ledge in shaft, taken on Thursday showed $197.20

Maggie.—A new contract for sinking the shaft 50 ft. more has heen let.

Raymond.—Shaft down 180 ft., while work is pushing ahead with all possible speed.

Peavine.—Sinking from the 82 ft. level; ledge continues good on the bottom; 3 shifts are at work, and the mine looks well throughout.

Mazeppa.—Work was suspended about the middle of last week, but it will shortly be resumed again. About 25 tons of good ore on dump.

Huhn & Hunt.—Shows a large quantity of fine ore on dump. Work going ahead rapidly, with a full force.

Sterling.—Shaft down 70 ft. and work going on steadily.

Excelsior.—Still running connections for air.

HUMBOLDT.

Bullion.—Unionville *Silver State*, May 11th: Amount shipped from the Arizona, since our last issue, was $8,599.

Golconda.—The mine opened and being worked by W. C. Gregg, is, as work progresses, becoming richer and richer.

Central Dist.—Prospects are brigbter and more encouraging than ever before, the mines giving good yields of rich chloride and sulphuret ores, ranging from $50 to $1000 per ton. The Marietta Co. recently made a etrike of 18 inches of chloride and sulphuret ores at 150 ft. from the surface, which continues to increase in size and richness as they go down. They have a 4 ft. vein of splendid ore in their 30 ft. level.

Rich.—We were shown some very rich specimens of silver-bearing quartz, this week, taken from a new discovery, in Star Dist.

Increasing.—Gov. Fall is employing all the men that can be obtained in this locality on the Arizona mine, and has found it necessary to send elsewhere for miners.

Will Commence.—Gen. L. A. Buckner, owner of the greater part of the Montezuma, will commence work upon it in a few days.

Started.—The Pioneer Mill, idle for some time, is again at work.

Valuable.—Developments being made in the Eagle mine, Spring Valley Dist. are causing a good deal of excitement among mine owners in that vicinity. The ledge where exposed, is said to he fully 8 ft. wide and literally studded with gold from wall to wall.

REESE RIVER.

Diana.—Reese River *Reveille*, May 4: Lesees at the 300-ft. level are running a cross-cut for the ledge.

Morgan & Muncy.—The Manhattan Co. are taking out large quantities of splendid ore.

Yankee Blade.—A number of tons recently worked from Kane's mine at the Mauhattan mill returned $800 per ton.

Ophir Canon.—The Murphy main incline is down about 275 ft. A sufficient quautity of ore that will work $150 per ton is being taken out to keep 10 stamps running.

Belmont.—The El Dorado South is working 26 men, sinking the incline and runniug levels. The main incline is down 380 ft. A fine body of rich sulphurets has been strnck near the bottom; 200 ft. from the main incline in the south 240-ft. level, a rich body of chloride ore has been struck which runs up towards the surface. The ledge at this point is 6 ft. wide.

In the old Canfield ground on the Transylvauia ledge, the Belmont Co. has struck a 3 ft. ledge of fine sulphuret ore in a level near the main incline ahout 150 ft. from the snrface.

A shaft is being sunk on the Washingtou Heights which will strike the ledge at about 100 ft. from the surface.

A rich strike of chloride ore has heen struck iu Bennett's claim at Jefferson Cañou about 25 ft. from the surface. The ledge is over 3 ft. wide at that depth. The Sailor Boy ledge is looking well and is yielding quite an amount of $1,000 ore.

WASHOE.

Local Summary.—Gold Hill *News*, May 11: Belcher.—Daily yield, 300 tons, from the 1,100-ft. level. The ore breasts all continue looking and yielding splendidly.

Lyons & Leland.—The mine is in the big hill south of the old Trench mill, and a tunnel 230 ft. in length is jnst cutting through to the ledge. It has already passed through a front ledge containing good ore, aud the back ledge, 120 ft. further, is thought to be about 30 ft. wide.

Silver Hill.—The erection of the hoisting works is progressing rapidly.

Yellow Jacket.—Daily yield, 50 tons fair grade ore from the old portions of the mine. The deposits of ore found recently in the 1,300-ft. level, near the Kentuck line has been cut through and is only 7 or 8 ft. wide, very low grade ore, not worth taking out.

Sierra Nevada.—Amount of ore extracted and worked during the past week, 385 tons.

Crown Point.—Daily yield 440 tons. The yield for April was $819,549.67 from 11,478 tons of ore, being at the rate of $65.67 per ton.

Chollar-Potosi.—Yielding nearly 200 tons of ore per day from the old ore producing sections. Bullion shipments for April $77,614.

Savage.—Daily yield 100 tons, the average assays of which are $38 per ton.

WHITE PINE.

Treasure Hill Mines—North Aurora. White Pine *News*, May 2: Sixty to seventy tons of ore are extracted daily from the Ridsdale chamber.

Beecher Con.—The tunnel is iu 240 ft. At the end an incline is down 50 ft., with a fair quantity of ore in sight.

Mammoth.—Extracting ore from open cut and piling on dump. The dump will mill $50 to the ton. The ore has improved in grade tbis week. An assay made Thursday, turned ont $91 silver and $5 gold.

Ward Beecher.—The winze from the Phillpotts to connect with the east drift of Lady'e chamber has connected,

ORIGINAL HIDDEN TREASURE.—A force of 22 men was put on this week, and is embloyed breaking down oro and hoisting to the dump.

SILVER WAVE.—The oro in tho Boswell chamber is showing well.

COPPER GLANCE.—Tho ore has increasod in quantity.

Arizona.

MINES AND MINING.—Prescott *Miner*, April 27: The Del Pasco 4 stamp mill, in the Bradshaw mountains, after a run of 3 days, made a clean-up of $1,500.

THE TIGER Co. have lately sacked somo 20 tons of their best ore for shipment to S. F., and it is estimated that between $200,000 and $300,000 worth of ore is now piled on the dump.

Mr. Walsh reports the location of a silvor hearing vein of great promise, by himself and others. The vein is named the Heathen Chinee, and is somo three-fourths of a mile southeast from the Benjamin. Work on the Benjamin is progressing and a level is being run to connect the 2 main shafts.

Sale has been made of a location on the Bismark to Hutchinson & Blair, at good figures. J. M. Sanford has sold to N. L. Griffin, his interest in the Bismark and other mines for $2,00).

SOME 50 men at work on the Upper Lynx Creek, most of whom are getting good pay.

Several parties have arrived iu town from Arizona City and Ehrenberg, Yuma Co., who report aome activity in mining on tho Colorado. Poindexter, McGee, Spann, Radcliffe, and others are workiug placer diggings aud making fair wages.

Mr. Huhhard is anperintending oporations at the Planet copper mines with a amall force, and is doiug woll. He is shipping from 20,000 to 30,000 lbs. of good ore by every ateamer.

C. Borger has been erecting a 10-stamp mill to work ore from the Constancia mine, 16 miles east from Ehrenberg, which is snpposed to he running, as it was intended to start up last Monday.

Utah.

EXCITEMENT.—S. L. *Tribune*, May 7: We hear that there is considerahle excitement in Ophir and Dry Cañon over the recent disoovery of some extraordinary rich ore in the later camp. The new strike is represented as heing over 3 ft. thick and assaying $10,000 to the ton.

SAN FRANCISCO DIST.—A numher of specimens from different mines in the Dist., picked out by the men working upon them, vary in value from 18 per ceut. lead and $5.27 silver to 31 per cent. lead and $10.18 silver.

LITTLE COTTONWOOD.—Cor. same: "A rich atrike has jnst been made in the Wellington and in the Lexington. In the latter they are drifting through the vein at 40 ft. deep to ascertain its width. It is in 10 ft. with no hanging wall yet; foot wall well defined.

GOING TO WORK.—About 100 hands have been put to work on the Howland & Etna Tunnel sites in Little Cottonwood Canon within the last week.

BIG COTTONWOOD.—Cor. aame: Work on Kelser Creek is being pushed ahead vigorously.

The Sailor Jack is working 7 men.

The Belle of France Tunnel, on the east slope, is 65 ft in, working 4 men. The Wide West has just resumed work, 2 men.

Tho two Robinsons' mines, which has been working all winter, has an incline of 120 ft and is running a level at 65 ft; 3 men are at work.

The McDougall, to the northeast, have a tnnnel 83 ft in and an incline ahout 40 ft, and about 200 tons of ore on the dump; working 3 men.

On the opposite hill, hut fnrther up the fork, we find the Reed & Benson resumed work with 12 men.

Northwest is the Robert Emmett, which has been working for the past 6 weeks. Still below ia the Comet, which has been working for the past month.

Among the claima on which work will be reaumed are the following:

The Argenta, on the Reed & Bonson Hill. On the peak are the Homeward Bound, Home Ticket, George Washington and Niagara.

At Sonth Fork, Big Cottonwood, Joseph Mullen, of the Mullen mine, is pnshing ahead work, and at a depth of 110 ft. with 3 ft. of ore; 7 meu are at work. The Zoe, near by is a hig thing, going well up in copper, silver aud gold.

The Robison will start up soon.

BLACK JACK AND BUTTERFIELD CANON.—Cor same: First comes the Lucky Boy, or Osceola, (now cons.), lately purchased by Cummings & Co., who are working about 30 men. Two tunnels tap the ledge at 100 and 160 ft., showing a magnificent vein of ore some 7 ft. in width.

The Gladstone has a shaft down 45 ft. which exposes a fine vein of 5 ft. A tnnnel is in 100 ft. which will tap the ledge at 140 ft. Three shafts are running and work is being vigorously pushod. Assays rango from $80 to $160.

The Minerva has a ahaft down 25 ft. which shewa a vein of ledge matter somo 12 ft. in width, and a vein of ore 2 ft. A tnnnel is being vigorously pushed that will tap the ledge at 200 ft. Three ahifts working. Assays range from $90 to $600.

The Occidental has a tnnnel which taps the ledge at 60 ft., and shows a fine vein of oro 2¼ ft. in width. Two shifts working.

Tho Old Times has a shaft down 20 ft. showing a hnge vein of ledge matter and some ore. A tunnel is in 120 ft. which will tap the ledge at 90 ft. At present they are drifting on a spur and have good ore. Two shifts working.

The Loadstone has a shaft down 40 ft. and has a vein of carhonate ore of 10 inches. Two shifts are working. Assays from $90 to $380.

The French Spy has a ahaft down 60 ft. and has a vein of chloride ore of 10 inches. A tunnel is started that will tap the lodge at 200 ft. Two shifts working. Assays range from 90 to 1,900.

There are some 200 locations made in this and Butterfield cañon, bnt as yet thoy are not snfficiently developed to determino their worth.

[Owing to press of important matter our usual summary from Colorado, Idaho and Montana, is laid over till next week.]

San Francisco Stock and Exchange Board.

THURSDAY, MAY 16.

The sales at the Board for the week ending, on the 8th inst., amounted to $6,357,000, which was $2,000,000 less than the previous week. Since May 7th, $235,000 has been received from the Meadow Valley mine, and on the 9th inst., tho Raymond & Ely sent down $32,000, and on the 13th $31,900. The Chollsr Potosi yielded last week 1,000 tons of ore, assaying $40.70; the Hale & Norcross yielded 900 tons and the Ssvage 960 tons, assaying $34.80 per ton. This month, Belcher paid a dividend of $312,000; the Raymond & Ely $210,000; Yule Gravel, $5,000; Eastport Coos Bay Co., $2,500; Meadow Valley, $60,000 and Crown Point $480,000, making a total of $1,069,500. The Crown Point dividend is the largest ever paid by any of our companies in a single month. The Mahogany sent down this week $7,600 in bullion.

A most disastrous bresk hss occurred in the Stock Market, and all descriptions have fallen. The psnio is wide spread and the names of losers are heard on every side. As a general thing, the rise culminated during the last week in April, and since then, the depreciation has been rapid, and for most all descriptions. On Friday the 10th, a little improvement over the hreak, on the previous Wednesday was shown, as prices with some were as high as they stood previons to that event. On Monday business was quiet and nearly sll kinds lower. Tuesday there was a break, snd the average decline was from $20 to $50. On Wednesday, although it wss supposed by many that stocks would rally, a marked decline was apparent on nearly all kinds. Confidence was pretty generally shaken, and the msin purpose of dealers was to get offas lightly as possihle. To day there was a slight reaction but the tone of the market is quite weak. The informsl sessions of the Board hsve been dispensed with since they detract from the interest at the regnlsr sessions, and business at that session has declined.

This panic hss been brewing for some time and although the mines themselves are ss good as thcy were during the hight of the excitement, the impression hss gained ground thst the prices of many descriptions were far above their real value. The sensational rumors and statements concerning the Yellow Jacket mine have also had a marked effect in depreciating valucs. Some suppose that it is merely a dodge for certain parties to buy in certain stocks, before existing developments became known. The ahundance of the supplies in some of our leading mines will no doubt hring them up again in the markot, and it is to be supposed that some othcrs will eventually, be carried up with them. Whether they will ever get up as high again as they have been recently is an open question.

A number of companies have recently "watered" their stock, among them the Crown Point, which has increased the nnmher of shares from 12,000 to 100,000 which will give small buyers a chanco to invest in that renowned property. On Wednesday, in the Board, whon everything else was falling, Crown Point was offered at $1,300, which wss taken; $1,350 hid and taken, and $1,400 hid and taken, and the lattor amonnt hid for more, hut there was nohody who wanted to sell. At this, there was a general applause among the brokers and operators, a very nnusual occurrence. It is to he hoped that now this extraordinary excitement in stocks has partially subsided that the new companios and the old ones too will look more to actual ore developments than to stock fluctuations, and that those who are too poor to afford it will stick to some legitimate business which is attended with less risk. Mine if you want to, hut do it in the proper manner, not with certificates of stock. The peoplo who did not draw out in timo aro completely demoralized, and a number of failures aro expected, nnless prices go up considerahly in a short timo.

Comparative Prices—Extremes, Advance and Decline.—S. F. Stock and Ex. Board.

	May 9.	*Highest.*	*Lowest.*	May 16.	*Adv.*	*Dec*
Alpha	$ 90	132½	55	90	—	—
American Flag..	18½	18	14	—	—	—
Belcher	1250	1300	800	900	—	350
Buckeye	—	7	5	5½	—	—
Chollar-Potosi..	152½	180	95	110	—	42½
Caledonia	100	100	53	65	—	35
Coal, Virginia	90	95	45	66	—	24
Crown Point	1750	1800	1300	1300	—	450
Daney	—	5½	3	3	—	—
Eureka Cons	31	34	27	31	—	—
Eureka	—	20	18	—	—	—
Exchequer	50	60	35	50	—	—
Gould & Curry	360	424	240	240	—	120
Golden Chariot	13	15	12½	—	—	—
Hale & Norcross	295	300	140	150	—	145
Ida Elmore	—	22	19½	19½	—	—
Imperial	300	400	200	200	—	100
Justice	20	37	22½	—	—	—
Kentuck	480	630	315	340	—	140
Mammoth	1½	2½	1	—	—	—
Meadow Valley	17½	18	13½	13½	—	4
Mahogany	25	25	22½	—	—	—
Ophir	85	100	40	40	—	45
Orig. Hid. Treas.	—	16¼	12½	12½	—	—
Overman	150	175	80	95	—	55
Mocho	—	15	13½	—	—	—
Raymond & Ely	118	120	106	106	—	12
Savage	565	580	265	265	—	300
Sierra Nevada	35	37½	22	25	—	10
Succor	8	8	6	6	—	2
Wash. & Creole	6½	6¾	5½	—	—	—
Yellow Jacket	240	262½	140	150	—	90
Seg. Belcher	142½	195	80	95	—	47½

Latest Prices—Bid and Asked.

	DID.	ASKED.		DID.	ASKED.
Alpha Cona	85	90	Ida Elmore	19½	—
Amador	—	—	Imperial	200	200
Belcher	875	900	Kentuck	335	340
Chollar-Potosi	107	108	Meadow Valley	13½	14
Crown Point	1200	1300	Ophir	38	40
Caney	3	3½	Orig. Hid. Treas	12½	14
Eureka Cons	31	31½	Overman	85	90
Eureka	27	28	Savage	250	260
Golden Chariot	—	—	Raymond & Ely	106	110
Gould & Curry	—	240	Sierra Nevada	23	24
Hale & Norcross	140	145	Yellow Jacket	130	135

San Francisco Metal Market.

Corrected weekly by Hooker & Co., 117 and 119 Cal. street

PRICES FOR INVOICES

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

THURSDAY, May 16, 1872

IRON.—			
Scotch Pig Iron, ₱ ton	$70 00	@	—
White Pig, ₱ ton	52 00	@	—
Refined Bar, bad assortment, ₱ lb	05½	@	06
Refined Bar, good assortment, ₱ lb	06	@	07
Boiler, No. 1 to 4	05	@	06
Plate, No. 5 to 9	08	@	09
Sheet, No. 10 to 13	08½	@	09
Sheet, No. 14 to 20	07	@	09
Sheet, No. 24 to 27	06	@	—
Horse Shoes	8 00	@	
Nail Rod	11		
Norway Iron	9		
Rolled Iron	6		
Other Irons for Blacksmiths, Miners, etc.	6	@	7
COPPER.—			
Sheathing, ₱ lb	— 24	@	— 28
Sheathing, Yellow	— 24	@	— 26
Sheathing, Old Yellow	— 11	@	— 11½
Composition Nails	— 24		—
Composition Bolts	— 24		—
TIN PLATES.—			
Plates, Charcoal, IX ₱ box	12 00		— —
Plates, I C Charcoal	10 00		10 50
Roofing Plates	11 00		— —
Banca Tin, Slabs, ₱ lb	— —		— 45
STEEL.—English Cast, ₱ lb	— 16		— 17
Drill	16		17
Flat Bar	17		20
Plough Points	3 75		
Russia (for mould boards)	12½		
QUICKSILVER.—₱ lb	— —		— 85
LEAD.—Pig, ₱ lb	— 06		— 06½
Sheet	— 08		— 8½
Pipe	— 09		— 10
Bar	— 08		— 09
ZINC.—Sheets, ₱ lb	— 10		— 10½
BORAX.—Refined	— 25		— 30
Borax, crude	— 5		— —

Leather Market Report.

(Corrected weekly by Dolliver & Bro., No. 109 Post st.)

SAN FRANCISCO, Thnrsday, May 16, 1872.

SOLE LEATHER—The demand is good, with an advance in Eastern market, which will probably soon be felt here.

City Tanned Leather, ₱ lb	26@28
Santa Cruz Leather, ₱ lb	26@28
Country Leather, ₱ lb	25@28
Stockton Leather, ₱ lb	26@28

French skins are firmer with an advance in some grades. Heavy California skins are firm, with an upward tendency.

Jodot, 8 Kil., per doz	$80 00@
Jodot, 11 to 19 Kil., per doz	72 00@ 90 00
Jodot, second choice, 11 to 15 Kil. ₱ doz	60 00@ 76 00
Lemoine, 16 to 18 Kil., ₱ doz	75 00@ 77 50
Lovin, 12 and 13 Kil., per doz	68 00@ 70 00
Cornellian, 16 Kil., per doz	70 00@
Cornellian, 12 to 14 Kil., per doz	60 00@ 68 00
Cgeran Calf, ₱ doz	84 00@
Simon, 18 Kil., ₱ doz	65 00
Simon, 20 Kil., ₱ doz	68 00
Simon, 24 Kil. ₱ doz	72 00
Robert Calf, 7 and 8 Kil	35 00@ 40 00
French Kips, ₱ lb	1 10@ 1 30
California Kip, ₱ doz	60 00 to 80 00
French Sheep, all colors, ₱ doz	15 00
Eastern Calf for Backs, ₱ lb	1 15@ 1 25
Sheep Roans for Topping, all colors, ₱ doz	9 00@ 13 00
Sheep Roans for Linings, ₱ doz	5 50@ 10 50
California Russett Sheep Linings	1 75@ 5 50
Best Jodot Calf Boot Legs, ₱ pair	5 25
Good French Calf Boot Legs, ₱ pair	4 50@ 5 00
French Calf Boot Legs, ₱ pair	4 00
Harness Leather, ₱ lb	30@ 37½
Fair Bridle Leather, ₱ doz	48 00@ 72 00
Skirting Leather, ₱ lb	34@ 37½
Welt Leather, ₱ doz	30 00@ 50 00
Buff Leather, ₱ foot	18@ 21
Wax Side Leather, ₱ foot	18@ 29

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

ASSESSMENTS.

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT	DAY DELINQUENT.	DAY OF SALE.
Alleghany Consolidated, Cal. Ap. 20, 25c.	June 3	June 24*
Balto. M. Co., Storey Co., Nev., Ap'l 30, $1.	June 5	June 28
Cons. Virginia M. Co., Nov., Mar. 19, $3.	Apr. 24	May 18
Crown Point R. S. M. Co., May 3, $5.	June 20	July 20
Daney M. Co., Lyon Co., April 3, $1.50.	May 9	May 27
Eagle Quicksilver, May 8, $40.	July 11	July 15*
El Dorado M. Co., Cal., May 13, 25c.	June 16	July 10
Francis M. Co., Cal., April 6, $1.	May 14	June 4*
Gen. Lee S. M. Co., W. Pine, Ap'l 27, 10c.	June 11	July 2
Golden Chariot, Idaho T., April 12, $1.50.	May 22	June 18
Hid. Treas. M. Co., W. P., May 11, 10c.	June 17	July 8
Hid. Treas. Cons. M. Co., W. P., May 11, 10c.	June 17	July 8
Huhu & Hunt S. M. Co., Nev., Mar. 20, 25c.	Apr. 29	May 27
Ingomar S. M. Co., Ely, April 2, 25c.	May 8	May 31*
Imperiatrice Eugenie, Cal., April 26, 25c.	June 2	June 17
Jackson M. Co., Nev., April 3, 25c.	May 6	May 25
Julia G. S. M. Co., Nev., April 22, $5.	May 25	June 15
Kincaid Flat, Cal., April 23, $3.	May 27	June 17*
Lemon M. and M. Co., Eureka, Apr 1, $1.	May 7	June 12
Lord Byron G. & S. M. Co., Nev., Apr. 29, 25c.	June 3	June 22
Louise M. Co., Nevada, April 6, 10c.	May 14	June 10
Lyons & Wheeler Co., A. T., April 6, 10c.	May 15	June 3*
Magnolia S. M. Co., Nev., April 22, 25c.	May 25	June 20
Mina Rica M. Co., May 8, 20c.	June 10	July 1*
Minn. G. & S. M. Co., I. T., May 12, $1.50.	June 22	July 20
Mt. Jefferson M. Co., Cal., Apr. 3, 30c.	May 6	May 22*
Nevada L. & M Co., Nev., March 28, 4c.	May 2	May 24*
Ophir S. M. Co., Nev., April 17, $5.	May 22	June 13
Pacific Borax Co., Nevada, May 4, 20c.	June 6	June 29
Page & Bauaca, Nev., April 12, 50c.	May 20	June 15
Pea Vine S. M. Co., Ely Dist., May 14, 20c.	June 20	July 12
Piermont M. & M. Co., April 16, 40c.	May 20	June 19*
Pride of Mt. M. Co. Nev., May 7, 25c.	June 17	July 10
Rising Star S. M. Co, Idaho, Ap'l 27, $1.	June 1	June 29
San Buenaventura Co. Cal., Jan. 19, $1.	Feb. 29	Mar. 29
Siempre Viva Co., Mex., Mar. 25, 30c.	May 2	May 20*
S. Gold Hill M. Co., Nev., Apr 1, $2.50.	May 6	May 27
S. F. M. Co., Utah Ter., April 13, 25c.	May 16	June 8*
Silver Sprout M. Co., Cal., April 29, 50c.	June 1	June 22*
Silver Wave, W. P., Nev. Apr. 10, 50c.	May 14	June 13*
Spring Mt. Tunnel Co., April 11, 15c.	May 20	June 10*
Sumner, Kern Co., April 11, $10.	May 22	June 21
Tallulah M. Co., Nev., April 5, $1.50.	May 7	June 4
Tecumseh M. Co., Cal., April 24, $5.	May 29	June 17*
Union G. M. Co., Cal., April 11, $1.	May 13	June 3*
Washington M. Co., May 8, $3.	June 11	June 29*
Wash. & Creole M. Co., Nev., May 13, 74c.	June 20	July 17

MEETINGS TO BE HELD.

Adriatic G. & S. M. Co.....Special Meeting, June 8
Alama G. & S. M. Co.....Special Meeting, June 4
Bacon M. & M. Co.....Annual Meeting, June 4
Bacou M. & M. Co.....Special Meeting, June 1
Belcher S. M Co.....Special Meeting, May 24
Bowers M. Co.....Annual Meeting, May 27
Calavoras Hydraulic M. Co.....Annual Meeting, May 29
Confidence S. M. Co.....Special Meeting, June 4
Consolidated Virginia.....Special Meeting, May 20
Del Rey S. M. Co.....Special Meeting, June 10
Empire M. & M. Co.....Special Meeting, June 8
Empire M. & M. Co.....Special Meeting, June 10
Golden Age & Empire M. Co....Annual Meeting, May 27
Gold Canon Cons. M. Co.....Special meeting, May 31
Green G. & S. M. Co.....Special Meeting, June 3
Hale & Norcross.....Special Meeting, May 30
Hartford G. & S. M. Co.....Special meeting, May 28
Highland S. M. Co.....Annual Meeting, June 4
Independent G. M. Co.....Annual Meeting, June 14
Ingomar S. M. Co.....Annual Meeting, May 20
Imperial S. M. Co.....Special meeting, June 3
Kentuck M. Co.....Special Meeting, June 10
Mammoth S. M. Co.....Annual Meeting, June 3
Louise M. Co.....Annual Meeting, May 25
Minn. G. & S. M. Co.....Annual Meeting, June 3
Overman S. M. Co.....Special Meeting, June 5
Rising Star S. M. Co.....Annual Meeting, May 20
Servator S. M. Co.....Special meeting, May 31
Silver Sprout M. Co.....Special Meeting, June 3*
St. Louis M. Co.....Special Meeting, June 6
Tecumseh G. S. and C. C.....Special Meeting, June 12*
Wellington M. Co.....Annual Meeting, June 4
William Penn Cons. M. Co.....Special Meeting, June 25

LATEST DIVIDENDS—(Within Three Months).

Belcher M. Co., $30.....Payable May 10
Belcher, $20.....Payable April 10
Chollar Potosi, $1.....Payable Feb. 10
Crown Point G. & S. M. Co., $40.....Payable May 11
Eastport, Coose Bay, Coal M. Co., $5.00..Payable May 13
Eureka Gold M. Co., $1.....Payable March 11
Keystone M. Co,, $7.50.....Payable April 10.
Meadow Valley M. Co., $1.00.....Payable May 15
North Star G. M. Co., $7.....Payable April 9
Raymond & Ely M. Co., $7.....Payable May 6
Yule Gravel M. Co, 50c.....Payable May 1

—*Advertiaed in this journal.

Meetings and Elections.

At the annual meeting of the Empire Mining Company, held on the 14th inst., the following gentlemen were elected Trustees for the ensuing year: Hill Beachy, J. S. Kennedy, Geo. W. Beaver, M. Herman, and C. F. Balcom. The Board organized by the election of Hill Beachy, President; J. S. Kennedy, Vice President; C. F. Balcom, Secretary and Treasurer, and A. P. Minear, Snperintendent.

At the annual meeting of the Pea Vine Silver Mining Company, held on the 14th inst., the following gentlemen were elected Trustees for the ensuing year: J. B. E. Csvallier, C. W. Fox, C. P. Hall, E. Skerritt, C. F. Schulze. The Board orgsnized by the election of J. B. E. Cavallier as President, C. W. Fox ss Vice President, and C. F. Balcom as Secretary.

The Orient Silver Mining Compsny, on the 13th inst., elected its Trustees ss follows: J. A. Pritchard (Presidcnt), A. T. Hatch, J. Dods, S. A. Raymond and H. H. Day. Joseph Maguire was appointed as Secretary.

The Washington & Creole Mining Company have elected A. J. Boile, Jr., and S. Linkton Trustees, in plsce of P. E. Connor and Henry Janin, resigned.

A. C. Hamilton has been appointed Superintendent of the Savage mine, in place of F. B. Shamp.

The William Penn Consolidated Mining Company will hold a meeting on the 15th of June, to consider a proposition to increase the capital stock from $810,000, in 27,000 shares, to $1,350,000, in 27,000 shares.

The Best & Belcher Mining Company held a meeting on the 13th inst., and resolved to increase their capital stock from $448,000 to $2,240,000, in 22,400 shares.

The Bacou M. & M. Co. will meet on the 1st of June, to consider a proposition to increase their capital stock from $800,000, in 4,000 shares, to $2.400,000, in 24,000 shares.

The Hot Springs and Geysers of Montana.

[Concluded from page 178]

The Yellowstone Basin a Volcanic Crater.

This bssin has heen called the vsst crater of an ancient volcano. It is prohahle that, during the Pliocene period, the entire country drained hy the sources of the Yellowstone and the Columbia was the scene of as extensive volcanic activity as that of auy portion of the globe.

It might be called one vast crater made up of thoussnds of smsller rents and fissures, out of which the fluid interior of the esrth, fragments of rocks and volcanic dust have heen erupted in unlimited quantities. Hnndreds of the cones of these volcanic vents are now remaining, some rising to a hight of 11,000 feet ahove the sea. Mounts Dosne, Lsngford, Stevenson and over a hundred other pesks msy be seen from any high point on either side of the hssin, esch of which was once a center of eruptiou. Indeed the hot springs and geysers of this region are only the closing stages of that wonderful period of volcanic sction which began in Tertiary times—the eecape pipes or vents for those internal fires which were once so active, but are now dying out.

Even at the present time there are connected with these manifeststions of internal heat, earthquake phenomena which are well worthy of attention. Shocks are not uncommon and are, at some eeasons of the year, very severe.

Yellowstone Lake—Singular Parasite—Formation.

Yellowstone lake is ahont 22 miles long, averages 10 or 15 miles in width and hss an unusual average depth, although the greatest depth is about 300 feet. It is fed hy the snows which fall upon the surrounding mountsin rsnges and is the most heautiful sheet of water in the West. The clear green shading, with the deep ultramarine hue of the wsters, adds not a little to the effect of the scene. The lake has at all eessons nearly the tempersture of cold spring wster. It lies 7,427 feet above sea level. But one species of fish were found, a trout, weighing from 1 to 3 pounds esch. They are very ahundant, but generally infested hy a singular psrasitic worm, which (called *Dibothrium cordiceps)* is found in the abdorminal cavity, or interwoven in the mueculsr portions in sscs or cysts; or sometimes in the gills. Possibly this diseased condition of the fieh is caused by the proximity of the hot springs so abundant all around the lake shore and sometimes extending far out into the watere.

The lske basin is prohshly due in part to erosion. All along its margin are high hanks and terraces composed of a moderu stratified deposit, pnesing up into an aggregation of sand, pehhles, etc., which is often cemented into a tolerably firm conglomerate. These deposite, made np of eroded volcanic rocke, have sometimes the white appearance, and somewhat the composition, of the Pliocene clsys, marls and ssnds of the lake-hssins along the Missouri and the lower Yellowstone. In the northern portion of the basiu these deposits reach a thickness of 300 to 600 feet and must he of the lster Pliocene age, perhaps extending down to the present time. The two lakes were then connected, although probably never completely united. The belt of mountains which separated them was ahout 4 miles wide. It is estimated thst, since the period of volcanic activity, the lake has been about 500 feet decper than at present. During the time of the greatest volcsnic action, the water must hsve covered the loftiest peaks, for many of hem are composed of the breccia or conglomerate in a regularly stratified condition. The ares of the lake is now gradually, but very slowly diminishing.

Hot Springs—Brimstone Basins—Sulphur Mt.

On the shore of the southwest arm of the lske is a group of hot springs covering a belt 3 miles long and 1 mile wide. These springs have built up a series of beds or stratra, 25 feet thick in the aggregate, composed of laminse of silica. The shores are covered with the decomposed siliceous crust.

Many of the springe are constantly boiling with violence, but rise and fall every second or two, with each pulsation throwing out a small quantity of water. Quite a pretty symmetrical funnel-shaped crater is found, with a circular rim varying from a few inches to several feet in diameter. Some of theee chimneys extend out into the lake several feet, and hot spring depoeits may he seen through the clear depths for 50 yards. The eame variety of colors, quiet and mnd springs, old ruins, etc., as before described, occur here, hut, hut no geysere.

On the east and northeast side of the lake are groups of living and dead springs. High up on the monntain sides are two extension patches of siliceons deposit, resemhliug at a distance an immense enow bank. They are called brimstone basins by the monntaineere, on account of the great quantities of sulphur mixed with the silica.

At steamboat Point two vents constantly pulsate, throwing columns of steam to a hight of 100 feet or more. Dead and dying springs in great numbers occur along the shore and high up among the foothills, a mile or two from the lake. One of the most conspicuous of these great white hills is called Sulphur Mountain, at the north end of the lake. The summit of this deposit, from 50 to 150 feet thick, rises 600 feet above the lake. Silica predominates, mixed with oxide of iron, sulphur, etc. At the foot of the mountain are a few springe with a temperature of 150° to 180°.

East Fork of the Madison.

Leaving the Yellowstone Basin and pursuiug a westerly course we cross the high range between the Yellowstone and Madison rivers, striking first the eources of the Esst Fork of the Madison. Groupe of dead and dying springe are met every few miles. Oue locality, covering several acres, is most heautiful. The entire area is covered thickly with cornical mounds of various sizee, ranging in diameter from a few inches to a hnndred feet or more, and full of orifices from which streams were issuing. All theee little orifices sre lined with hrilliant crystsls of sulphur. The hssis of the deposit is silica, white as snow, but variegated with every hue of yellow from sulphur and with scarlet or rose color from iron oxide. In the distant view the sppearance of the whole country may be not unaptly compared to a vast limekiln in full operation. The esst branch of the Madison is slmost entirely fed from the hot springs and its temperature is 60° to 80° all the time. The vegetation along its branchee and in the stream itself is a marvel of luxurisnce. The monntains on either side are composed of hassit and obsidisn. Surface waters render the valley one vast bog.

The springs grow more ahundant as one proceeds down the valley and nesr its junction with that of the Madison occurs, on both sides of the stream, a lsrge group of boiling and quiet springs, with basine from a few inchee to 50 feet in dismeter, and temperaturee ranging from 100° to 197° F. At this elevation the hoiling point is 192° to 196° F.

Great Geyser Basin of Firehole River Architectural Fountain.

From the last mentioned springs one crosses hetween isolated huttes of hasalt and hot spring msterial, into the Grest Geyeer Bssin of Firehole river. The entire valley, 3 miles wide here is covered with a snow white siliceous crust, and columns of steam rising among pines on the hillsides, denote the presence of springs. Some of these hsve most hesutiful bssins.

In the Lower Geyser Bssin are many interesting springs, riddling the whole area of 3x5 uiles, but no geysers of the first clase. Geysers however, there are, with rather regular periode of activity, throwing up wster colmns 15 to 30 feet high. One spring here has huilt up a most elshorate and beautiful cistern. It is called the *Architectural Fountain.* The whole hasin is about 150 feet in diameter. Near the center is the rim of the spring, ahont 25 feet in diameter. The water is in constant agitation, occasionally spouting up a column of water, 30 to 60 feet high, like an artificial fountain, and filling up the reservoirs and the sides for a radius of 50 feet or more. The siliceons sccumulstion made hy this spring descends for several hundred feet in innnmerable semi-circular steps, and is exquisitely beautifnl in sll its detsils.

In the Firehole basin silica predominates in the deposits, with little, if any, lime, and small quantities of sulphur.

Remarkable Mud Springs—Interesting Picture.

There is here a remarkable group of mud spriugs, one with a hasin 50 ft. in diameter, which is covered over thickly with puffs, like an immense cauldron of hasty pudding. The exact symmetry of these puffs, their uniform size and fineness of msterisl render them exceedingly beautiful; and there is among them every shade of color, from a hright scsrlet to the most delicate pink or rose, with a hase as white as snow. The white siliceous clay, when dried, has the appesrance of the finest merschaum. The most fastidious manufacturer of porcelain would go into ecstacies over this magnificent bed of mortar, which hss perhaps been worked and re-worked for msny thousands of years.

These springs occur everywhere, often close to geysers or clear quiet springs, and are in every state of consistency and temperature. When the heat hss diminished to 160°, iron oxide is deposited in a coating, which, in the old springs, hecomes hroken up and is suspended all over the sides like rotten, mouldy frsgments of lesther. When the springs entirely dry up, these are blown away by the winds.

Near active geysers the surface ie covered often with a jelly-like substance. All over the surface are irregular depressions with eharp raised edges, like the inner surface of a cow's stomach. Silicified wood is found in every stage of petrifaction.

In the early morning this valley presents a most interesting picture, columns of steam rising from a thousand vents and completely shrouding it as with a dense fog. A view of the city of Pittsburg from a high point would convey some idea of the appearance, except that pure white feathery clouds of eteam replace the dense black smoke.

Wonderful Geysers.

Up the Five-hole river about ten milee, and near the source, there is the Upper Geyser Basin, where the great geysers are found.

One geyser, near the center of the hasin, operated twice during our stay of two days. First comes a tremendons rumhling and shaking of the ground, then an immcnse mass of steam hursts out of the crater as from an escape pipe, followed by a column of water eight feet in diameter and rising hy steady impulses to a hight of 200 feet. The wonderful fountain continues to play for the space of fifteen minutes; then the water gradually subsides and settles down in the crater, ahout two feet, and the temperature slowly diminishes to 150°. There are here two eeparate basins, one in constant agitation, while the other playe only at intervals of ahout thirty-two hours; and although, so fsr as the eye could detect, there wse a partition of not more thsn two feet in thickness hetween them, neither eeemed to be affected hy the operation of the other. The decorations about the springe were beautiful heyond deecription, outrivslling the most delicate embroidery in variety and complexity.

Sawmill Geyser, with a emsll elevsted crater two feet high, throws up a small column of wster ahout twelve feet, by continued impulses, like the movement of a saw. Castle Geyser has a crater forty feet high, and 150 to 200 feet in diameter, built up of thin layers of silica which rise, like steps, to the chimney on the summit, which is about ten feet high. Clouds of steam issue constantly from this chimney, and every few moments a column of wster is thrown up fifteen to twenty-five feet. Another geyser, "Old Faithful," operates every hour, throwing up a column of water, six feet in diameter, from 100 to 150 feet. When about to mske a display, very little warning is given. There is simply a rush of steam for a moment, and then a column of water shoots up vertically into the air, and hy a succession of impulses is apparently held steadily up for fifteen minutee, the water falling directly back into the crater and overflowing in large quantities. It then ceases, and with a rush of eteam for a few secouds closes the display for the time.

Conclusion.

The two kinds of deposits in these regions, cslcareous and siliceous, have heen previously mentioned. According to Dr. Peale's analyses

LUSHER'S PATENT VEGETABLE CUTTER.

the (White Mountsin) springs on Gardiner's River deposit carbonate of lime mostly. There are present, also, sulphate of magnesis, chloride of lime, sulphate of soda and a little silics. In the Firehole Basin deposits not a trace of lime was detected, but about 85 per cent. of silicia, 11 per cent. of water, and the rest mostly chloride of msgnesia; and only a slight trace of lime was found in the water. In hut one locality west of the lake, Colonel Barlow found a calcareous deposit. There are, scattered over the great area of about 40x50 miles, a few patches of the sedimentsry rocks, and it is most probable that under the deposit of thie small group of springe there are portions of the carhoniferous limestone.

So far as ascertained in all the deposits of the Yellowstone Basin proper and of the Firehole Bssin, silica is the predominant constituent. The springs are, with very few and importsnt exceptions, near the borders of strcams helow any limestone beds. It is quite possible that underneath the vast masses of volcanic material which compose the mountains on every side, the sedimentary rocks exist, hut probably only in isolated and much restricted patches, if at all.

It may therefore be stated, in geueral terms, that the great hot spring region of the sources of the Yellowstone and Missouri rivers is covered with rocks of volcanic origin, of comparatively modern date.

Circulation of Sap.—It is maintained by scientists that the sap of trees ascends in the Alhurnnm or ssp-wood, and descends between the Alburnum and the bark, where it forme a layer of new wood—a theory that has led to many experiments. Mr. Williams applied it to the early maturation or ripening of grapes; he found by taking off one-quarter of an inch of the hark in width, that the sap was impeded in its descent, the parts above became lsrger, the fruits swelled and ripened early hy many days.

Zante, the well-known Mediterranean island, is said to have exported over 25,000,000 pounds of currants the last year, and about 86,000 barrels of olive oil.

Lusher's Patent Vegetable Cutter.

Our illustration represents a very eimple but useful device for elicing all manner of vegetatahles. It is one of those really excellent little things, that while their cost is hut trifling they can hardly be diepensed with when once brought into use. As the knivee are tinned, they cannot rust, and yet have a good cutting edge thst will last for years. They are essily kept clean, as they are made all in one piece, and are perfectly smooth.

All kinds of vegetables can he cut with them, cabbagee, potatoes, applee, pears, turnipe, carrots, beets, cucumbers, radishes and onions. Six slices are thrown off with every stroke of the hand, so that enough can be prepared for a large family in one minute.

One cutter eent—postage or expressage free—to any address, for $1 50.

Address, Weister & Co., 17 New Montgomery Street, San Francisco.

Working Gold Ores in North Carolina.

A correspondent in the *Scientific American*, engaged in gold mining in North Carolina, writes as follows on the subject of Amalgamating Gold Ores:

A great majority of mines yielding free gold produce ores that will not work more than ten dollars per ton; and, of course, a large quantity must be worked to make it pay. Hence, any process that is not rapid and cheap will not answer.

As to the working of sulphuretted or "rebellious" ores: Of the hundreds of patented and other processes, hardly one is worth a moment's consideration. It may be said, however, that many of the eo-called improved and newly discovered methods work well enongh in the laboratory, but, when put to a practical test, are found to be worthless.

After many experiments, I have found the following process to be the best: I first roast the ore (though it is free gold ore) in large piles, thus rendering it very friable, and thoroughly drying all the dirt and clay. In every ton of the ore, there is about 300 pounds of fine rock and dirt, which I have screened out through wire sieves of about one-quarter inch meshee, and this fine stuff I run through a common drag mill, and then through a "Georgia rocker," thue saving nearly all the gold. In fact, by this simple process I obtain nearly fifty dollars of gold per ton of dirt; whereas, when run through the stamp mill and over copper plates, I obtain only about ten dollars per ton. The rock I crush in one of the Wilson patent stamp mills, using qnicksilver in the battery, and then running the crnshed matter over the ordinary copper plates. The rock is worth fully ten dollars per ton, but I save only about half of this.

As to working tolerably high grade sulphuretted ores: The best way, if not too far from a shipping point, is to send them to Swansea, England. But if this cannot be done, then erect a common furnace, having the fire surfaces of good soapstone; then, to every 150 pounds of ore, put in one bushel of charcoal and ten per cent. of salt. The ore will readily melt to a slag, and will be pretty well desulphurized. The slag can be drawn off, and when cold can be broken up and worked like free gold ore. A small trial furnace can be built of good fire brick, and an ordinary blackemith's bellows will answer to blow the fire.

As the loss of gold, by the present process of amalgamation, is known to be very great and, in many cases, disastrous to those engaged in mining, it is important, it seems to me, that the different processes which have been found to work the best, by different miners, shonld be made known to the public. In this way much good may be done, and a great industry made more valuable than it is.

A Compliment.—W. H. Bruckner, author of "American Manures and Farmers' and Planters' Guide," Monroe, Michigan, writes: While in Philadelphia, I frequently heard the Scientific Press, of San Francisco, lauded by scientific men who had lived in California. I am pleased to bear witness to the truthfulnees of their statements. That journal (and Pacific Rural Press) reflect no little credit on the publishers.

A Novel Mouse Trap.—The *Evening Mail* "norates" that a mouse in Belfast, Maine, was found, the other day, frozen stiff upon a hammer. Investigation showed, that in picking up something that lay on the iron head of the hammer, the tonge of the monse had frozen to it, and, being unable to get away, it died.

Useful Information.

Good and Poor Varnish.

Good varnish is difficult to get; one trick of the trade is to use but little gum, and putting into the linseed oil, white vitriol and sugar of lead, rendering the oil nearly thick enough for varnish before any gum is added. Another cheat is to make cheap, sticky, worthless stuff by using raw oil without dryers; because, if a black, stiff, worthless article dries quickly (and cracks and scales quickly also), a light colored, limpid, slow drying article must be good.

Twenty years ago we mechanics up here in Vermont made our own varnish and japan; it was the only way by which we could get anything reliable. In the meantime, Mr. Abbott, of New Hampshire, got Moses Bigelow to go up to Concord and make varish for the carriage shops; and then we commenced buying of Mr. Abbott. Since that time, we have had dealings with all the manufacturers in Boston New York, and Newark, and, until the recent war, generally got good varnish; but during the war adulteration found its way into every manufactory, and even to-day a good article of varnish is perhaps, stored in one cask ont of a hundred, and there are two ways to get it. One is to make it, and the other is to eschew dealers and speculators; buy of the maker, pay just what he asks, and, if your custom is worth anything, you will get a good article. Otherwise, doubtful.

The best copal varnish is made as follows, Take three pounds of the best Zanzibar copal gum to every gallon required, pulverize the gum in an iron mortar, and then put it into a copper pot which will hold double the quantity required; fit a cover to the pot with a small hole in the cover, through which to insert an iron rod to stir the gum when melting; heat over a slow fire until thoroughly melted, stirring it constantly during the process. In the meantime, put into another pot and over another fire 1½ pints of raw linseed oil to every pound of gum in the first pot, boiling as usual for ordinary purposes, keeping it hot until the gum is thoroughly melted. Then remove from the fire to a distance of twenty or thirty feet, pour the oil in gardually, stirring at the same time; and while still hot, add sufficient turpentine to reduce the gum to a proper consistency, which can be tested by dropping a little from the end of the rod on a piece of glass to cool in the air.

The gas arising from a hot pot of varnish is very inflammable; and if the steam, by floating around, reaches the fire, it will flash as quick as gunpowder, and the face and hands of the workman will be burned and the varnish set on fire; therefore remove to a distance before adding the turpentine, also have a wet cloth ready to throw over the fire in case of accident. When all is mixed, strain, while quite hot, through and a funuel partly filled with clean flax, through which not a speck of unmelted gum, dirt, or settlings will pass. If flowing varnish is required, add a trifle more oil, with no dryers except a little red lead. If hard or scraping varnish is required, use but half a pint of oil to each pound of gum, and boil hard will plenty of dryers.—*Cor. Sci. Am.*

Difference in the Value of Diamonds.—While many can approximate the value of a diamond, few can appreciate its exact worth. All know it to be the most expensive of all substances (excepting rubies of rare color and size), from its beauty, rarity, and indestructibility. The diamond which first decked some fabulous Indian god would blaze to-day with all its fire if adorning some fair American woman. Not a single aparkle has been dimmed, nor an atom of its weight lost. Where the real difficulty exists is to make the public understand the comparative merits of various gems. In the jeweler's tray many stones may be exhibited. They may be all of good quality, but there is a decided choice. This one may have size and purity of color, yet marred by a single flaw; that one, limpidity, without a flaw, yet defective in shape; while a third, even smaller than the other two, may unite every desirable quality, be in fact almost faultless. Combining, then, every excellence within itself, its value is largely enhanced. The comparison between the price paid for a horse and a diamond is not an inapt one. An animal possessing beauty, health, speed, and docility, commands a price far above another having all these qualities save one. It is precisely the same case with a diamond. A stone approaching perfection possesses a value infinitely above one with a single depreciating quality.

Phosphate Candy.—The restoration of the phosphorus to bread, which has been removed in the bran, as so successfully accomplished in the Horsford baking powders, is well known both in this country and Europe. We now hear of a novel way of turning our national love of candy to similar benefit, by employing phosphorus instead of sulphuric acid in sour drops. Mr. Charles Allen, of the School of Mines of Columbia College, has invented a phosphated candy, which he prepares by combining one or more of the acids or salts of phosphorus with sugar, thus ingeniously presenting an acceptable form of assimilable phosphorus to those who need some repair of the nervous and brain forces. It is a plesent way of taking phosphorus as a medicine, and has been deemed worthy of a patent.

A Method of Observing Vibrating Flames.

A cotemporary gives a description of a simple apparatus for observing the phenomena of vibrating or sounding flames. A disk of white card board is constructed with oblong apertures in a radial direction; this is set upon a spindle so as to admit of rotation at the requisit speed.

To examine the flame of a gas light, for instance (the flames being protected by a glass tube from the disturbing effects of air currents), place the disk in front of the light, so that the eye can see the light through each slit as it comes to the vertical position. If now the speed of the disks' rotation is such that the interval of time between two slits passing the eye is just equal to the period of a vibration of the flames, the flame appears to be motionless; but if this velocity of rotation be reduced, the flames will be observed to pass slowly through its changes of form. If the interval is one-half, or one-third of the period of the vibration of the flame, the illusion of a disk having two or three times the number of real slits will be produced. It is only when the periods of flame-vibration and of the over lapping of two successive slits coincide in time, that the flame and disk appear motionless; when this is otherwise, the disk revolves in one direction or the other.

This plan affords a ready means of counting the number of vibrations of a flame, and by substituting a wire for the vibrating flame, the spiral course of the undulations produced in it may likewise be observed. Mr. Charles Watson, who has described the experiment, has made some very accurate observations upon the times of vibrations of flames within tubes of different dimensions.—*Jour. Franklin Institute.*

Enamel for Copper Cooking Utensils.—A preparation for coating copper vessels used in cooking, especially for cooking acid fruits which attack the copper, forming so-called verdigris, may be made as follows: 12 parts white fluor-spar, 12 parts unburnt gypsum, 1 part powdered borax' all intimately mixed and fused in a crucible. The fused mass is then poured out, and after cooling triturated with water to a doughy paint. The copper vessel is painted inside and put in a warm place, so that the mass dries uniformly throughout. When thoroughly dried the vessels are baked, if small, in a muffel' if large, in an oven, until the mass is fused. On cooling it forms a white, opaque enamel, which adheres very strongly to the copper, and is not removed by ordinary blows or percussion, and protects the vessel from the action of vegetable acids. Vessels thus coated may be used for preparing pickles, sauer-kraut, etc., without danger of copper poison.

Use of Soluble Glass in Painting.—Our exchanges still continue to suggest new application of water glass in the arts; but especially in painting where it appears to furnish a means of applying certain colors to fresh wood or clean iron in a most efficient manner, and at a very slight cost compared with oil. It can also be used advantageously for painting houses, basket ware, decorations for theaters, etc., and is especially suitable in the latter case, as it renders wood incombustible to a certain extent, instead of increasing the danger from fire, as with oil paint. Care must, of course, be taken to use only such mineral colors as are not decomposed by the glass, such as ultramarine, chrome-green. Nuremberg-green, yellow and red earth, ochre, green-earth, terra de Sienna, etc. In coating paper with this paint, a little glycerine may be added to prevent its breaking. Corralline, bonceau, and Vesuvine have also been used to advantage in connection with soluble glass.—*Harper's Magazine.*

To Coat Zinc With Iron.—The objects of zinc are dipped in a warm solution of 150 grammes sulphate of iron, 90 grms. salammoniac and 2½ kilograms of boiling water. The sulphate of iron must be free from copper. They are boiled from one to 15 minutes, taken out and the iron deposited removed with water and a brush. This first operation has for its sole object a thorough cleaning of the zinc. They are again placed in a warm sulphuric bath and afterward heated. They are thus covered with a fresh black coating. Without being washed they are put on a brasier of glowing coals and heated as long as sal-ammonia fumes are given off, which requires but a short time.

Three Methods of Preparing Plaster Casts. First, varnish them over with shellac, and the plaster, when poured in, will not adhere to the sides. Second, let the plaster cast absorb some hot bees' wax, which can be applied by means of a paint brush. Third, oil them with sweet oil till they will not absorb, and let them dry thoroughly before using. Or brush them over with melted white wax, and keep moulds hot, so that all wax is absorbed.

Red or Blue Stamping Ink.—An excellent red or blue stamping ink can be prepared by making a saturated solution of fuchsin or sublime blue with pure glycerine, and adding afterwards for the red color madder cake, and ultramarine for the blue, thickening with enough dextrine to give the desired consistency. This color possesses all the peculiarities which are required for good stamping ink.

Male and Female Voices.—Glashier, an aeronaut, says that the voice of a woman can be heard in a balloon when at the hight of two miles, while that of a man cannot be heard when higher than a mile.

Good Health.

Heat as a Poison.

One of the French journals gives an account of some curious expsriments by M. Clauds Bernard on the effects of heat upon animals. It appears from these that heat, when it attains too high a degree, acts like a poison, and destroys feeling and motion. It seems to act directly on the muscular element; and the loss of muscular power necessarially produces death by arresting the action of the heart and circulation. The degree of heat which must not be exceeded for cold-blooded animals is from 113° to 120° F., for mammalia 128° to 131°, for birds 140° to 145°. In each case the maximum differs by a few degress only from the animal's normal temperature.

There is, then, an inward medium, the temperature of which is kept up by that of the blood—a certain atmosphere of heat, so to speak, which should remain unalterable. The artificial increase of this heat leads to the most serious consequences as soon as it exceeds a very few degrees.

To what particular poisons, then, can heat be assimilated? Those must be sought which have a direct action upon the contractile muscular element, such as the *antiar* (the milky sap of the *Upas antiar*), the *vas*, and the *corwal*, American vegetable poisons. These substances, probably, have the same chemical action upon the blood as heat.

The precise action of heat upon the blood is thus stated by M. Bernard: The blood of an animal killed by heat becomes black, the oxygen it contains is rapidly transformed into carbonic acid, and finally disappears. This is not a true toxical action, but rather an excitement of the vital and normal properties of the red particles. The black blood of the rabbit killed by heat is still living; it absorbs oxygen by contact with the air, and again becomes ruddy, if the experiment is tried in time. Between 107° and 190° F., however, the blood coagulates, loses its vital properties, and cannot again become red.

Heat above a certain degree kills the muscles without killing the blood. The chemical character of this poisoning of the muscles by heat is the most obscure part of the subject. It now remains for chemists to analyze the phenomena which accompany the muscular rigidity and cessation of motion produced by heat, and thus to solve the problem of the precise action of this poison, as they have done in the case of certain others.

Sunstroke.—Dr. George H. Hope, M.D., in his work, entitled "*Till the Doctor Comes and How to Help Him,*" gives the following directions for the treatment of sunstroke until medical aid can be obtained: Sunstroke, is a sudden prostration due to long exposure to great heat, especially when one is much fatigued or exhausted. It commonly happens from undue exposure to the sun's rays in summer, but I have seen the same effects produced in a baker from the great heat of the bake-room. It begins with pain in the head or dizziness, quickly followed by loss of consciousness and complete prostration. Sometimes, however, the attack is as sudden as a stroke of apoplexy. The head is often burning hot, the face dark and swollen, the breathing labored and snoring, and the extremities cold. Take the patient at once to a cool and shady place, but don't carry him far to a house or hospital. Loosen the clothes thoroughly about his neck and waist. Lay him down with the head a little raised. Apply wet cloths to the head, and mustard or turpentine to the calves of the legs and the soles of the feet. Give a little weak whisky and water if he can swallow. Meanwhile let some one go for the doctor. You cannot safely do more than I have said without his advice.

Bisulphite of Soda in Throat Diseases.—Dr. Tyrell, in the *Pacific Medical Journal*, commends, as a new remedy in this class of affections, bisulphite of soda, given in large and continuous doses. Diptheria, inflammation of the tonsils, and quinsy, though local exhibitions, have their source in poisonous fermentations of the blood, the same as scarlet fever and other zymotic diseases. It is held that salt prescribed enters into the circulation and retards putrefactive fermentation. Dr. T. failed of success when he administered it in small doses and in three hour intervals; but when he gave thirty grain doses every hour, day and night, so as to saturate the system with the salt, he was almost invariably successful in removing all the severe symptoms in twenty-four hours. He asks physicians to give this medicine a trial, that the curative effects may have more extended proofs.

Consumption.—The late Dr. Marshall Hall, of England, said: If I were seriously ill of consumption, I would live out doors day and night, except in rainy weather or mid-winter; then I would sleep in an unplastered log house. Physic has no nutriment, gasping for air cannot cure you; monkey capers in a gymnasium cannot cure you, and stimulants cannot cure you. What consumptives want is air, not physic—pure air, not medicated air—plenty of meat and bread.

Scarlet Fever.—A Brooklyn physician considers Turkey figs, boiled in water, so as to make a sort of tea, and mixed with a little fresh brewer's yeast, a specific remedy for scarlet fever. He recommends that this simple preparation be used as food, drink and medicine. Try it.

Prescribing for Infants.

The following sensible hints on this subject are from a lecture by Prof. J. O'Reilly, published in the *American Practitioner* for April 1872: There are two points in the general medication of children to which I wish especially to call your attention. One is the subject of thirst, the other is the intervals at which medicins should be given.

In quite a number of infantile diseases the stomach is very capricious, and to keep it quiet is one of our greatest troubles. This difficulty is often caused by the attendant not understanding the difference between hunger and thirst. The sick child is fretful, and cries and pulls at its mother's breast; and she, willing to do anything that soothes it, permits it to nurse. It sucks, and in a few moments rejects the milk; but cries again, and the mother again yields it to the breast only to have the stomach again reject its contents, and thus the fight goes on until the infant is exhausted. The doctor gives medicine to quiet the irritable stomach, and the mother counteracts its effect by over feeding.

What I wish to express is the fact that the child is not hungry; it does not want the breast; but is thirsty and wants drink. In health the breast is food and drink, but in disease the craving is that of thirst, not of hunger, and the stomach which rejects the milk because it is unable to digest it would be calmed by a cool beverage. In other words, were water given to the child in the place of the breast, the stomach would be relieved, and in many cases the child saved. This difference between thirst and hunger in the infant is a point well worth noting.

Medicine should be given to infants in small but often-repeated doses. The interval should be only half as long as that for the adult. The reason for this is that the digestive organs of the infant act much more rapidly than those of the adult, and a medicine to have its effect kept up must be supplied in accordance with its entrance into and disappearance from the system.

The Limit of Longevity — Information Wanted from California.—Sir Henry Holland, in his interesting "Recollections of Past Life," just reprinted, refers to the question whether there is any trustworthy evidence of any human life longer than a century. He himself believes that there have been well authenticated instances of the kind. In the report of the Irish Registrar-General for the third quarter of 1871, the death of six centenarians are recorded. The Registrar of Cookstown District reports the death of a woman aged 102, and a man 108, and says: "I have made careful inquiry respecting these two cases, and have no reason to think their ages are exaggerated; both are remembered as 'old people' by individuals long past their climacteric." In the Dervock District, Ballymoney Union, the Registrar reports "a death at the advanced age of 105 years, authenticated."

It is stated in several medical journals of recent date that "Harvey Thacker, who died recently in California, was 128 years old at the time of his death." If there is satisfactory evidence of this extraordinary longevity, it would be interesting to know more about it.—*Eastern Exchange.*

Varying Effects of Poisons on Different Animals.—It is a well known fact that what is poison to one animal may be taken by another with entire impunity. In illustration of this proposition, we are informed that strychnine, so fatal to most animals, may be eaten by certain species of monkeys with perfect safety. In the case of an East India monkey, known as the (*Presbytis entellus*), one grain was first concealed in a piece of cucumber, which was eaten by the animal with no apparent effect. Three grains were afterward given, and with the same result. To test the strychnine used, three grains were administered to a dog, which proved almost immediately fatal. Another Indian monkey, known as the pouch-cheek monkey, has been found to be more susceptible than the Lungoor, but not so much as the dog.

It is also stated that pigeons can take opium in large quantities with no injurious consequence; goats, tobacco; and rabbits, belladonna, stramonium and hyoscyamus.

The Hoosac Tunnel, according to recent official report, has up to December 31st, 1861, required an expenditure of $6,335,332, exclusive of interest. When the present contractors assumed the management, 9,341 feet had been opened, and on December 1st, 1871, the work had been advanced by 7,737 feet, making a total of 17,078 feet, and leaving 7,953 feet to be excavated. The central shaft has been finished, and the work is now going on at four faces of the rock; much more rapid progress in the future is anticipated. The tunnel, it is hoped, will be finished by March 1874.

Stag Pills.—Pills "purely vegetable," have been a popular nostrum in this country, but in the Celestial Empire those of a thoroughly animal character appear to be in demand. A Chinese druggist at Ningpo invites the public to swallow "Pills manufactured out of a whole stag, slaughtered with purity of purpose, on a propitious day." The wealthy wholesale druggists are in the habit of purchasing large and handsome stags, which they expose in a pen at the door of the shop until "a propitious day" is selected for the animal's conversion into pills, when he is deliberately pounded entire into pulp, from which pills are made.

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ILLUSTRATIONS AND REPORTS OF MINING ENTERPRISES WANTED.—Drawings or photographs of mining works that are of general interest to our readers are solicited for publication in this journal. Official reports of Companies, and description of mines of importance, or of special interest, are also desired. Sketches of any new method and discoveries will be very acceptable.

San Francisco:

Saturday Morning, May 18, 1872

Gold and Legal Tender Rates.

SAN FRANCISCO, Wednesday, May 15, 1872.—Legal Tenders buying, 89; selling, 90. Gold in New York to-day, 113⅛.

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ENGAGED IN A NEW ENTERPRISE.—W. H. Murray, our long-time correspondent and special agent, whose business connections for the past four years, has made him familiar with the wants of a larger portion of the mercantile men and firms of the Pacific Coast, than any other person of our acquaintance, will be the business manager of a new monthly paper now issuing, "THE PACIFIC COAST MERCANTILE DIRECTOR."

GEOLOGICAL SURVEY.—Messrs. Goodyear and Cooper of the State Geological Survey, are at present engaged in making researches in the vicinity of San Diego, between that place and the Lower California border.

THE town of Wadsworth is said to present a very lively appearance lately. Large quantities of freight are received and the teams are busy, making good times for the merchants.

Wm. Regan was severely injured by a premature blast, recently, in the claims of McKillican & Co., at North Bloomfield.

A LARGE steamship is being built for the Japanese Government in one of the Brooklyn shipyards.

PROFESSOR TYNDALL, it is said, has decided on a lecturing tour through the United States during this year.

N. P. LANGFORD, of Montana, has been appointed Superintendent of the Yellowstone Natural Park.

THE Carson mint coined and stamped gold bars valued at $1,107,163 in April.

ON FILE.—Gold *vs.* Silver Mining, Ophir, Utah.

About Patents.

Much has been recently said about various patent systems, of civilized countries; and the general impression seems to prevail, that the American system with some modifications, is better adapted to promote the interests of science and progress, than that of any other country. We need no better proof of this fact, than the immense number of patents annually granted in the United States.

Many of these patents, doubtless, are entirely worthless, and neither benefit the patentee nor the community; indeed, in many instances, they are a drawback to the progress of particular branches of industry, but this can readily be obviated. A system of taxes on patents, say at the end of the third and seventh years of their existence, similar to that practiced in Great Britain, would, doubtless, "weed out" most of these worthless and unprofitable patents, and leave the field open for improvers. We do not advocate a heavy tax, but on the other hand would make the first cost of a patent as light upon the inventor as possible, and then require a small fee at the end of the third year, and another at the end of the seventh.

As the law now stands, an inventor, in order to protect himself, must procure his patent, and if the invention should prove worthless, that patent holds good for the full term of seventeen years, whether it be worked or not. If a person attempts, during that time, to improve upon the invention, he finds his labor lost, as the worthless patent covers sufficient ground, to entitle the holder to stop the later invention, thus the wheels are blocked, and neither of the patentees derive any benefit from the invention, while the public are deprived of its use. The original patentee, having held his patent for several years, without receiving any benefit therefrom, and knowing that the improver's machine cannot be made or sold without infringing the first patent, will, generally, fix a price upon his patent, equal to what he thinks he should have made out of the invention, if he had controlled a first-class machine.

This difficulty, which we consider the worst feature of our American patent law, can be effectually avoided, by the plan above proposed, as there would probably not be one instance in fifty, in which the holder of a worthless or non-productive patent, would put himself to the trouble and expense, of paying the tax, when it becomes due; and thus, his patent would fall, and the claims be free to be used by the next improver.

Another difficulty, which, in our judgment, should be remedied, is the entire absence from the letters patent issued by the Patent Office, of any indication as to the relation which the invention occupies in the art to which it pertains. In other words, we believe, that the government should endorse upon each patent issued, the numbers, and dates, of all prior patents with which a conflict is shown. For instance: A invents and patents a peculiar construction of steam plow. B afterwards patents improvements upon the same machine, which are worthless without he first acquires the right from A, to use what A has previously claimed. Now, we contend, that B's patent, should be so issued, that it will show upon its face, that it is an improvement on A's machine, and that A's right must be acquired, or privileges obtained from him, in order to admit of the patent being legally worked. This is necessary in order to sustain a good and wholesome reputation for our patented inventions, and to prevent purchasers from blindly buying and paying a large sum of money for a patent covering only improvements on a former patented machine, under the belief, that the patent covers the entire machine. Such transactions tend to bring our patent system into disrepute, and cause our people to look with distrust upon all patented inventions.

Every patent, before it is issued, or even granted, is subjected, or should be, under the law, to a rigid and thorough examination, in order to test its novelty. This examination, it is understood—and we have no reason to doubt its truth—is made by examiners, thoroughly competent to judge of the relation which the case under examination bears to every patent previously granted in that class. Now, this being the case, it will require no extra amount of work, to mark each patent with an abstract of the cases upon which its existence depends. This would not only benefit the inventor, by providing him with a memorandum of previous patents, so that he could avoid infringments, and the consequent lawsuits, but also benefits the entire community who are liable to become innocent purchasers of a worthless patent or a lawsuit.

We commend this idea to the Department at Washington, and believe that if it were adopted it would advance the interest of patents more than any other change or addition which can be made on our present system.

It would be a great advantage as well as a satisfaction to applicants for patents if the Patent Office would send to every applicant whose case is rejected, a copy of the specifications and drawings of the references given as meeting his case. This can be done at a very slight expense since the office commenced to print the specifications and photo-lithograph the drawings, and the advantage to inventors would be immense. It is a well known fact that a large number of rejected cases now laying in the office were in reality patentable at the time that the application was made, and the inventor relying upon the dictum of the examiner and the assertion of his agent, perhaps, allowed the case to lay until it became forfeited; whereas, if he had been shown a specification and drawing of the reference he could have readily pointed out material points of difference upon which a patent would have been granted. Besides, if a case is properly rejected, there is no more convincing argument that such is the fact than to show the applicant the previous patent. In view of the insignificance of the expense, and the immense amount of benefit to be derived by applicants for patents by thus furnishing them with the copies of the patents upon which they are rejected, we certainly think that it ought to be done.

We propose, in the future numbers of the PRESS, to give further views of our Patent Law System, and make such suggestions as appear to us to be greatly needed for the better protection, education, and satisfaction of inventors.

SPECTACLES.—We notice that Mr. C. Muller optician and dealer in the Brazilian Pebble, and all other kinds of spectacles, has removed to 135 Montgomery street, opposite the Occidental Hotel. He makes the fitting of spectacles to the eye, a speciality.

LOS ANGELES DISPATCHES.—La Grange and party have returned from Death Valley and report having organized the Abe Watts Mining District, ten miles from, and the nearest district to, that famous locality.

ACKNOWLEDGMENT.—Hon. Cornelius Cole has our thanks for Congressional publications, including the Report of the Commissioner of Agriculture for the year 1870, and the monthly reports for March and April of 1872.

BOONE'S PATENT TIE.—A sample of Boon'e patent railroad tie, which was illustrated in the SCIENTIFIC PRESS recently, may be seen at our office, 338 Montgomery street.

A DAILY stage line is shortly to be established between Hamilton and Pioche.

A PREMIUM sweet potato in Louisiana weighed sixteen pounds, and measured, in circumference twenty-four inches.

MINERALS, ETC.—We have received from W. C. McDougall, a large box containing a number of interesting specimens. Among them are quite a number of beautiful petrifactions; volcanic sands; pieces of lava and volcanic rocks; quartz crystals; a number of pieces of moss agate; a very beautiful and large specimen of sulphate of lime; a sort of clay which our correspondent thinks will do for furnace purposes, but from the sample shown as having been in a cooking-stove fire, which is cracked, we do not think it would stand much heat; also some rattle-snakes' rattles and a number of geological specimens which are not very rare. Mr. McDougall has also sent us in a small box a live tarrantula in his domicil which is of the most ingenious construction and a description of which we will give with an illustration shortly.

QUICKSILVER.—According to the *Commercial Herald*, the price of quicksilver has advanced £2 per flask, in London, with only about 1,000 flasks in the hands of Rothschilds agents. The price is not likely to be any lower here. The *Herald* has also been informed that a new agency has been established for the sale of the product of the Almaden mines, and that an offer of $50 per flask has been offered and refused, for the total product of the mine.

NEVADA ITEMS.—A dispatch from Hamilton dated the 13th says that the books were opened that day, and all the stock of the Eastern Nevada Railroad subscribed. The bulk of the stock is wanted by a certain banking syndicate and was subscribed for by its agent. The mortgage bonds and all other papers have been perfected and sent forward. The President of the Company goes on to Brussels, on receipt of these papers, in New York, to draw the two hundred and fifty thousand dollars now on deposit awaiting his arrival.

MINERS' STRIKE.—Some 1,500 miners in the Lake Superior Mining District have "struck," driven other men from work and threatened destruction of the mining property and death to the owners, agents and superintendents. The Governor has called out the military to suppress the disturbance.

THE ARCTIC EXPEDITION, under M. Octave Pavy, will leave this city, on the 25th inst., in search of the open Polar Sea. It is proposed to cross Wrangles Land, on sledges, and since M. Pavy has perfect confidence in his plans, a rubber raft will be taken to navigate this sea to the coast of Greenland, where ships will be sent to meet him.

MINING ACCIDENTS.—The *Mountain Messenger* records the death of Walter Fay, who was killed by a cave in the American Company's diggings, at Morristown, last week. He was not taken unawares, but did not think the cave would run so far.

PATENTS & INVENTIONS.

Full List of U. S. Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

FOR THE WEEK ENDING APRIL 23D, 1872.

NOZZLE.—Randolph R. Craig and Joseph Craig, Nevada City, Cal.; antedated April 13, 1872.

PHOTOGRAPHIC CAMERA.—Hector W. Vaughn, San Francisco, Cal.

CLASP FOR SIDE-ARMS.—Frederick A. Will and Julius Finck, San Francisco, Cal.

TOOL HANDLE.—Frederick A. Will and Julius Finck, San Francisco, Cal.; antedated April 13, 1872.

CAR-TRUCK.—Samuel N. Norton, Sacramento, Cal.

ORE-CRUSHER.—James W. Cummings, Georgetown, Col. Ter.; antedated April 10, 1872.

SOLDERING-TOOL.—Louis McMurray and Robert J. Hollingsworth, Baltimore, Md.; said Hollingsworth assigns his right to Francis Cutting, San Francisco, Cal.

COMBINED KEY-HOLE GUARD AND BOLT-FASTENER FOR LOCKS.—Charles H. Townsend and Abiather F. Potter, Oakland, Cal.

NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & CO., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency

Eberhardt, South Aurora and Utah Silver Mining Companies' Mines.

[Written for the SCIENTIFIC PRESS by HENRY SEWELL.]

Under the above heading I noticed a letter in the *Mining Journal*, of London, dated Feb. 17, and signed, "A Believor in White Pine Pockets." Having had the management of silver mines in Chilo, in stratified limestone formation, for about eight years, subsequently also for two years in Mexico and Spain, producing precisely the same class of ores as those of White Pine, namely: chlorides of silver, called by the practical miner "horn silver," I believe a few observations and data on the above, may be found useful in furthering the interests of mines in like formations in the United States. For till recently, comparatively speaking, they were not known in this country; while the experience in silver mines in Chile dates back as far as 1808, at which period the mines of Agua Amarga, Province of Huasco, were discovered.

The celebrated mines of El Doctor, in Mexico, likewise in similar formation, were worked for about thirty years, producing some forty millions of dollars. In 1836 an Indian of the name of Juan Godoy, having some Guanacos in the Sierras of Copiapo, in Chile, discovered silver mines. Accidentally losing his way he was forced to camp out for the night, collecting wood for a fire, which he had to keep up, in consequence of the cold blasts from the Andes. He chose, to protect himself, a reef that stood out boldly from the ground, or what is called by miners large croppings. Great was his surprise in the morning at finding large pieces of native silver around the spot where the fire had come in contact with the croppings. It was soon found by those who went out to inspect the wonderful riches discovered by the Indian, that great masses of horn silver lay in the stratified limestone formation, and that the native silver was due simply to the fire, which had come in contact with the ore. These mines were vigorously worked from 1836 to 1848, and kept some twelve mills constantly supplied. The crushing was carried on by so-called Chilian mills, the patio amalgamation being employed. In 1838 Mr. Stevenson, an English gentleman, was the first to make an improvement for working these free milling ores, by inventing the Fina or pan system of amalgamation, which was imported from Chile to California in later years.

Everywhere I have noticed that these formations produce free milling ore at surface and to a depth varying from 50 to 250 feet. In one district alone in Chile, called Chañarcillo, it was ascertained by dues paid by the Government, that the amount of silver produced from these formations, in about twelve years, reached the sum of $20,000,000, and from the free milling ores taken from surface, to depth of 250 feet.

About the year 1849 these ores gave out completely at the above depth, and in a very sudden manner, most discouraging to every mine owner, so much so that the Government granted them leave to "disfrutar" or take out all the arches, or pillars, that the mining laws require to prevent the mines from caving in; this being only granted after the Government Mine Surveyors have officially notified that the mines have ceased to be productive.

Mr. John Sewell, an English gentleman, who had one of the above mines for some years, and having made a large fortune out of the same, was loth to abandon his mine, and determined to solve the mystery. He noticed not only the sudden disappearance of all trace of ore, but a sudden contraction of the vein, from 6 feet to about an inch, and in many places a thin cleavage of not more than ¼ of an inch. For two or three years he continued his explorations; levels, winzes, etc., were driven, but without success; not a trace of silver could be found in the pinched portion of the lode. At a later day the same applied to all the mines in the district.

Sinking was continued till they went through about 280 feet, nearly perpendicular, 832 being the underlie of the lode. At this period of the work Mr. Sewell was absent in Europe, which induced the manager of the mine to continue two months longer, awaiting Mr. Sewell's arrival to abandon the mine altogether.

Within the above short period the narrow cleavage of the lode changed suddenly again to the width of 6 feet as it had appeared before. This event took place in 1851, when the writer, took the management of the mine, continuing therein till 1857. The ores in this new strike changed completely, their composition being mostly ruby silver ores without any trace of the free milling. We have in Chile exactly the same change in copper mines from free smelting copper ores (carbonates and silicates) to sulphurets, under similar conditions of depth.

At the depth of about 600 feet, where the sudden expansion of the lode took place, the writer extracted nine and a half tons of native silver, which produced 90 per cent. of their weight in pure metal, on being melted down in the bar furnace. This kidney of native silver was surrounded by masses of pure ruby silver. Four hundred tons of this ore were shipped in 1851, in the brig Llewellyn, for sale in Swansea, Wales, and the average per ton was $2,000 or $8,000 in all.

Shipments from this district continued for about four years, and the calculations of the value of the ore shipped were about $25,000,000. Up to the year 1857 nothing was sent under 800 ozs. to the ton. This was produced in the second Bonanza in the stratified limestone formation, and "Believer in White Pine pockets" will, I fancy, be somewhat elated at these little pigney items, which may prove useful for future guidance in White Pine.

The sudden transformation from free milling ores to native and ruby silver at a depth of 600 feet induced mill owners to try all manner of experiments, as to roasting and chloridizing. They had graduates from Freiberg, as also practical men well versed in this branch of metallurgy; but all these failed, and in consequence all the ores were shipped to Swansea. It is evident then that these limestone formations created, among the Swansea smelters in Great Britain at that time a great reputation for richness.

The difficulty which arose in Chile in the chlorination of ores, may apply later on to the White Pine districts, when they will have attained the necessary depth, and begin to produce native and ruby silver ores. This difficulty was caused by the heavy percentage of lime in the ore—about 90 per cent—and the amount of salt and iron pyrites required for the complete saturation of the lime before the silver could be chloridized.

As stated above, the richer ores were shipped, and the writer solved the problem for the reduction of the poorer ores (of 200 ozs. to 300 ozs) on which the freight to Europe was too great for shipment. These were smelted in reverberatory furnaces with copper pyrites, and shipped as a *matte*—the former, with their lime, fluxing thoroughly with the quartz and pyrites of the copper. "Believer in White Pine Pockets" must not fear for the future results of the district he is advocating, provided competent practical men, well versed in these formations are consulted as to their peculiarities.

The diagram here shown will illustrate how *every mine* in the Chilian stratified limestone formations, especially in the district of Chañarcillo (where there are some forty odd mines on the *same* lode) were similarly affected by the adjacent stratified and unstratified rock—and at the *same* depth all throughout.

A^1 A^2 A^3 A^4 represents different periods of stratification; in many cases the strata itself is impregnated with chlorides of silver to a thickness of twenty or thirty feet, and dipping sometimes as little as 15 degrees. These latter are quarried out for their ores, on account of their great width, and as they deepen, stone arches are made to prevent the strata from caving together. In the several sections of stratified rock, the lode averaging from 4 to 12 feet in width, with great productiveness throughout every mine, each stratification averages about 300 feet in perpendicular thickness.

C, *C*, *C*, represent three sections of unstratified, hard, compact rock, same thickness as above, unproductive to even traces, throughout the forty odd claims, and pinched to from an inch to one-eighth of an inch in thickness. A remarkable fact was that to a depth of nearly 2,600 feet the fissure when reduced to a minimum thickness, varied hardly three degrees in its underlie. The contraction and expansion of the vein is shown in the perpendicular section at *F*.

E, *E*, *E*, represent the surface undulation. The whole section being divided up into forty mines; the size of each being 600 feet, or a total length of 24,000 feet. A^1 yielded free milling ores. A^2 native silver and ruby ores. A^3 sulphurets and antimonial ores, highly charged with iron pyrites.

As regards "Believer in White Pine pockets," reference to the Utah Silver Co. Limited, its management, peculiar formation, etc., I will reserve for a future article, at a more propitious moment in the welfare of such company. The causes of temporary failure and my conviction of its great success, if properly managed, as to adequate capital, smelting and mining operations. Suffice it to say that until Mr. J. R. Murphy took the management, recently, the greatest depth attained, and in ore from surface, was twenty feet. This will at any rate prove to the *believer*, etc. how some English companies are managed out here. At present, and only since the last two months, the developments in ore, all the way from surface in this company's mines, have only attained a depth of seventy feet, but nineteen feet wide of galena, of sixty-five per cent., and from eighteen to twenty-five ozs. in silver.

Salt Lake City, April, 1872.

Utah News.

Fifteen hundred tons of railroad iron are on the way from the East for the Utah Southern road. A large force of men are at work on the road day and night, and it will reach Utah Lake in about six weeks. From there it is expected a branch road will be completed by August, to the East Cañon and the American Fork mines——The total shipment for the past year from Salt Lake City was 10,800 tons of ore, and 2,370 tons of bullion——It is said that experts believe that in a few years Utah will supply, beside its silver product, all the lead required in the United States——Among the recent arrivals in Salt Lake City is a gentleman who acquired some mining interests there five years since, and which have during his absence developed to an estimated value of $2,000,000——The newly discovered placer diggings in Bingham cañon are yielding as high as 40 cents to the pan, and the common average, according to dispatches is $10 and $15 per day to the hand. Gold nuggets weiging as much as two ounces have been found there——Three new quartz mills and seven smelting furnaces have recently been contracted for to be built at an aggregate expense of a quarter of a million——A number of Eastern capitalists are in Salt Lake City on mining business——The crops throughout the Territory are reported in splendid condition, and there are no fears entertained concerning the grasshoppers——William Nixon, an agent for mining companies, had a difficulty with a miner named Harlow at Little Cottonwood on the 13th inst. which resulted in Nixon shooting Harlow through the heart——A vein of yellow chloride ore 10 feet thick, and worth $100 per ton is reported as having been struck in a mine at Little Cottonwood——Wells, Fargo & Co's agency have refused to give any further information concerning receipts or shipments of bullion, for publication.

Mining Sales.

The Lebanon quartz mine in Genesee valley, Plumas county, has been sold to San Francisco capitalists.

An English company have paid $1,000,000 for the Eureka, Seventy-Six and Rough and Ready mines, according to the Quincy *National*.

The Black Bear mine, in Klamath county, has been purchased by an English company.

The Dillon mine, in Rock Creek district, says the Placer *Herald*, has been sold for $2,800 to the Auburn mining company.

A Helena company have purchased an interest in the following mines, according to the Deer Lodge *Independent*, comprising in all 6,000 feet: Franklin, Stonewall Jackson, Plymouth, Silver Crown, Wyoming, Belle, Regina, Pride of Montana, Miller and Foster, Great Republic, Lilla, Bowling, Readout, Silver Queen and Poor. The mines are all at Philipsburg, Montana.

The Quincy *National* reports the sale of the Hungarian Hill Mining Co. to San Francisco capitalists for about $50,000. The Betterton mine near Mohawk valley, Plumas county, has been sold to Mr. H. C. Bidwell, of Greenville, and some San Francisco capitalists for $25,000.

The Eureka mining company have bought from C. Richardson and others the Mohile ledge which lies north of the Eureka. According to the Grass Valley *Union*, the amount paid was $6,000.

The Monitor and Independence mines, between the Arizona and El Dorado South, in the same vein, near Belmont, Nye county, Nevada, have been sold to San Francisco capitalists. The amount paid says the Reese River *Reveille*, is somewhere near $200,000. A large mill with all the modern improvements will shortly be built by the new owners.

The Quincy *National* says that the sales of mining property in Plumas county during the past three months have amounted to $1,235,000.

The Clipper mill, on Greenhorn creek, better known as the Mason & White property, has been sold for $6,000 to Miles Smart.

The Main lode, in Cherokee Gulch, above the Pelican lode, at Georgetown has been sold for about $100,000.

Domestic Economy.

Cooking Eggs.—It is understood that eggs are more easily digested if "rare" than "well done;" but which portion of the egg resiets digestion—the "White," which is nearly pure albumen, or the yolk? Lately, experiments have beeu made in this direction, with ample opportunity of demonstrating that healthy gastric juice, which the stomach secretes for purposes of digestion, will not act readily on firmly coagulated white of egg, even if cut in pieces not larger than ordinary peas (that is as fine as people usually chew their food !) while it acts with facility upon the more brittle yolk. The reason is that the coagulated albumen is very compact and teuacious, and would need to be "ground to powder" to accept the chemical affinities of the gastric juice. Pour into a basin boiling water sufficient to cover the eggs, put the eggs into the water and let them remain eight or ten minutes, according to circumstauces and your own taste; keep the water nearly up to boiling temperature, but don't boil the eggs. Old eggs will cook more quickly than fresh ones, and of course small ones quicker than large ones. By this process you will find the yolks well cooked, while the white is left in a condition to digest readily.—*Ex.*

Strawberry Syrup.—Take two pounds of nice ripe field berries, all the green ones being carefully picked ont, and put them without smashing into a large bottle with a wide mouth, and at the same time 2¼ pounds of finely pulverized white sugar. The bottle should not be quite full. They are left standing a few days at the ordinary temperature, being occasionally gently shaken up. The sugar takes up the liquid part of the berry, forming a clear, aromatic syrup, while the solid parts shrivel up almost odorless and tasteless, and may be easily separated from the juice by straiuing through a linen cloth. Milk or wine may be poured over the residue to make a palatable dish for the table. The above quantity of berries and sugar make 1¼ quarts of syrup. It may be kept for some time in closely stopped bottles in a cool place. It must not be heated, because the flavor of the berry is very volatile; a loug exposure of the juice to the air is also injurious. The syrup diluted with water makes an agreeable ice; or it may be mixed with some light wine as a drink. Raspberry syrup may be prepared in the same way. The flavor of the raspberry is not injured by heat, and the syrup may be more quickly prepared and with less sugar by placing the bottle a short time in boiling water. This syrup may also be used for ices. As a drink, when diluted with water, it is less piquant than that made iu the usual way by crushing the berries and letting the juice stand for a week.

Workingmen's Dinners. — The series of cheap, palatable workingmen's dinners lately inaugurated in London, have proved a great success. The repast consists of oxtail, mullagatawny, pea and gravy sonps made of Australian preserved meats; also legs of mutton, beef, vegetables, celery, etc. The hearty manner in which the meals are disposed of daily shows that the dinners are appreciated, and that the preserved meats are as agreeable as they are nutritious. The prices at which the dishes are served are extremely low, as will be seen from the following extract from the daily bill of fare: "Gravy soup, 1d. per plate; Irish stew, 2d.; stewed beef, 3d. The cheapness of the preserved meats enables those by whom the dinners were originated to more than pay expenses at the low prices charged. The best kind of benevolence is that which enables the poor to provide themselves with comforts, and if those who are desirous of doing good would try the experimemt of cheap dinners in this country, we think they would find the results gratifying.

How to Mix Mustarn.—Mustard should be mixed with water that has been boiled and allowed to cool; hot water destroys its essential properties, and raw, cold water might cause it to ferment. Put the mustard in a cup, with a small pinch of salt, and mix with it very gradually sufficient boiled water to make it drop from the spoon without beiug watery. Stir and mix well, and rub the lumps well dowu with the back of a spoon, as mustard properly mixed should be perfectly free from these. The mustard pot should not be more thau half full, or rather less, if it will not be used for a day or two, as the mustard is so much better when fresh made.

To Detect the Adulteration of Wines.—The adulteration of wines with cider can easily be detected by filtering and addiug ammonia in excess. The apple juice will immediately deposit crystals on the side of the test tube. Genuine wine sheds a pulverulent deposit which does not adhere to the glass, and is devoid of a crystalline structure. Acetic acid will dissolve either of these precipitates. The deposit from the cider consists of flat crystals with parallel sides; that from wine shows star-shaped formations. The treatment with acetic acid shows the presence of lime and phosphoric acid in both cases, the quantity of lime in the wine being minute.

Lemon Syrup.—When lemons are abundant and chesp, it is a good plan to purchsse several dozen at once, and prepsre them for use in the warm, weak days of spring and snmmer, when acids, especially citric and malic, or the acids of lemons and ripe fruits, are so grateful and so useful.

Press your hand upon the lemou and roll it back and forth briskly on the tsble to mske it squeeze more easily, then press the juice into a bowl or tumbler, never into tin; strain out all the seeds as they give a bsd tsste. Remove all the pulp from the peel and boil in water, a pint for a dozeu pulps, to extract the acid. A few minuets boiling is enough, then strain the water with the juice of the lemons, put a pound of white sugar to a pint of the juice; boil ten minutes, bottle it, and your lemonade is ready. Put a tsblespoonful or two of this lemou syrup in a glass of water, and you have a cooling, healthful drink.

Carbolic Toilet Water.—Crystallized csrbolic acid, 10 parts; essence of mille-fleurs, 1 part; tincture of quillaya ssponaris, 50 parts; wster, 1,000 parts. Mix. The sspoine replaces soap with advantage. The above should be employed, diluted with ten times its bulk of water, for disinfecting the skin, for washing the hands after any risk of contagion, etc.

The tincture of saponine in the ahove is made by taking of bark of quillaya saponsria, 1 part, snd of alcohol (90°), 4 parts. Heat to ebullition, and filter.

Cracked Wheat.—Immedistely sfter breskfast put a kettle of water to boil, with a steamer sbove, placing therein a two-quart tin vessel half full of cracked wheat, a tablespoonful of salt, snd water enough to cover. Allow it to stesm all day (with less time it tastes raw) add hot water occssionally, just enough to keep the cracked whest covered; it will swell double. Allow it to stand till cold, then turn it on a plate; serve at any meal, with cream and sugar. For the sake of hygiene I have, at every meal, cracked wheat, Graham, oatmeal or samp.—*Mono, Titusville, Pa.*

How to Cook Beets.—Beets are very nice cooked in the following manner: Slice cooked beets quite thin, put in a sauce-pan with some vinegar, water and a piece of butter, with sugar enough to make palatable. Any rule is impossible. Taste it, and if any ingredient is lacking, add more of it; salt a very little, and pepper; thicken the whole slightly; serve hot. Beets may be skinned much easier by rubbing over with a cloth immediately in taking them from the water in which they are cooked, thau by usiug a knife and fork.

Rice Pudning.—Try the following receipt: Take one teacupful of soft, boiled rice, one tablespoonful of butter, mixed in the rice while hot; add one quart of sweet milk, one teacup of sugar, the yolks of five eggs, season with lemon; bake until done. Beat the whites of five eggs to a stiff froth, and etir in it five heaping tablespoonfuls of powdered sugar; spread over the custard; return to the oven, and bake a delicate browu.—*T. W. C., Augusta, Ga.*

Cookino Raisins.—It is well to cook raisius before putting them iuto pies, cakes or puddings. Soaking them is not sufficient. Steaming them by pouring a small quantity of boiling water amongst them in a tightly closing dish, and allowing them plenty of time to cook before opening is a good plan. When raisins are rightly cooked before using they are plumper, and more palatable, and can he eaten without injury by most dyspeptics.

Graham Bread.—Stir into two quarts of blood-warm water enough Graham flour to make it about the consistency of pancakes; add half a pint of yeast and a tablespoonful of salt; allow it to stand all night in a warm place; early next morning add two cups of commou molasses and stir in enough flour to make about as thick as for cake—not good if too thick; at ten o'clock put into deep buttered tins (ahout four), set in a warm place to rise; in two hours it will be light enough. Bake one hour.

Orange Salad.—Peel eight oranges with a sharp knife, so as to remove every vestige of skin from them, core them as you would core apples, then cut them in slices, and lay them in a deep dish; strew over them plenty of powdered loaf-sugar, then add a large wineglassful of pale brandy; keep the dish covered close till the time of serving.

Lemon Butter.—One pound of white sngar, one quarter pound fresh butter, six eggs, juice and grated rind of three lemons, taking out all the seeds. Boil all together a few minutes, till thick as honey, stirring constantly; put in small jars or tumblers, covered with paper dipped in white of egg. One teaspoonful is euough for a tart or cheese-cake. This will keep a long time in a cool, dry place.

Chicken Cheese.—Boil two chickens till tender, take out all the bones and chop the meat fine, season to your taste with salt, pepper, and butter; pour in enough of the liquor they were boiled in to make it moist, put into whatever mould you wish, and when cold turn out and cut into slices.

Ginger Cookies.—Take three cups of molasses, one cup sugar, one cup hot water, oue cup butter, one tablespoonful ginger, two teaspoonsfuls saleratus; add flour enough, and knead them so that they will roll well, and they will be found good.

Salt Mines in Southern California.—The Los Angeles *News*, of April 21st, has the following mention of a California manufacture:

Southern California has but few manufacturing industries to boast of, but the few it has are, as a rule, paying enterprises. One of them is that of salt making. San Diego and Los Angles counties have each got works wherein the salt consumed in the Southern counties, Arizona and the Owens river country is manufactured. The article is obtained from the sea water by means of natural evaporation. The Pacific Salt Works, owned by J. B. Trudell, are located on the coast of the north side of San Pedro Point about ten miles north of Wilmington and seventeen miles southeast of this city. The sal tworks are located on a small lagoon, about 200 yards long by 50 broad, situated in a hollow, a quarter of a mile from where the surf breaks on the sandy beach. A ridge of sand hills protects it from the ocean wind and waves, while the rising ground inland affords it some shelter on that side. The mountain on San Pedro Point is an effectual barrier to the southernly gales which occasionally visit the coast. The lagoon is thus securely wind proof, and its placid surface is seldom ruffled by the slightest ripple. The lagoon is the source from which the water for salt is obtained. It is itself fed by springs of both fresh and salt water, some of them rising in its very center. The valley, or hollow, extends for nearly a mile, and two artificial ponds for salt making have been constructed at the south end of the lagoon, each being about 300 feet in length, 150 in breadth and a uniform depth of ten inches.

Quartz Mining.—We learn from parties interested in mining on the ridge, that very little is being done in quartz mining this season. The gravel mines are doing spendid throughout the whole county, but the quartz mining interest needs reviving. We are informed that there are a number of quartz ledges on Diamond creek which would pay handsomely if there was a mill haudy to crush the rock. A custom mill would do well there. The owners of these mines generally, are working men, without means enough to erect mills and machinery sufficient to work the ledges, consequently they have to lie idle. All that is needed to bring the quartz mining interest up, on the ridge, is capital. We hope ere long to hear of moneyed men taking hold of things in that direction.—*Gazette, Nev.*

Amono the Mormous busiuess is carried ou on the co-operative system and in the name of the Lord. "Holiness to the Lord, with an All-seeing eye is painted on their signs, which occasioned the remark from an Irish immigrant that there were a great many eye doctors there.

The richest sugar planter in Cuba is said to be Barros, who has 6 factories and an income of $4,000,000 per annum. Another planter, Poey, has a plantation, called Los Soanas, two leagues from Havana, with seveu hundred slaves.

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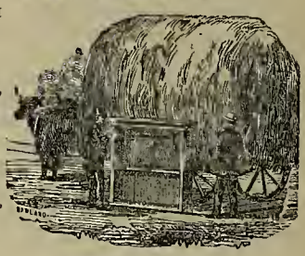

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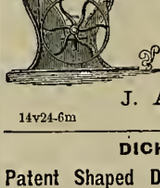

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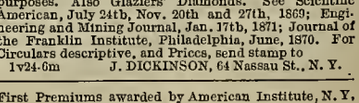

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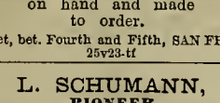
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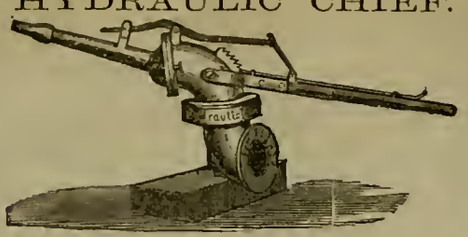

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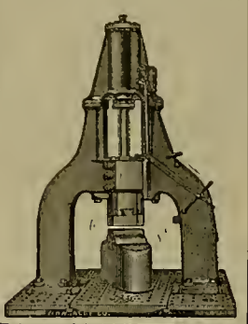

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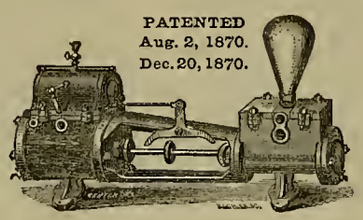

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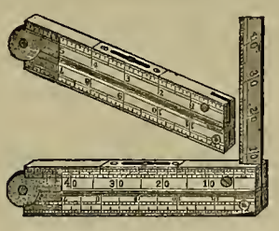

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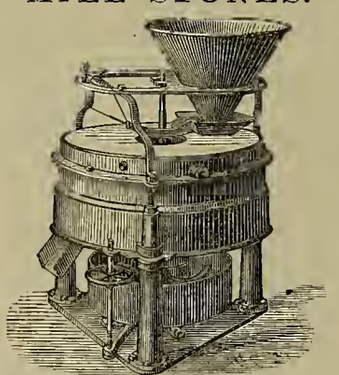

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U. S. Mining Laws.

From the Daily Alta, May 15th.

LAWS TO PROMOTE THE DEVELOPMENT OF THE MINING RESOURCES OF THE UNITED STATES.

SEC. 1. That all mineral deposits in lands belonging to the United States, both surveyed and unsurveyed, are hereby declared to be free and open to exploration and purchase, and the lands in which they are found to occupation and purchase, by citizens of the United States and those who have declared their intention to become such, under regulations prescribed by law, and according to the local customs or rules of miners, in the several mining districts, so far as the same are applicable and not inconsistent with the laws of the United States.

SEC. 2. That mining claims upon veins or lodes of quartz or other rock in place bearing gold, silver, cinnabar, lead, tin, copper, or other valuable deposits, heretofore located, shall be governed as to length along the vein or lode by the customs, regulations, and laws in force at the date of their location. A mining claim located after the passage of this act, whether located by one or more persons, may equal, but shall not exceed, fifteen hundred feet in length along the vein or lode; but no location of a mining claim shall be made until the discovery of the vein or lode within the limits of the claim located. No claim shall extend more than three hundred feet on each side of the middle of the vein at the surface, nor shall any claim be limited by any mining regulation to less than twenty-five feet on each side of the middle of the vein at the surface, except where adverse rights existing at the passage of this act shall render such limitation necessary. The end lines of each claim shall be parallel to each other.

Sec. 3. That the locators of all mining locations heretofore made, or which shall hereafter be made, on any mineral vein, lode, or ledge, situated on the public domain, their heirs and assigns, where no adverse claim exists at the passage of this Act, so long as they comply with the laws of the United States, and with State, Territorial, and local regulations not in conflict with said laws of the United States governing their possessory title, shall have the exclusive right of possession and enjoyment of all the surface included within the lines of their locations, and of all veins, lodes, and ledges throughout their entire depth, the top of apex of which lies inside of such surface lines extended downward vertically, although such veins, lodes or ledges may so far depart from a perpendicular in their course downward as to extend outside the vertical side lines of said surface locations: *Provided*, That their right of possession to such outside parts of said veins or ledges shall be confined to such portions thereof as lie between vertical planes drawn downward as aforesaid, through the end lines of their locations, so continued in their own direction that such planes will intersect such exterior parts of said veins or ledges: *And provided further*, That nothing in this section shall authorize the locator or possessor of a vein or lode which extends in its downward course beyond the vertical lines of his claim to enter upon the surface of a claim owned or possessed by another.

Sec. 4. That where a tunnel is run for the development of a vein or lode or for the discovery of mines, the owners of such tunnel shall have the right of possession of all veins or lodes within three thousand feet from the face of such tunnel, on the line thereof, not previously known to exist, discovered in such tunnel, to the same extent as if discovered from the surface; and locations on the line of such tunnel of veins or lodes not appearing on the surface, made by other parties after the commencement of the tunnel, and while tha same is being prosecuted with reasonable diligence, shall be invalid; but failure to prosecute the work on the tunnel for six months shall be considered as an abandonment of the right to all undiscovered veins on the line of said tunnel.

Sec. 5. That the miners of each mining district may make rules and regulations not in conflict with the laws of the United States, or with the laws of the State or Territory in which the district is situated, governing the location, manner of recording, amount of work necessary to hold possession of a mining claim, subject to the following requirements: The location must be distinctly marked on the ground so that its boundaries can be readily traced. All records of mining claims hereafter made shall contain the name or names of the locators, the date of the location, and such a description of the claim or claims located, by reference to some natural object or permanent monument as will identify the claim. On each claim located after the passage of this Act, and until a patent shall have been issued therefore, not less than one hundred dollars' worth of labor shall be performed or improvements made during each year. On all claims located prior to the passage of this Act, ten dollars' worth of labor shall be performed or improvements made for each one hundred feet in length along the vein until a patent shall have been issued therefor; but where such claims are held in common, such expenditure may be made upon any one claim. And upon a failure to comply with these conditions, the claim or mine upon which such failure occurred shall be open to re-location in the same manner as if no location of the same had ever been made: *Provided*, That the original locators, their heirs, assigns or legal representatives, have not resumed work upon the claim after such failure and before such location. Upon the failure of any one of several coöwners to contribute his proportion of the expenditures required by this Act, the coöwners who have performed the labor or made the improvements may, at the expiration of the year, give such delinquent coöwner personal notice in writing or notice by publication in the newspaper published nearest the claim, for at least once a week for ninety days, and if at the expiration of ninety days after such notice in writing or by publication, such delinquent should fail or refuse to contribute his proportion to comply with this Act, his interest in the claim shall become the property of his coöwners who have made the required expenditure.

Sec. 6. That a patent for any land claimed and located for valuable deposits may be obtained in the following manner: any person, association, or corporation authorized to locate a claim under this Act, having claimed and located a piece of land for such purposes, who has, or have, complied with the terms of this Act, may file in the proper Land Office an application for a patent, under oath, showing such compliance, together with a plat and field notes of the claim or claims in common, made by or under the direction of the United States Surveyor-General, showing accurately the boundaries of the claim or claims, which shall be distinctly marked by monuments on the ground, and shall post a copy of such plat, together with a notice of such application for a patent, in a conspicuous place on the land embraced in such plat previous to the filing of the application for a patent, and shall file an affidavit of at least two persons that such notice has been duly posted as aforesaid, and shall file a copy of said notice in such Land Office, and shall thereupon be entitled to a patent for said land, in the manner following: the register of the Land Office, upon the filing of such application, plat, field-notes, notices, and affidavits, shall publish a notice that such application has been made, for the period of sixty days, in a newspaper to be by him designated as published nearest to said claim and he shall also post such notice in his office for the same period. The claimant at the time of filing this application, or at any time thereafter within the sixty days of publication, shall file with the register a certificate of the United States Surveyor General that $500 worth of labor has been expended or improvements made upon the claim by himself or grantors; that the plat is correct, with such further description by such reference to natural objects or permanent monuments as shall identify the claim, and furnish an accurate description, to be incorporated in the patent. At the expiration of the sixty days of publication the claimant shall file his affidavit, showing that the plat and notice have been posted in a conspicuous place on the claim during said period of publication. If no adverse claim shall have been filed with the Register and Receiver of the proper Land Office at the expiration of the sixty days of publication, it shall be assumed that the applicant is entitled to the patent, upon the payment to the proper officer of five dollars per acre, and that no adverse claim exists; and thereafter no objection from third parties to the issuance of a patent shall be heard, except it be shown that the applicant has failed to comply with this Act.

Sec. 7. That where an adverse claim shall be filed during the period of publication, it shall be upon oath of the person or persons making the same, and shall show the nature, boundaries and extent of such adverse claim, and all proceedings, except the publication of notice and making and filing of the affidavit thereof, shall be stayed until the controversy shall have been settled or decided by a Court of competent jurisdiction, or the adverse claim waived. It shall be the duty of the adverse claimant, within thirty days after filing his claim, to commence proceedings in a Court of competent jurisdiction, to determine the question of the right of possession, and prosecute the same with reasonable diligence to final judgment; and a failure to do so shall be a waiver of his adverse claim. After such judgment shall have been rendered, the party entitled to the possession of the claim, or any portion thereof, may, without giving further notice, file a certified copy of the judgment roll with the Register of the Land Office, together with the certificate of the Surveyor-General, that the requisite amount of labor has been expended, or improvements made thereon, and the description required in other cases, and shall pay to the receiver five dollars per acre for his claim, together with the proper fees, whereupon the whole proceedings and the judgment roll shall be certified by the Register to the Commissioner of the General Land Office, and a patent shall issue thereon for the claim, or such portion thereof as the applicant shall appear, from the decision of the Court, to rightfully possess. If it shall appear from the decision of the Court that several parties are entitled to separate and different portions of the claim, each party may pay for his portion of the claim, with the proper fees, and file the certificate and description by the Surveyor-General, whereupon the Register shall certify the proceedings and judgment-roll to the Commissioner of the General Land Office, as in the preceding case, and patents shall issue to the several parties according to their respective rights. Proofs of citizenship under this Act, or the Acts of July 26th, 1866, and July 9th, 1870, in the case of an individual, may consist of his own affidavit thereof, and in case of an association of persons unincorporated, of the affidavit of their authorized agent, made on his own knowledge or upon information and belief, and in case of a corporation organized under the laws of the United States, or of any State or Territory of the United States, by the filing of a certified copy of their charter or certificate of incorporation; and nothing herein contained shall be construed to prevent the alienation of the title conveyed by a patent for a mining claim to any person whatever.

Sec. 8. That the description of vein or lode claims, upon surveyed lands, shall designate the location of the claim with reference to the lines of the public surveys, but need not conform therewith; but where a patent shall be issued as aforesaid for claims upon unsurveyed lands, the Surveyor-General, in extending the surveys, shall adjust tha same to the boundaries of such patented claim, according to the plat or description thereof, but so as in no case to interfere with or change the location of any such patented claim.

Sec. 9. That sections one, two, three, four and six of an Act entitled "An Act granting the right of way to ditch and canal owners over the public lands, and for other purposes," approved July 26, 1866, are hereby repealed, but such repeal shall not affect existing rights. Applications for patents for mining claims now pending may be prosecuted to a final decision in the General Land Office; but in such cases where adverse rights are not affected thereby, patents may issue in pursuance of the provisions of this Act; and all patents for mining claims heretofore issued under the Act of July 26, 1866, shall convey all the rights and privileges conferred by this Act where no adverse rights exist at the time of the passage of this Act.

Sec. 10. That tha Act entitled "An Act to amend an Act granting the right of way to ditch and canal owners over the public lands, and for other purposes," approved July 9th, 1870, shall be and remain in full force, except as to the proceedings to obtain a patent, which shall be similar to the proceedings prescribed by Sections six and seven of this Act for obtaining patents to vein or lode claims; but where said placer claims shall be upon surveyed lands, and conform to legal subdivisions, no further survey or plat shall be required. And all placer mining claims hereafter located shall conform as near as practicable with the United States system of public land surveys and the rectangular subdivisions of such surveys, and no such location shall include more than twenty acres for each individual claimant; and where placer claims cannot be conformed to legal subdivisions, survey and plat shall be made as on unsurveyed lands; *Provided*, That proceedings now pending may be prosecuted to their final determination under existing laws, but the provisions of this Act, when not in conflict with existing laws, shall apply to such cases: *Provided, also*, That where by the segregation of mineral lands in any legal subdivision a quantity of agricultural land less than forty acres remains, said fractional portion of agricultural land may be entered by any party qualified by law, for homestead or preëmption purposes.

Sec. 11. That where the same person, association or corporation is in possession of a placer claim, and also a vein or lode included within the boundaries thereof, application shall be made for a patent for the placer claim, with the statement that it includes such vein or lode, and in such case (subject to the provisions of this Act and the Act entitled "an Act to amend an Act granting the right of way to ditch and canal owners over the public lands, and for other purposes," approved July 9th, 1870) a patent shall issue for the placer claim, including such vein or lode, upon the payment of $5 per acre for such vein or lode claim, and 25 feet of surface on each side thereof. The remainder of the placer claim, or any placer claim not embracing any vein or lode claim, shall be paid for at the rate of $2 50 per acre, together with all costs of proceedings; and where a vein or lode, such as is described in the second section of this Act, is known to exist within the boundaries of a placer claim, an application for a patent for such placer claim which does not include an application for the vein or lode claim shall be construed as a conclusive declaration that the claimant of the placer claim has no right of possession of the vein or lode claim; but where the existence of a vein or lode in a placer claim is not known, a patent for the placer claim shall convey all valuable mineral and other deposits within the boundaries thereof.

Sec. 12. That the Surveyor-General of the United States may appoint in each land district containing mineral lands as many competent surveyors as shall apply for appointment to survey mining claims. The expenses of the survey of vein or lode claims, and the survey and subdivision of placer claims into smaller quantities than one hundred and sixty acres, together with the cost of publication of notices, shall be paid by the applicants, and they shall be at liberty to obtain the same at the most reasonable rates, and they shall also be at liberty to employ any United States Deputy Surveyor to make the survey. The Commissioner of the General Land Office shall also have power to establish the maximum charges for surveys and publication of notices under this Act; and, in case of excessive charges for publication, he may designate any newspaper published in a land district where mines are situated for the publication of mining notices in such district, and fix the rates to be charged by such paper; and, to the end that the Commissioner may be fully informed on the subject, each applicant shall file with the Register a sworn statement of all charges and fees paid by said applicant for publication and surveys, together with all fees and money paid the Register and the Receiver of the Land Office, which statement shall be transmitted, with the other papers in the case, to the Commissioner of the General Land Office. The fees of the Register and the Receiver shall be five dollars each for filing and acting upon each application for patent or adverse claim filed, and they shall be allowed the amount fixed by law for reducing testimony to writing, when done in the Land Office, such fees and allowances to be paid by the respective parties; and no other fees shall be charged by them in such cases. Nothing in this Act shall be construed to enlarge or affect the rights of either party in regard to any property in controversy at the time of the passage of this Act, or of the Act entitled "An Act granting the right of way to ditch and canal owners over the public lands, and for other purposes," approved July 26, 1866, nor shall this Act affect any right acquired under said Act; and nothing in this Act shall be construed to repeal, impair or in any way affect the provisions of the Act entitled "An Act granting to A. Sutro the right of way and other privileges to aid in the construction of a draining and exploring tunnel to the Comstock lode, in the State of Nevada," approved July 25, 1866.

Sec. 13. That all affidavits required to be made under this Act, or the Act of which it is amendatory, may be verified before any officer authorized to administer oaths within the land district where the claims may be situated, and all testimony and proofs may be taken before any such officer, and when duly certified by the officer taking the same, shall have the same force and effect as if taken before the Register and the Receiver of the Land Office. In case of contest as to the mineral or agricultural character of land, the testimony and proofs may be taken as herein provided on personal notice of at least ten days to the opposing party; or if said party cannot be found, then by publication of at least once a week for thirty days in a newspaper, to be designated by the Register of the Land Office as published nearest to the location of such land, and the Register shall require proof that such notice has been given.

Sec. 14. That where two or more veins intersect or cross each other, priority of title shall govern, and such prior location shall be entitled to all ore or mineral contained within the space of intersection: *Provided, however*, That the subsequent location shall have the right of way through said space of intersection for the purposes of the convenient working of the said mine: *And, provided also*, That where two or more veins unite, the oldest or prior location shall take the vein below the point of union, including all the space of intersection.

Sec. 15. That where non-mineral land not contiguous to the vein or lode is used or occupied by the proprietor of such vein or lode for mining or milling purposes, such non-adjacent surface ground may be embraced and included in an application for a patent for such vein or lode, and the same may be patented therewith, subject to the same preliminary requirements as to survey and notice as are applicable under this Act to veins or ledges: *Provided*, That no location hereafter made of such nonadjacent land shall exceed five acres, and payment for the same must be made at the same rate as fixed by this Act for the superficies of the lode. The owner of a quartz-mill or reduction-works, not owning a mine in connection therewith, may also receive a patent for his mill-site, as provided in this section.

Sec. 16. That all Acts and parts of Acts inconsistent herewith are hereby repealed: *Provided*, That nothing contained in this Act shall be construed to impair, in any way, rights or interests in mining property acquired under existing laws.

[Approved May 11, 1872.]

New Incorporations.

The following have filed certificates with the County Clerk, San Francisco:

COLUMBIA SMELTINO AND M. Co.—May 9. Location: San Diego county. Capital stock, $5,000,000, in 50,000 shares. Trustees—W. Meeks, J. W. Tripp, John Whalen, D. Fredemich, G. Ivancovich, H. Coward, R. Tiernan.

HEYDEN HILL M. Co.—May 9. Location: Heyden Hill M. District, Lassen county. Capital stock, $5,000,000, in 50,000 shares. Trustees—A. W. Blair, Samuel Fair, George M. Pinney, S. A. Raymond, H. S. Brown.

EUROPA M. Co.—May 9. Location: Gold Hill Mining district. Capital stock, $2,000,-000, in 20,0000 shares. Trustees — H. C. Wheeler J. H. H. Williams, C. H. Kingsley, O. Coats and S. K. Thornton.

MARION S. M. Co.—May 9. Location: Lincoln district, Nevada. Capital stock, $3,000,-000, in 30,000 shares. Trustees—M. J. McDonald, B. E. Connor, Charles M. Leavy, C. F. Hamilton, and George W. Blake.

MOJAVE CONSOLIDATED M. Co.—May 9. Location: Wallapai M. district, Mojave county, Arizona. Capital Stock, $3,000,000 in 30,000 shares. Trustees—M. G. Gillett. F. G. Berry, R. Denoon, C. P. Hall and Richard Wheeler.

PACIFIC CORDAGE Co.—May 9. Object: the manufacture of Cordage of all descriptions. Capital stock, 200,000, in 200 shares. Trustees—John Parrott, Oliver Eldridge, James Otis, Jabez Howes and J. D. Farwell.

PACIFIC COÖPERATIVE FURNITURE FACTORY.—May 10. Object: manufacture furniture. Capital stock, $100,000, with the right to increase the same to $250,000. Trustees—W. C. Powell, G. W. Dent, F. De St. Germain, W. Henry, F. O'Neill, Jacob Strahle and J. Rolland.

NATIONAL M. Co.—May 10. Location: Bristol district, Nye county, Nevada. Capital stock, $3,000,000, in 30,000 shares. Trustees—J. B. Haggan, Julius Ordway, Joseph Clarke, J. S. Doe and B. B. Minor.

FANSHAW CREEK IRRIGATION AND CANAL Co.—May 10. Object: To supply a canal already constructed in Fresno county, with water from Fanshaw creek, to be used for irrigating and many acturing purposes. Capital stock, $100,-000, in $10,000 shares. Trustees—F. C. de Wolt, Edward B. Perrin and Robert Perrin.

COLUMBIA M. Co.—May 11. Location: Virginia M. district, Storey county. Capital stock, $1,000,000, in 40,000 shares. Trustees—R. H. Graves, John Mallon, F. S. Weinsinger, E. Patten and M. D. Townsend.

CHAPMAN No. 2 S. M. Co.—May 11. Location: Ely M. District. Capital stock, $3,-000,000, in shares of $100 each. Trustees—J. B. Higgin, H. C. Kibhe, Charles E. Elliott, John P. Jones and J. S. Wall.

HOWARN M. Co.—May 11. Location: American Flat, Gold Hill District. Capital stock, $4,-800,000, in shares of $100. Trustees—George D. Roberts, John A. Stanly, G. D. Hall, H. C. Howard and James Lincoln.

CEDERBERG FIRST NORTHERLY EXTENSION G. M. Co.—May 11. Location: Greenwood M. District, El Dorado county. Capital stock, $2,400,000, in shares of $100. Trustees—A. J. Morrill, G. A. Hunter, W. A. Buckman, G. A. Cederberg, G. W. Simpers and G. W. Johnson.

HUNGARIAN M. Co.—May 11. Object: Gravel mining business. Capital stock $1,000,000, in shares of $50 each. Trustees—Clinton Gurnee, John D. Goodwin, Gcorge Hearst, Geo W. Bearer and Wm. Bollenger.

GREAT BLUE GRAVEL RANGE M. Co.—May 11. Location: Placer county. Capital stock, $5,-000,000, in shares of $100 each. Trustees—Wm. Higby, Winslow Hale, C. H. Dewey, E. S. Peck and J. M. Thompson.

RED JACKET G. AND S. M. Co.—May 11. Location: Gold Hill. Capital stock, $5,200,000, in shares of $100 each. Trustees—George D. Roberts, John A. Stanley, G. D. Hall, H. C. Howard and Jonas Lincoln.

ECONOMICAL GAS MACHINE Co.—May 11. Object: The manufacture and sale of carburetors for air and gas, under the letters patent issued by the United States. Capital stock, $10,000, in shares of $20 each. Trustees—Louis Marks, Rudolph Wichelhausen, Louis Porep, H. Burkheim and H. A. Seigfried.

DUNDERBERG M. AND M. Co.—May 14. Location: Mono county, California. Capital stock $5,000,000, in $5,000 shares. Trustees—J. P. Tones, A. H. Rose, Geo. Munckton, E. B. Rail and O. H. Boyd.

THE BAR ASSOCIATION OF SAN FRANCISCO.—May 14. Trustees—John W. Dwinelle, Henry H. Haight, Joseph W. Winans, W. W. Cope, Thomas I. Bergin. Joseph P. Hoge, President of the Association, is, by virtue of the constitution and hy-laws adopted April 27th, ex-officio a member of the Board.

The following companies have filed certificates of Incorporation at the office of the Secretary of State, Sacramento:

SOMERSET M. Co.—Location: Grass Valley District, Nevada county. Capital stock,$1,200,-000.

NORTH COMSTOCK G. & S. Co.—Location: Truckee Mining District, Storey county, Nev. Capital stock,$200,000.

AMAZON S. M. Co.—Location: Ely Mining District, Lincoln county, Nev. Capital stock, $3,000,000.

SWANSEA M. Co.—Location: Kelsey Mining District, El Dorado county. Capital stock, $3,-600,000.

ORIGINAL GOLN HILL G. & S. M. Co.—Location: Gold Hill, Nevada. Capital stock, $3,-000,000.

PROVIDENCE G. & S M. Co.—Location: California. Capital stock, $3,000,000.

BISMARK S. M. Co.—Location: Humboldt county, Nev. Capital stock, $5,000,000.

IMPORTANT MINING BOOK.

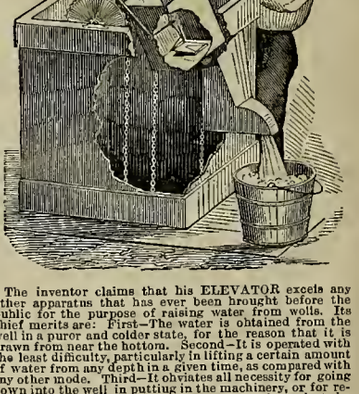
Mines, Mills, and Furnaces of the Pacific Statea and Territoriee; An Account of the Condition, Reeources, and Methode of the Mining and Metallurgical Industry in those Regions, Chiefly Relating to the Precioue Metals. By Roesiter W. Raymond, Ph. D., Vice-President Am. Inat. of Mining Engineers; Editor "Engineering and Mining Journal." Author of "Mines of the West," "American Mines and Mining," etc. J. B. Ford & Co., 1 vol. 8vo. 468 pp. Ex-Cloth. Sold by DEWEY & Co., publishers Scientific Press, San Francieco, at publishers' rates, $3.50.

Thie volume will ecarcely need to he recommended to those who are acquainted with the "Mineeof the West," "American Minea and Mining," and other profeeional publicatione of ita author. The preeent work ia in no eenae a repetition of Mr. Raymond'e former onee. It contains a full and comprehensive account of the condition of the gold and eilver mining industry of tha United Statea, with practical recommendstione of great importance to those engaged in it. The chapter on tha treatment of auriferous orea in Colorado ie the heat account of the stamp-mill procesa ever published in thie country; and the general diecuesion of smelting processes for silver oree supplies an instant want. The eeriee of volumee, of which thie forme the third, which have proceeded from the rapid but careful pen of Commissioner Raymond, are recognized in thie country and in Europe as profeeeionally authoritative and popularly interesting to a remarkable degree. To he techuically accurate, but not technically abstruse, ia their salient and acknowledged merit.

Endless Chain Elevator,

FOR RAISING WATER FROM WELLS.

BALL & CRARY, Patentees.



The inventor claims that his ELEVATOR excels any other apparatus that has ever been brought before the public for the purpose of raising water from wells. Its chief merits are: First—The water is obtained from the well in a purer and colder state, for the reason that it is drawn from near the bottom. Second—It is operated with the least difficulty, particularly in lifting a certain amount of water from any depth in a given time, as compared with any other mode. Third—It obviates all necessity for going down into the well in putting in the machinery, or for repairing the same, as such labor can be performed at the surface. Fourth—It can be easily taken out of one well and transferred to another. Fifth—It is less liable to get out of repair—but when repairs are necessary they can be easily made by any one; the action made by the Endless Chain and buckets keeps the well properly ventilated; there is no possibility for the person operating it [nor for a child] to fall into the well.

For circulars and particulars address

JOHN A. BALL,
20v24awhplm Grass Valley, Nevada Co., Cal.

Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the Scientific Press we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

Ingomar Silver Mining Company.—Location of Works: Ely Mining District, Lincoln County, Nevada.

NOTICE.—There are delinquent upon the following described stock, on account of Assessment (No. 1) levied on the second day of April, 1872, the several amounts set opposite the names of the respective Shareholders as follows:

Names.	No. Certificate.	No. Shares.	Am't.
Adams, L S	98	200	$50 00
Cavallier, J P, Trustee	227	100	25 00
Cavallier, J P, Trustee	237	100	25 00
Cavallier, J P, Trustee	238	100	25 00
Cavallier, J P, Trustee	239	100	25 00
Cavallier, J P, Trustee	245	50	12 50
Cavallier, J P, Trustee	247	50	12 50
Cavallier, J P, Trustee	248	50	12 50
Cavallier, J P, Trustee	249	50	12 50
Cavallier, J P, Trustee	251	50	12 50
Cavallier, J P, Trustee	266	50	12 50
Cathcart, A B, Trustee	179	25	6 25
Charles, H A, Trustee	297	50	12 50
Church, H C	98	500	125 00
Church, H C	99	100	25 00
Church, H C	103	100	25 00
Church, H C	105	100	25 00
Church, H C	106	100	25 00
Church, H C	108	100	25 00
Church, H C	111	50	12 50
Church, H O	112	50	12 50
Eaton, W L	208	50	12 50
Kent, R F, Trustee	306	25	6 25
Neal, Chas S, Trustee	9	250	62 50
Neal, Chas S, Trustee	10	250	62 50
Neal, Chas S, Trustee	11	250	62 50
Neal, Chas S, Trustee	14	100	25 00
Neal, Chas S, Trustee	23	300	75 00
Neal, Chas S, Trustee	33	250	62 50
Neal, Chas S, Trustee	34	100	25 00
Neal, Chas S, Trustee	35	100	25 00
Neal, Chas S, Trustee	36	100	25 00
Neal, Chas S, Trustee	37	100	25 00
Neal, Chas S, Trustee	39	50	12 50
Neal, Chas S, Trustee	42	25	6 25
Neal, Chas S, Trustee	85	100	25 00
Neal, Chas S, Trustee	86	100	25 00
Neal, Chas S, Trustee	87	100	25 00
Neal, Chas S, Trustee	89	20	5 00
Neal, Chas S, Trustee	92	10	2 50
Neal, Chas S, Trustee	94	10	2 50
Neal, Chas S, Trustee	131	100	25 00
Neal, Chas S, Trustee	133	100	25 00
Neal, Chas S, Trustee	136	100	25 00
Neal, Chas S, Trustee	137	100	25 00
Neal, Chas S, Trustee	142	100	25 00
Neal, Chas S, Trustee	143	100	25 00
Neal, Chas S, Trustee	149	100	25 00
Neal, Chas S, Trustee	150	100	25 00
Neal, Chas S, Trustee	151	100	25 00
Neal, Chas S, Trustee	152	100	25 00
Neal, Chas S, Trustee	154	100	25 00
Neal, Chas S, Trustee	156	100	25 00
Neal, Chas S, Trustee	172	25	6 25
Neal, Chas S, Trustee	183	100	25 00
Neal, Chas S, Trustee	186	100	25 00
Neal, Chas S, Trustee	189	200	50 00
Neal, Chas S, Trustee	192	100	25 00
Neal, Chas S, Trustee	194	100	25 00
Neal, Chas S, Trustee	200	100	25 00
Neal, Chas S, Trustee	209	10	2 50
Neal, Chas S, Trustee	224	200	50 00
Neal, Chas S, Trustee	225	200	50 00
Neal, Chas S, Trustee	226	200	50 00
Neal, Chas S, Trustee	228	100	25 00
Neal, Chas S, Trustee	229	100	25 00
Neal, Chas S, Trustee	231	100	25 00
Neal, Chas S, Trustee	232	100	25 00
Neal, Chas S, Trustee	233	100	25 00
Neal, Chas S, Trustee	234	100	25 00
Neal, Chas S, Trustee	235	100	25 00
Neal, Chas S, Trustee	236	100	25 00
Neal, Chas S, Trustee	250	200	50 00
Neal, Chas S, Trustee	254	100	25 00
Neal, Chas S, Trustee	257	100	25 00
Neal, Chas S, Trustee	258	100	25 00
Neal, Chas S, Trustee	259	100	25 00
Neal, Chas S, Trustee	260	100	25 00
Neal, Chas S, Trustee	261	50	12 50
Neal, Chas S, Trustee	268	100	25 00
Neal, Chas S, Trustee	269	50	12 50
Neal, Chas S, Trustee	296	50	12 50
Neal, Chas S, Trustee	302	50	12 50
Neal, Chas S, Trustee	329	50	12 50
Perry, John, Jr, Trustee	175	50	12 50
Richardson, E A, Trustee	300	25	6 25
Sleeper, George, Trustee	170	300	75 00
Sides, B F, Trustee	284	50	12 50
Sides, B F, Trustee	285	100	25 00
Sides, B F, Trustee	286	100	25 00
Sides, B F, Trustee	310	40	10 00
Sides, B F, Trustee	311	40	10 00
Sides, B F, Trustee	312	40	10 00
Sides, B F, Trustee	314	40	10 00
Sides, B F, Trustee	315	10	2 50
Sides, B F, Trustee	316	10	2 50
Sides, B F, Trustee	318	10	2 50
Sides, B F, Trustee	319	10	2 50
Sides, B F, Trustee	320	10	2 50
Sides, B F, Trustee	321	10	2 50
Sides, B F, Trustee	322	10	2 50
Sides, B F, Trustee	323	10	2 50
Sides, B F, Trustee	324	10	2 50
Sides, B F, Trustee	339	65	16 25
Sides, B F, Trustee	340	35	8 75
Sloan, H H	118	50	12 50
Sloan, H H	123	20	5 00
Sloan, H H	124	20	5 00
Sloan, H H	125	20	5 00
Sloan, H H	127	20	5 00
Tibbey, E S, Trustee	223	25	6 25
Uhler, J Clem, Trustee	290	500	125 00
Uhler, J Clem, Trustee	292	600	125 00
Uhler, J Clem, Trustee	293	500	125 00
Uhler, J Clem, Trustee	294	100	25 00
Uhler, J Clem, Trustee	325	100	25 00
Wiederhold, C	63	100	25 00
Wiederhold, C	64	50	12 50
Wiederhold, C	66	25	5 25
Wiederhold, C	69	10	2 50

And in accordance with law, and an order of the Board of Trustees, made on the second day of April, 1872, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the office of the Company, Room 21, Hayward's Building, 419 California street, on Friday, the thirty-first day of May, 1872, at the hour of one o'clock, P. M., of said day, to pay said delinquent assessment thereon, together with cost of advertising and expenses of sale.

CHAS. S. NEAL, Secretary.

Office, Room No 2, Hayward's Building, 419 California street, San Francisco, California.

Stockholders' Meeting.—A meeting of the Stockholders of the Silver Cord Mining Company, San Francisco, Cal., will be held at the office of the company, 418 California street, on Monday, the 27th day of May, 1872, at 3 o'clock, for the election of Trustees for the ensuing year, and for the transaction of any other general business.

W. J. WILLIAMS, Secretary.
m18-2t Per order of the President.

THE GARDNER AUTOMATIC SAFETY-STOP GOVERNOR.

These Governors have now been sold in this market for several years, and wherever once introduced and made known, are invariably sought after. They are in the Eastern States fast displacing all other Steam Governors, and are recognized as the perfected regulator. They are manufactured by Messrs. Gordon & Robertson, practical engineers, who have given many years time exclusively to their manufacture and perfection. The manufacturers say: After an experience of eleven years in the manufacture of the above Governor, during which time several important improvements have been made and two additional patents obtained, we feel justified in recommending it to all parties using Steam power, and warranting it to be the most perfect regulator in the market.

The Gardner Governor is so well known that we think it unnecessary to enterinto a detailed explanation of the principles involved, or details in its construction, merely giving the leading objects sought to be utilized by this important invention. The Governor combines with the greatest simplicity of construction, accurate regulation of speed, POSITIVE INSURANCE AGAINST ALL ACCIDENTS LIABLE TO OCCUR FROM SLIPPING OR PARTING THE GOVERNOR OR DRIVING BELTS, and a convenient arrangement for ADJUSTING THE SPEED OF THE ENGINE WHILE IN MOTION, without change of pullies.

The construction of the Governor is extremely simple, having no springs, inside joints, swivels, or parts liable to disarrangement, all the several parts are duplicates of each other in the same series; the most skillful workmen are employed, the best material used and the machinery employed especially adapted to their manufacture. The valve is most PERFECTLY BALANCED, and the Governor is built with a view of securing the quickest and most sensitive action possibly attainable in a steam regulator. Thus with accurate machinery, and skilled labor, and devoting our WHOLE ATTENTION to the manufacture of THIS ONE ARTICLE, we are able to produce a perfect and reliable Governor at a low price.

We do not publish any letters of recommendations, but can give references to upwards of 5,000 PARTIES THROUGHOUT THE UNITED STATES, who are using the Gardner Governor.

We would especially invite the attention of Steam Engine Builders to this Governor, feeling assured that they can purchase for less than they can make an inferior article, and thereby increase the value and sales of their Engines.

We respectfully refer to the following parties using the GARDNER GOVERNOR, and can speak understandingly of its merits: Oakland Cotton Mills, the Selby Lead and Silver Smelting Works, L. & E. Emanuel, Vulcan Iron Works, Fulton Foundry, Levison Bros., Cal. Jewelry Co., Pioneer Woolen Factory, D. A. McDonald & Co., and others in San Francisco; Ophir Co, Lady Bryan, and Sacramento and Meredith Mills, John McCone, Virginia, Nev.; Globe Iron Works, Stockton; A. F. Chury, Albany, Oregon, and many others.

☞WE WARRANT these Governors to give perfect regulation of speed under all circumstances; and if there is one within one thousand miles of San Francisco, that is not giving perfect satisfaction, it may be returned to us at our expense, and we will exchange it for any other Governor in the country, or refund its price.

☞When ordering please state whether THROTTLE-VALVE is wanted or not; and whether BLOCK OF FINISHED Governor is desired. *,*THE RATE OF SPEED FOR GOVERNOR IS FULLY STAMPED ON THE REVOLVING HEAD OF EVERY GOVERNOR. Send for circular and price list to

TREADWELL & CO.,

Agents for Pacific States, San Francisco.

☞At Treadwell & Co.'s (late BERRY & PLACE'S) Machinery and Supply Depot may be found in stock the above Governors, together with all sizes of HOADLEY'S PORTABLE ENGINES, BLAKE'S STEAM PUMPS, STURTEVANT BLOWERS, PORTABLE DRILLS, TAPS AND DIES, DREYFUS'S CYLINDER LUBRICATORS, Etc. Also a heavy stock of HARDWARE AND MINING TOOLS, LEATHER BELTING, LINEN HOSE, BOILER FELT (saves 25 per cent. of fuel), SELF OILERS, LACE LEATHER, STEAM PACKING (all kinds), BELT STUDS, Etc., Etc., embracing every description of Engineers' and Machinists' supplies and Millmen's findings. 7v24-tf

Alleghany Consolidated Gold Mining Company—Location of works, Alleghany, Sierra County, Cal.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 16th day of April, 1872, an assessment of twenty cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at his office, 37 New Merchants' Exchange, California street. Any stock on which said assessment shall remain unpaid on the third day of June, 1872, shall be deemed delinquent, and will be duly advertised for sale, at public auction, and unless payment shall be made before, will be sold on Monday, the 24th day of June, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. M. BUFFINGTON, Secretary.
Office, No. 37 (third floor), New Merchants' Exchange, California street, San Francisco. ma4-1t

Eagle Quicksilver Mining Company---Location of works, Santa Barbara County, California.

Notice is hereby given that at a meeting of the Board of Trustees of said company, held on the 8th day of May, 1872, an assessment of $40 per share was levied upon the mines of said company, payable immediately in gold coin of the United States, to the Secretary at his office, room 5, No. 302 Montgomery street, San Francisco, California.

Any shares upon which said assessment shall remain unpaid, on Thursday, July 11th, 1872, shall be deemed delinquent, and will be duly advertised on Saturday, July 13th, 1872, for sale at public auction, unless payment shall be made before, will be sold on Monday, the 15th day of July, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.
Office—Room 5, No. 302 Montgomery street, San Francisco California. ma.11.

Kincaid Flat Mining Company—Location of works, Tuolumne County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 23d day of April, 1872, an assessment of Three Dollars per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, No. 220 Clay street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 24th day of May, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 17th day of June, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

R. H. CORNELL, Secretary.
Office, No. 220 Clay street, San Francisco, Cal. ap27-4w

Lyons & Wheeler Mining Company—Location of works, Maynard Mining District, Mohave County, Arizona Territory.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 6th day of April, 1872, an assessment of Ten Cents per share was levied upon the capital stock of said Company, payable immediately, in United States coin, to the Secretary, at the office of the company, Room 3, No. 419 California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on Wednesday, the 15th day of May, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 3d day of June, 1872, to pay the delinquent assessment, together with the costs of advertising and expenses of sale. By order of the Board of Trustees. T. W. COLBURN, Secretary.

Office, Room 3, No. 419 California street, San Francisco, California. ap13

Mina Rica Mining Company—Location of works, Auburn District, Placer county, State of California.

Notice is hereby given, that at a meeting of the Trustees of said company, held on the 8th day of May, 1872, an assessment of 20 cents per share was levied upon the capital stock of said company, payable immediately in United States gold and silver coin, to the Secretary of the company, at the office of the company, No. 320 California street, room No. 5, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Monday, the 10th day of June, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday the first day of July, 1872, to pay the delinquent assessment, together with cost of advertising and expenses of the sale. GEO. R. SPINNEY, Secretary.

ma11-4t No. 320 California St., San Francisco, Cal.

Office of the Silver Sprout Mining Company—San Francisco, April 29, 1872.

In accordance with a resolution adopted at a meeting of the Board of Trustees of the Silver Sprout Mining Company, held this day, a special meeting of the stockholders of said company is hereby called, the same to be held at the office of the company, No. 318 California street (Room No. 1, second floor), San Francisco, California, on Monday, the 3d day of June, 1872, at 1 o'clock P. M., to take into consideration and decide upon the proposition to increase the capital stock of said company, from three million five hundred thousand dollars, divided into five thousand shares, of the par value of seven hundred dollars each (the present capital stock), to five million dollars, divided into fifty thousand shares, of the par value of one hundred dollars each.

NATHANIEL PAGE,
A. WINGARD,
B. F. TUTTLE, } Trustees.
ma4-4t

Mt. Jefferson Milling and Mining Company.—Location of works, First Garote, Tuolumne county, California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment (No. two (2) levied on the third (3) day of April, A. D. 1872, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No Certificate.	No. Shares.	Am't.
Creaner, J. M.	63	75	$22 50
Galloway, W. T., Trustee	60	50	15 00
Lewis, L. J., Trustee	50	100	30 00
Lewis, L. J., Trustee	57	75	22 50
Lewis, L. J., Trustee	64	25	7 50
Lewis, L. J., Trustee	65	125	37 50
Martin & Lane	12	200	60 00
Richardson, E. A., Tr	16	1380	414 00
Richardson, E. A., Tr	18	200	60 00
Richardson, E. A. Tr	19	200	60 00
Richardson, E. A. Tr	20	200	60 00
Richardson, E. A. Tr	21	100	30 00
Richardson, E. A. Tr	22	100	30 00
Richardson, E. A. Tr	23	100	30 00
Richardson, E. A. Tr	24	100	30 00
Richardson, E. A. Tr	25	100	30 00
Richardson, E. A. Tr	26	100	30 00
Richardson, E. A. Tr	27	100	30 00
Richardson, E. A. Tr	28	50	15 00
Richardson, E. A. Tr	29	30	9 00
Richardson, E. A. Tr	34	100	30 00
Richardson, E. A. Tr	36	100	30 00
Richardson, E. A. Tr	38	100	30 00
Richardson, E. A. Tr	46	300	90 00
Shattuck, D. D	55	13150	3945 00
Shattuck, D. D	62	150	45 00
Stiles, A. G	9	500	150 00
Stiles, A. G	42	1130	339 00
Woolsey, E. W	10	100	30 00

And in accordance with law, and an order of the Board of Trustees, made on the third day of April, 1872, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the office of the Company, on the twenty-second day of May, 1872, at the hour of 2 o'clock P. M., of said day, to pay said Delinquent Assessment thereon, together with costs of advertising and expenses of sale.

J. W. CLARK, Secretary.
Office, 418 California St., Room No. 2. maff-3t

Mt. Jefferson Milling and Mining Company—POSTPONEMENT.—The sale of delinquent stock on the above assessment is hereby postponed until Wednesday, the 27th day of May, A. M. 1872, at 2 P. M., at office of company. By order of the Board of Trustees.

ma18-2t J. W. CLARK, Secretary.

Silver Wave Mining Company----Location of works, White Pine Mining District, White Pine county, Nevada.

NOTICE:—There are delinquent upon the following described stock, on account of Assessment, No. 8, levied on the 10th day of April, A. D. 1872, the several amounts set opposite the names of the respective shareholdore as follows:

Names.	No. Certificates.	No. Shares.	Am't.
Barton, W H, Trustee	352	200	$100 00
Barton, W H, Trustee	376	10	5 00
Barton, W H, Trustee	490	50	25 00
Breed, H L, Trustee	394	20	10 00
Cope, Geo W, Trustee	508	100	50 00
Crocker, J H, Trustee	492	100	50 00
Crocker, J H, Trustee	493	50	25 00
Holmes, H J	511	447	223 50
Loveland, I F, Trustee	217	50	25 00
Pomeroy, E B	474	200	100 00
Richardson, E A, Trustee	429	100	50 00
Richardson, E A, Trustee	430	100	50 00
Richardson, E A, Trustee	471	100	50 00
Richardson, E A, Trustee	450	150	75 00
Richardson E A, Trustee	486	80	40 00
Richardson, E A, Trustee	496	50	25 00
White, Jas T	399	12	6 00
Woods, F H, Trustee	375	22	11 00
Woods, F H. Trustee	434	10	5 00

And in accordance with law, and an order of the Board of Trustees, made on the 10th day of April, 1872, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of said Company, on Thursday, the 13th day of June, A. D. 1872, at the hour of 2 o'clock P. M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

J. W. CLARK, Secretary.
Office, 418 California St., Room 102, San Francisco, California. ma18-4t.

Piermont Milling and Mining Company—Location of works, Piermont Mining District, White Pine County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the sixteenth (16th) day of April, 1872, an assessment of Forty Cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company. Any stock upon which said assessment shall remain unpaid on Monday, the twentieth (20th) day of May, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the nineteenth (19th) day of June, 1872, at the hour of 2 o'clock P. M. at the office of the company, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. W. CLARK, Secretary.
Office, 418 California street, San Francisco. ap27-4w

San Francisco Tunnel and Mining Company.—Location of Works, Little Cottonwood Mining District, Utah Territory.

No ice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the thirteenth (13th) day of April, A. D., 1872, an assessment of Twenty-five (25) cents per share was levied upon the assessable stock of said company, payable immediately to the Secretary at the office of the company. Any stock upon which said assessment shall remain unpaid on Thursday, the 16th day of May, A. D., 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday the eighth (8th) day of June, A. D., 1872, at the office of the company, at the hour of 2 o'clock, P. M., to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. W. CLARK, Secretary.
Office—No. 418 California street, San Francisco, California. ap20-4w

SAN FRANCISCO TUNNEL AND MINING COMPANY—POSTPONEMENT—The day for deeming stock delinquent on the above assessment is hereby postponed until Tuesday, May 21st, A. D. 1872, and the sale thereof until Monday, the 10th day of June, A. D. 1872. By order of the Board of Trustees.

ma4-3t J. W. CLARK, Secretary.

Silver Sprout Mining Company—Location of works and mine, Kearsarge District, Inyo County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 29th day of April, 1872, an assessment of fifty cents per share was levied upon the capital stock of said Company, payable immediately in United States gold coin, to the Secretary, at the office of the Company, Room No. 1, second floor, 318 California st., S. F. Any stock upon which said assessment shall remain unpaid on the first day of June, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the 22d day of June, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

ma4-4t T. B. WINGARD Secretary.
Office, Room No. 1, second floor, No. 318 California street, San Francisco, Cal.

Spring Mountain Tunnel Company.—Location of Works, Ely Mining district, Pioche, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 11th day of April, 1872, an assessment of fifteen (15) cents per shars was levied upon the capital stock of said company, payable immediately in United States gold and silver coin, to the Secretary, at the office of the company, Room 37, Merchants' Exchange, California St., City and County of San Francisco, State of California. Any stock upon which said assessment shall remain unpaid on Monday the 20th day of May, 1872, shall be deemed delinquent, and will be duly advertised for sale, at public auction, and unless payment shall be made before, will be sold on Monday the 10th day of June, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. M. BUFFINGTON. Secretary.
Office, Room 37, New Merchants' Exchange, California Street, San Francisco, Cal. ap20-4w

Stockholders Notice---Office of the Tecumseh Gold, Silver and Copper Mining Company. San Francisco, May 6th, 1872.

In accordance with a Resolution adopted at a meeting of the Trustees of the Tecumseh Gold, Silver and Copper Mining Company, held this day, a special meeting of the stockholders of said Company is hereby called, the same to be held at E. Magriech's Hall, S. W. cor. of Kearny and Clay Sts., opposite the Plaza, San Francisco, Cal., on Wednesday, the 29th day of June A. D. 1872, at 2 o'clock P. M., to take into consideration and decide upon the propesition to increase the capital stock of said Company from one hundred fifty-three thousand and five hundred dollars, divided into six hundred and fourteen shares of two hundred fifty dollars each, the present capital of the Company, to three millions of dollars, to be divided into thirty thousand shares of one hundred dollars each.

J. TH. HELMKEN,
J. F. EGGERS,
JACOB HAHN,
F. SCHUMACHER. } Trustees.

Tecumseh Gold, Silver and Copper Mining Company.—Location of works, Gopher District, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 24th day of April, 1872, an assessment of Five ($5.00) dollars per Share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, F. J. Herrmann, at the office of the company, No. 634 Washington street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 29th day of May, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 17th day of June, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

F. J. HERRMANN, Secretary.
Office, 634 Washington street, San Francisco, Cal. Office hours from 11 A. M. to 2 P. M. ma4-4t

Union Gold Mining Company.---Location of works, Howland Flat, Sierra county, State of California.

NOTICE.—There are delinquent upon the following described Stock, on account of assessment (No. 5) levied on the 11th day of April, 1872, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. shares.	Amount.
Mahoney, Denis	45	100	$100.00
Mahoney, Denis	47	50	50.00
Mahoney, Denis	62	75	75.00
Mahoney, Denis	63	100	100.00
Austin A. G	65	15	15.00
Hale, William F	129	50	60.00

And in accordance with law, and an order of the Board of Trustees, made on the 11th day of April, 1872, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the office of the Company, Room No. 22, Merchants' Exchange Building, California street, San Francisco, California, on Monday the 3d day of June, 1872, at the hour of 1 o'clock, P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

ALFRED K. DURBROW Secretary.
Office—Room No. 22, Merchants' Exchange Building, California street, San Francisco, California. myl9-4t

Washington Mining Company---Location of works and mines, Mariposa County, State of Cal.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 8th day of May, 1872, an assessment of $3 per share was levied up the capital stock of said company, payable immediately in United States gold and silver coin, to the Secretary at the office of the company, No. 318 California street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the 11th day of June, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the 29th day of June, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

ma11-4 T. B. WINGARD, Secretary.
Office—Room No. 1, second floor of No. 318 California street, San Francisco. ma.11-4

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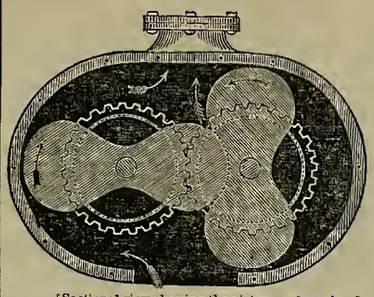

[Sectional view showing the pistons and gearing.]

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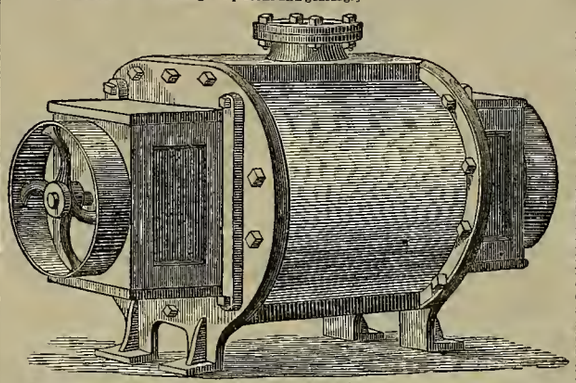

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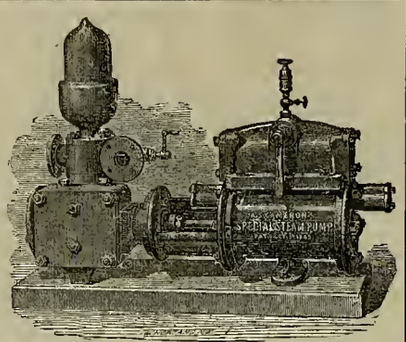

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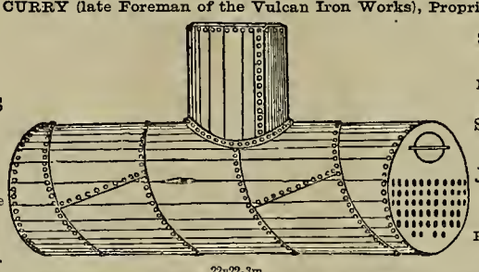

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24v17-qy

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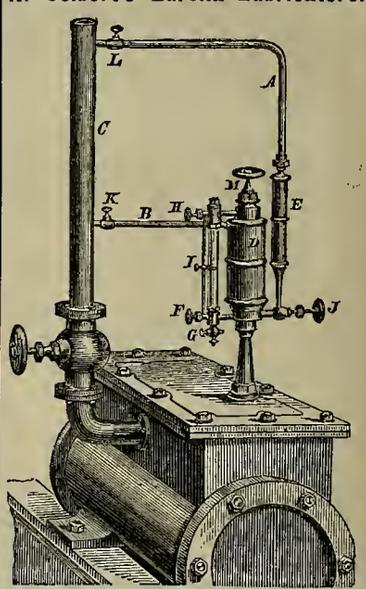

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These Lubricators are acknowledged hy all engineers to he superior to any they have ever used; feed constantly by pressure of condensed water, supplied by pipe A, regulated under tho oil by valve J, and forced out through check valve and pipe B into the steam pipe C; it then becomes greasy steam, passes to all the valves and cylinder at every stroke of the engine; glass tuhe I indicates amount used per hour. Packing on rods and stems lasts longer, and the rings on the piston will not corrode. One pint of oil will last from three to six days, according to speed and size of engine; I, sliding gauge; K, valve to shut off when engine stopps; H, F, valves to shut off in case of frost; steam does not enter the cup; it is always cool; warranted to give satisfaction. Patented February 14, 1871. Manufactured hy California Brass Works, 125 First street, S. F. 24v23tf

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Notice is hereby given, that the copartnership heretofore existing hetween A. J. Severance, Charles W. Randall and J. Gus. Burt, nnder the firm name of "Severance, Holt & Co.," is this day dissolved hy mutual consent. A. J. Severance, having purchased all the interest of his late partners, will continue the business of manufacturing and selling Diamond Drills, as hefore, under the style of A. J. Severance & Co.

Dated San Francisco, Nov. 24, 1871.

Office, 315 California street. A. J. SEVERANCE,
CHAS. H. RANDALL,
22-v23-tf J. GUS. BURT.

POWER, TAINTER & CO.,

MANUFACTURERS OF

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PHILADELPHIA.

☞ Woodworth Planers a Specialty. 2v23-1y

The Hesse Grinder and Amalgamator.

BEST IN USE!

Especially well adapted for the Reduction of Sulphuret Ores.

LORD & PETERS, Agents,
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☞ Send for Circular. 13v24-3m

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CALDWELL'S

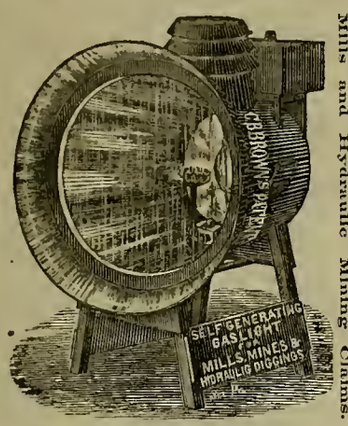
Improved Stop Governor,

Manufactured at the CYCLOPS MACHINE WORKS, 113 and 115 Beale street, San Francisco.

3v24-3m WM. CALDWELL.

BROWN'S PATENT LAMP.

BROWN'S PATENT LAMP, FOR Mills and Hydraulic Mining Claims.



One of these Lamps, when placed at a distance of 200 feet from the bank, will light up a bank surface 250 feet in length and 100 feet high, and to a much better advantage than any other light heretofore tried, and at an expense not to exceed five cents per hour. Lamps furnished at short notice.

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7v24-t Placerville, Cal.

Varney's Patent Amalgamator.

These Machines Stand Unrivaled.

☞ For rapidity pulverizing and amalgamating ores, they have no equal. No effort has been, or will be spared, to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows.

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces.—Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Setlers made on the same principle excel all others They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill-men are invited to examine these pans and setlers for themselves, at the office, 229 Fremont Street,
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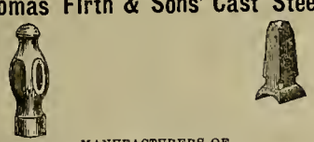
AGENTS FOR

Thomas Firth & Sons' Cast Steel.



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10v14qr

Notice.

U. S. PATENT OFFICE, WASHINGTON, D. C., April 16th, 1872.—On the petition of Charles P. Stanford, of San Francisco, Cal:—Praying for the extension of a patent granted to him on the 27th day of July, 1858, for an improvement in Feeding Quartz, etc., to Machines for Crushing and Grinding the same.

It is ordered that the testimony in the case be closed on the 25th day of June next, that the time for filing arguments and the Examiner's report be limited to the 5th day of July next, and that said petition be heard on the 10th day of July next.

Any person may oppose this extension.

m11-3t M. D. LEGGETT, Commissioner.

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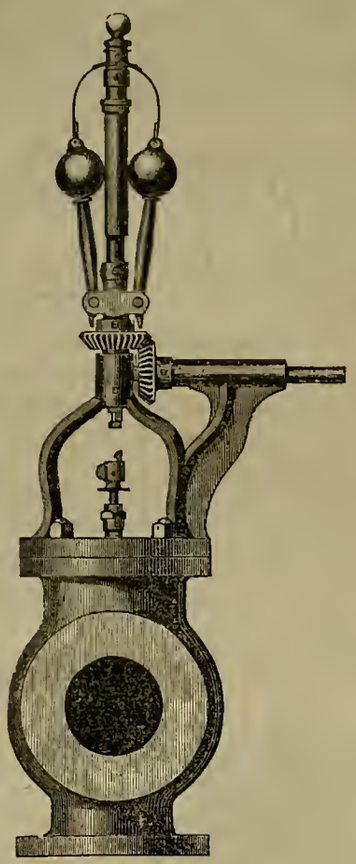
Improved Lamont Steam Engine Regulator,

WITH STOP VALVE ATTACHED.



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FOR EITHER

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ENGINES.

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MOST SKEPTICAL

OF ITS UTILITY AND

SIMPLICITY,

And the many References in Our Possession

FROM ENGINEERS WHO ARE

Using them, attest their

PRACTICAL SUPERIORITY

Over all others.

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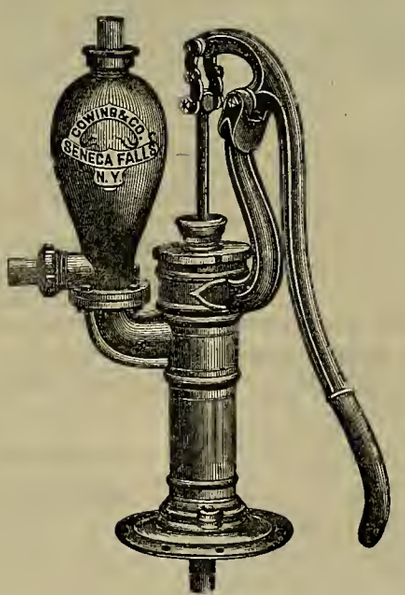

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7.00 A. M. Overland Express Train for Sacramento, Marysville, Red Bluff, Colfax, Reno, Ogden and Omaha.

3.00 P. M. San Jose Passenger Train, stopping at all way Stations.

4.00 P. M.* Passenger Train for Stockton, Merced and Sacramento.

6.30 P M. Overland Emigrant Train, Through Freight and Accommodation.

7.30 A. M. Steamer New World (from Broadway Wharf) —Connecting at Vallejo with Trains of California Pacific Railroad.

4.00 P. M.* Sacramento Steamer (from Broadway Wharf). Connecting at Vallejo with trains of California Pacific Railroad.

2.00 P. M.* Steamer Antelope, from Broadway Wharf, connecting at Donahue with Trains of S. F. and North Pacific Railroad.

8.00 A. M. Excursion Boat (Sundays only) from Broadway Wharf, connecting with Special Train of S. F. & N. P. R. R. for Cloverdale and intermediate points, returning to San Francisco by 7 P. M.

OAKLAND BRANCH.—Leave San Francisco, 7 00, 8 10, 9 2 , 10 10 and 11 20 a. m., 12 10, 1 50, 3 00, 4 00, 5 15, 6 30, 8 06 9.20 and *11 20 p. m. (9 20, 11 20 and 3 00 to Oakland only).
Leave Brooklyn, *5 30, 6 40, 7 50, 9 00 and 11 00 a. m., 1 30, 2 40, 4 55, 6 10, 7.40 and 10 10 p. m.
Leave Oakland, *5 40, 6 50, 8 00, 9 10, 10 00, and 11 10 a. m., 12 00, 1 40, 2 50, 3 50, 5 05, 6 20, 7.50 and 10 20 p. m.

ALAMEDA BRANCH.—Leave San Francisco, 7 20, 9 00, and 11 15 a. m., 1 30, 4 00, 5 30, and 7 0u p. m. (7 20, 11 15, and 5 30 to Fruit Vale only).
Leave Haywards, *4 30, 7 00 and 10 45 a. m., and 3 30 p. m.
Leave Fruit Vale, *5 25, 7 35, 9 00 and 11 20 a. m., 1 30, 65 and 5 30 p. m. * Except Sundays.

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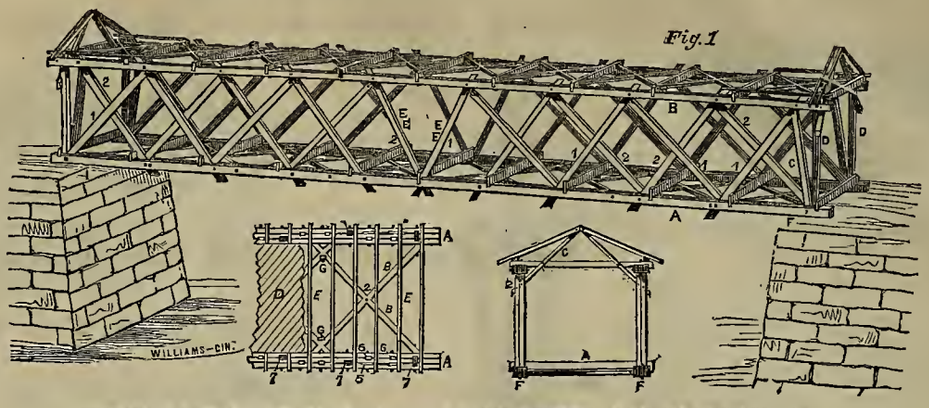

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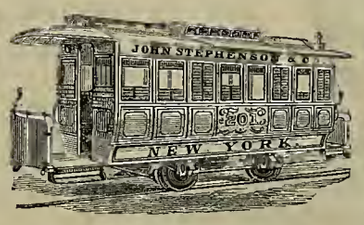

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Blowers, Steam Pumps, Hair Felt, **Mining Tools**

PORTABLE ENGINES, TURBINE WATER WHEELS, Wood and Iron Labor Saving Machinery, Hardware, Belting, Lacing, Packing, and a general stock of Engineers', Miners', Farmers' and Mechanics' Tools and Mill Supplies.
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Mining, Mechanic Arts and Inventions.

BY DEWEY & CO., Patent Solicitors.

SAN FRANCISCO, SATURDAY, MAY 25, 1872.

VOLUME XXIV. Number 21.

Whelpley & Storer's Pulverizing Mill.

A few weeks ago we called the attention of our readers to this invention and promised to give a full description and illustration at some future time. This we are pleased to do in the present issue.

The machine is, as its name denotes, for the purpose of pulverizing all materials that are capable of such reduction, and its range is very great, operating with equal facilities upon quartz and all other ores, foundry facings, salt, paints, cement, manganese, bone dust, drugs, chemicals, and spices. It has been thoroughly tested in the Eastern States, where its merits are beginning to be recognized, and after some delay the agent of Messrs. Whelpley & Storer (Mr. G. D. Wyman), has erected works in this city upon Main street, between Howard and Folsom, where the machines are running constantly and our statements can be verified. The cut shows the upper half of cylinder thrown back to show the revolving paddles and the fan. The ore or other material is first broken by a machine so that it will pass through a screen, the meshes of which are about one inch. It is then fed into a hopper at the right, and by an automatic and easily regulated feed is delivered into the drum, where it is caught and instantly reduced to a powder, the fineness of which depends upon the amount of air admitted with it, and consequently upon the draft by which it is carried through the machine. The fan is situated upon the same shaft with the paddles, and at the end opposite the feed opening, and it discharges the powder through a pipe into a dust room.

The machine as it is described consists of three parts or elements. The *first* is an automatic feed which furnishes a regular and constant supply of the material to be pulverized.

The *second* is a series of paddles revolving in an iron drum or cylinder, and generating vortices of air which reduce gravel or sand into dust, by causing a mutual attrition of particles.

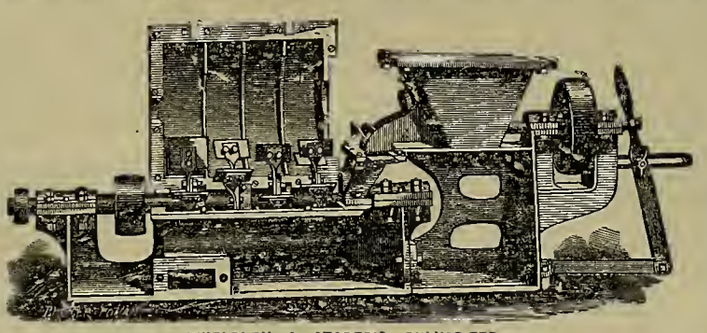
The *third* is the fan-blower, which is the continuation of the pulverizing cylinder, and separated from the pulverizing chamber by a diaphragm with central opening, through which the dust is drawn from it by exhaust as fast as it is produced.

For most applications it is necessary to have a chamber, or series of chambers or hoppers, to receive and collect the dust produced by the pulverizer. These are variously constructed, to suit the nature of the material which is to be reduced, and the conditions under which it is to be collected.

Pressure of air upon the interior of the dust room, and consequent back pressure upon the column issuing from the pulverizer, is prevented by a pipe leading from the extremity of the chamber back to an opening in the pulverizer, close to its feed hopper, thus inducing a constant circulation of the air.

How the Work is Done.

The mere statement of the facts in the case at first appears singular. Had any person, who never saw or heard of this contrivance before, been asked to give his opinion as to what could be the result of feeding ore into such an apparatus, he surely would not have predicted the results actually obtained. It would have been natural to expect a little splintering of the ore, and the speedy clogging of the pulverizing chamber, or perhaps the destruction of the whole machine in its efforts to clear itself of its contents. But as the truth is quite otherwise, we may well ask by what kind of action is the ore reduced to powder? *It is not ground*, for the machine *is expressly constructed to avoid a grinding action*, the paddles being in no case nearer to the walls of the cylindrical shell than half an inch; and the ore does not seem to be comminuted altogether by splintering against the iron surfaces, for although such action undoubtedly takes place at first impact, yet when it has reached a certain stage, and that by no means near the ultimate one, it cannot seemingly continue to any material extent. The only explanation occurring here, and that not at all satisfactory, is, that in the powerful commotion produced by the swift rotation of the paddles, the particles clash fiercely together and triturate each other—a view confirmed in some measure by the appearance of the dust under the microscope.



WHELPLEY & STORER'S PULVERIZER.

But whatever the mode, it is certain that the ore is pulverized to an extreme degree, so that from the open end of the pipe it floats away in a dense cloud.

The function performed by this machine is a double one; it pulverizes the ore and delivers it without loss by a single and indivisible operation. This it will be seen is of vital importance. It would otherwise be useless for metallurgical operations.

The quantity of dust furnished by this machine depends upon its size, upon the degree of movement that is communicated to the air and material, and upon the amount of material which can be kept in movement at one and the same time.

The machine which we examined will yield from one, to one and a half tons of dust per hour, according to the character of the ore or material.

Power Required.

As there is never in the machine but a few pounds of ore, at any one time, the quantity of power required to keep the machine in motion at full velocity is but little—enough to overcome the friction of the journals, rigidity of belting, and the slight resistance of air in the cylinder.

The power used in running them is expended on the *work* of the machine.

Endurance of Wearing Parts.

The principal wear is upon the upper edge of the paddles which are made of chilled iron. When a set of paddles are worn nearly down to the bolt heads they are reversed, and used until the second edge is worn, when they must be replaced by a new set, which may be done by any ordinary mechanic, in an hour.

To convey to our readers some idea of the actual wear, it may be sufficient to state that the *small* machine of which we spoke in our former article, has been running in this city constantly, for the past *five months*, having pulverized during that time several hundred tons of different materials and has worn out but two sets of paddles the cost of which was one dollar and fifty cents per set.

Through the courtesy of Mr. Wayman, we were invited to witness the different operations at the works, and the machines show a simplicity and completeness which promise them a wide field of usefulness in the future of our State for the purpose of ore reduction; while not the least of their merits is their adaptability to the feeding of fuel to the furnaces. For this purpose any coal screenings may be employed and these are reduced to a powder by the pulverizer, and this powder is lead directly into the furnace together with air enough for a most perfect combustion, thus doing away with most of the dirt, and ashes, while the amount of steam carried can be minutely regulated.

PATENT DECISION.—Our readers will recollect that a few months ago we published the decision of the Board of Examiners in full, in reference to the case of Overend vs. Dunn—an interference between the parties on certain claims for a type-casting machine. From that decision Dunn appealed to the Commissioner of Patents who has affirmed the decision of the Board of Appeal. This virtually settles the matter in favor of Mr. Overend who will now receive his patent.

The San Francisco Microscopical Society.

This society held its regular semi-monthly meeting at the rooms, 649 Clay street, on the 17th inst. Dr. A Kellogg and N. G. W. Harford were elected associate members, and Joseph Beck, of London, the celebrated manufacturer of microscopes, and Dr. Harkness, of Sacramento, were elected corresponding members. Mr. Attwood exhibited a number of specimens, among them, sections of porphyritic rock from the Sutro Tunnel; a piece of ore from the deepest shaft near Virginia, taken out by the Diamond Drill; a section of metamorphic slate from Shady Run, near Dutch Flat. A specimen of encysted hydatids was sent to the Society for examination.

Mr. Hanks showed a small piece of meteoric iron found in El Dorado County, by H. G. Freeman. Under the microscope the specimen, which had been subjected to the action of nitric acid, showed the usual characteristics of meteoric iron. Mr. Hanks also exhibited some of the residue which was left after treating it with nitro-hydrochloric acid; it showed both schreibersite and silica. Dr. Stout exhibited the crystallization of the chloride of gold and a set of fine French slides. Dr. Kellogg gave to the Society a twig of laurel bawthorne, the leaves and stems of which were covered with a peculiar "scale insect" and which he stated are propagated to apple and other fruit trees, seriously injuring them. This was a very interesting object. The new certificates of membership were exhibited and accepted by the Society. They are very neat and simple, and unlike such things usually are, are printed in plain type with no extra flourishes. The Society is getting on finely, and are evidently causing already an increased interest in this useful and interesting branch of science. The names of officers for this year we gave in a recent issue.

LONE PINE.—Dispatches from Los Angeles state that the earthquake shocks in the vicinity of Lone Pine still continue, and that a number of old craters are emitting steam and hot gases. One 15 miles northeast of Little Lake sends forth a column of steam incessantly. Professor Whitney, of the State Geological Survey, who is at present in that neighborhood investigating the causes and effects of the late great shocks, will have a fine opportunity of experiencing their effects at least, and will doubtless give us his experience as to the accompanying explosions, etc.

THE VIENNA EXPOSITION.—Congress has authorized the President to appoint one or more Commissioners on the part of the Government of the United States to the International Exposition to be held in Vienna in 1873.

MCCONES' Foundry, at Silver City, Nevada, was destroyed by fire last week; loss $150,000.

CORRESPONDENCE.

Ophir District, Utah.

Eds. Press:—Some time ago I promised to give you a letter touching on the mines of thie district; hut perhaps for no very exensible reason, I have deferred it until the present time. I will give you eome facts relative to the mines now being worked

On Lion Hill.

The Tiger, euperintended by Mr. Daly, is employing 18 men. The ledge is eaid to be improving; it has heen drifted in various directions and shows a heavy body of valuable ore. The Lion, Mr. Smith, Superintendent, is being worked by only a few men at present. Three shafts have been sunk on this mine, and drifts rnn. The ore has the reputation of averaging the highest of any in the camp. The Silver Exchange, Mr. Mills, Superintendent, is yielding very rich ore. The Sunnyside, Capt. Pierson, Superintendent, ehows a better body of ore now than ever before. The Virginia, Mr. Gray, Superintendent, is employing but four men just now. The Lizzie owners are waiting for the enow-water to dry from the shaft, when it is to be worked. This mine is down 47 feet, and has two drifts of 15 and 20 feet respectively; it has a perpendicular granite wall, and I should say three feet of good ore. The Hawkeye tunnel has got in about 300 feet, the design being to tap the large body of ore which is eupposed to be the feeder to the Lion.

On Silver Hill

We first come to the Peoria, now being worked by ite owners. This is across the gulch and south from the Lion, and shows a good hody of medium grade ore. Aro und to the south side of the hill are the Little Pem and Mary Francis, from both of which ore is being extracted that will aesay far up into the thousands. But few mines on this hill are being worked at the present time.

On Chloride Hill

The San Joaquin is being worked. Just above it a ledge of soft, rich yellow ore hae recently been uncovered, and ie now fast heing filled into sacks. Next ahove is the Carthagenia; the ore in sight is very rich hut limited in quantity. Next, the Jas. Fisk Co. are sinking down and leaving the ore on the wall. Next ahove is the Chloride Gem, Mr. Bradley, foreman. This has recently hecome the property of our local English Co., and from all appearances will prove a remunerative mine, as its ore is rich and a large body is in sight. The Los Angeles, lately opened, presents a flattering appearance. All of the ahove mentioned mines rnn on the same parallel, and are a similar character of ore. The Annie is yielding a first class ore, assaying $140, and there is a plenty of it in sight. The Gray and Ward Beecher are being worked. The Sphynx is being worked, and, it is said, turning out to the eatisfaction of the owners. The Cricket is looking well. These two mines are the property of the Egyptian M. Co. The Potosi M. Co. are rnnning a 35-foot level from their 70-foot shaft on the Chrysopolis. The ore is rich in quality but not in quantity. Below this is the "Strnck It," in 50 feet, and on which they have sunk 35 feot. This is nine feet between walls, but a "horse" fills over six feet of it. They think they will be under the horse eoon; and, judging from the rich stains now coming out, I should say they were about getting pay. Below the San Juan, on Office Hill, ie tho Live Yankee, a lead with two walls seven feet apart, presenting a good appearance.

The Velocipede, Shield, and Miners' Delight mines, Mr. Willard, foreman, are being worked by the English Co., some 15 men being employed. A vast amount of ore ie being taken out, and the mines are said to be improving. On the easterly elope of

Treasure Hill

ie the McCullum mine, owned by Messre. Tiernan & Haswell, which has been looked upon as worthless; but these men were persistent—and, not unlike the discoverers of the thin seam leading to the Emma, were indomitable—and their assiduity is being rewarded. Mr. Haswell, took it upon himeelf to euperintend the mine, and a sharp incline of 140 ft. hae beeu driven through solid lime-rock and they now behold what may prove a second Emma. The Fairview (a little east) has three inclines, one heing 73ft.; this mine continues to yield a good quality and quantity of oro. A little distance north is the Poorman, with a 30 ft. incline; this is qnite an encouraging prospect. Close by ie the California, with a 50 ft. ehaft. Up the hill, north from the McCullum, is a splendid mine called the Red Pine, which has a sharp incline of nearly 50 ft. and 20 tons of good ore on the dump. All of the last mentioned minee, with the exception of the English Co's. carry smelting ore. At the top of the hill ie the famous Hidden Treasure mine, Mr. Smiley, Superintendent. In consequence of litigation this is being worked by a few men only; all are aware however that this is a very massive deposit. Below the Hidden Treasnre is the Chicago, a fine large mine with a 60 ft. tunnel. About 200 ft. west is a solid body of galena filling a cut 10 ft. high by 6 ft. wide. On the west elope and on the

Dry Canon Side

Of the hill is the Fourth of July, owned by Jacobs & Co., T. Mack, Foreman. This mine has an incline tuunel of eighty feet; coming back within twenty-five feet of the mouth they have drifted off, in ore, some 128 feet. On the dnmp are about 300 tons of ore, and the Company are about constructing a tramway down into Dry Cañon. Near by are a number of promising prospects. On

Snow Storm Hill,

Is the Calcutta, in twenty feet, ehowing a fine hody of ore. Lawrence Bros. have several claims here, one of which ie in ahout 100 feet, and has ahout seventy-five tons of ore out. Tho Mountain Chief hae heen nncovered to some extent and presents a large face of ore. Snow Storm tunnel is idle.

Shoo Fly Hill

Is attracting considerable attention, the Alahama and Kearsarge having become the most noted; the former, including the Iris, is eupposed to be a very valuable mine. The Jennio may prove a far better mine, as it is extending its jaws, and how much of the other interests it may swallow, I would not like to predict; in fact, it is a first class mine now.

Mr. Jones is superintending the Rip Van Winkle mines, and is employing eighteen men.

The future prospects of this district are favorable, although the two mills, and two of the smelters, are closed down. Four of the arastras are in operation aud doing good work. Miners are in demand, and have been for several days. I have made mention of most of the mines with which I am acquainted, but owing to the usnal crowded state of the Press, I have made *mention* only. Ludlow.

Gold vs. Silver Mining.

Eds. Press:—Years of close investigation has convinced me fully, that one of the greatest errors in mining ie, the idea that gold is so readily amalgamated, and silver so difficult, for, in the result, directly the opposite is the fact. Experience and statistics prove that a much higher percentage of silver is obtained than gold, and the eooner this fact is admitted and acted upon, the sooner will our gold mines receive their just rewards, and the fewer will be the failures. Gold of gravity enough to deposit itself is saved—but what becomes of the millions of atoms as fine and finer than flour, which really make up the great wealth of all of our gold-bearing lodes. Were the silver miner to be as careful of his chlorides—were he, in fact, to show such utter disregard for the fine metal, as is displayed by our gold miners, ruination would be the inevitable result.

One reason why the perceutage of metal eaved in silver mining is greater, is, that the idea that gold is so "readily amalgamated" has caused a system of carelessnese and wastefulnese and has drawn into the pnrsuit, too often, inexperienced men; while the idea, that silver is eo difficult, has called for more skillful manipulatione. To save an eqnal percentage, as much care is required in one as the other. California gold miners must imagine that the law of gravity is overcome in this special branch of mining—that gold must deposit itself, in spite of a sluice head of water and is therefore "readily amalgamated." But the law holds good, to the eorrow, too often, of the miner.

Gold mining in California can be made as inviting and profitable, to capital and labor, as silver mining in Nevada or eleewhere; but to do it they have got to stop this hurrying businese and get a proper percentage of the metal.

Almarin B. Paul.

San Francisco.

Mines at Alder Gulch, Montana.

Editors Press: Snmmer has at last opened with us, and in taking a etroll np the far-famed Alder gulch, I thought a few mining items from there might be interesting to you.

Flumes and Ditches.

The first thing attracting attention iu ascending the gulch is the drain ditch of A. M. Hart & Co., just above town. They have been over a year, with four men, in putting it to bed-rook, hut now have it about completed, and will shortly commence taking out eome big pay. Next above is the drain of Mat. Roberts & Co., who will probably not get bed-rock before next July; it will then be 1,300 feet long, and from all reports they have plenty of good ground.

Then comos A. M. Conghill, who is hydraulicing on the Belgium bar, and will, judging from last year's clean-up, gather enough of the golden sands to make any one man happy.

At Parker & Co.'s Flume they aro making preparations for a hard eummer's work, in preparing side ditches and putting in new riffles, and will be in readiness for the miner's festival—"High water."

The Highland Flume Company are getting everything in good ehape, and intend doing big work, if one may judge by the preparations they are making, repairing side ditches, putting np hydraulics, etc. A part of tho company are drifting, and have been all winter, bnt with what sncess I do not know.

Fred. Gage & Co. have some as good ground as there is left on the gnlch. They took out about $5,000 with two men last summer, and intend, they say, doubling the amount this eummer. I do not think they have set it too high.

On onr way we called at Captain Southmaydes, who showed us his late work, which wae putting in a hed-rock flume in winter. They have run a tunnel some 500 feet, and set the finme in it. They are now sinking a shaft at the head of it, which they will ground-eluice down. It has often oocnrred to me that this is the proper way to put in bed-rock flumos, particularly in this gnlch, where our season is limited, both to time and water.

Gravel Mines.

Above them is Schenk, Rossiter & Co., who have everything in shape, anxiously awaiting the coming of the water. Their ground paye well—two or three ounces to the hand on bed rock—and this season they thiuk they have better ground than ever before.

A. C. Hall was the firet man in 1866 to take any money out of the gulch by fluming. Last year he put in a second flume and worked off considerable gronnd with, as he eays, flattering reeults. Hemust have had good ground, I jndge, from the fact of hie having bought out his partner, and paying $17,000 for the undivided one-half of 1,800 feet or thereaboute. Work with him, has hardly as yet commenced, for winter has not let up its grip. Summer does not commence there nntil about the first of June, and the working seasons, including Sundays, only average about 125 days.

Ahove this claim Tim. Rush & Co., and Reed & Co. are drifting and taking out dirt for snmmer washing, with good prospecte.

The Harris boys are etill working in Eagle hill, and piling up the dirt for summer washing, and I expect we shall hear of some big clean-ups, and nuggets the size of eggs by and by, as that ground has been famous for chispas of no ordinary size.

Quartz Claims.

John How is still working away upon the Oro Cache, and with good reeults. Ed. Covely is taking rock out of the Keystone that he will have crnshed as eoon as the roads are in condition for hauling it to the mill, bnt I apprehend that Col. Postlewaithe nearly cleaned that bunch out.

Geo. Batee & Co. have done well in working some ground upon the Oro Cache the past winter, and have considerable rock on the dumps. They have assorted their rock and a conciderable of it has run as high ae $100 per ton.

A Suggestion.

In concluding my remarks upon quartz, permit me to offer an improvement upon Profeesor Hank's method of separating the iron chips from the dies and ehoes that are gathered in the amalgam from cleaning up the hattery in quartz mills. In a paper published some two months ago in the Soientifio Press he mentioned floating it off as the hest means to he adopted. I think a magnet is the quickeet and moet practical way of removing it, or rather, that is the method ueed here.

In conclusion of this long letter, one word about our chances for water. I am happy to eay they are favorable. There is more enow at the head of thie gulch than has ever been there since the advent of the whites. The letters of yonr traveling correspondent, Murray, are highly appreciated here. Rough Diamond.

From Our Correspondent—L. P. Mc.

Schell Creek Mines.

Eds. Press:—As many of yonr readere may not know the exact locality of the above named mines, I will state that they lie 75 miles east of Hamilton, White Pine, on the edge of White Pine County, Nevada, and about the eame distauce south of Battle Monntain Station on the Central Pacific R. R.

Col. O'Connor Sidney, of London, hae pnrchased and taken posseesion of the Silver Wreath and the McMahon minee, and is pntting on a large force of men. The Colonel is a pioneer quartz miner of this coaet, and hae the confidence of nearly all the heavy capitalists in London. From his well known energy we may look for lively times in that district during tho coming eeason.

White Pine District.

This district has beon really in the background for some time, and for no apparent reason, other than that a largo majority of its dividend-paying mines are in the hands of English capitalists; and as their principal offices are in London, but little is known to us of the amounts of bullion taken out, although the English papers contain full reports of meetings, eto. I think that from the fact of some of the heavy San Francisco capitalists having been chosen as Trustees of some of the mining companies in this district, you will hear of more extensive developments and livelier times shortly, as the followiug will show:

The Trustees of the Original Hidden Treasure mine are: Alvinza Hayward, W. B. Bourne, R. Sherwood, Jos. De la Montanya, J. H. Crocker, S. Pinkham and Walter Laidlaw. The Suporintendent is Capt. Wm. Boyle, one of the oldest and most successful miners in that section of country—holding the position of Superintendent, in addition to the above, of the San Juan Del Rio, a very promising mine, the Pennsylvania, and two others. The enow has nearly disappeared, the roads are open, and the mills will shortly (if they are not by the time this is in type) be running to their full capacity, thousands of tons of rock being now ready for crushing.

The Refuse of Grapes.—In Europo the refuse of grapes, from wine mannfacture is utilized in the following manner: The refuse is first buried in a trench, covered with boards, on which stonee are laid. After some time the must is taken up and treated with hoiling water, which extracts almost all the argol—crude tartar, which will not dissolve in wine—iu the must, the press cake is then dried and placed in the retort for gas making.

The gas evolved is eaid to give a higher illuminating power than ordinary coal gae, while the coke, quenched with water, may be used ae a coal for filtering or to prepare "Frankfort black." Tho water used for quenching the coke may be evaporated, and from it a good quality of potash obtained. To prepare the "Frankfort black" the coke is treated with cold concentrated hydrochloric acid, and then washed with water. The substances thus dissolved out of it form an exceedingly rich fertilizing material.

SCIENTIFIC PROGRESS.

Relations of Calorific Power of Combustibles to Composition.

During the last session of the New York Lyceum of Natural History, a discussion arose on the above subject, in which the present writer startled most of the members present by announcing his conviction of the total fallacy of the prevalent mode of calculating hypothetically the calorific value of a coal or other combustible, from its elementary constitution. He claimed that, in believing that the same elements in a complex mixture, as well as in a homogeneous compound, even when present in the same centesimal proportions, must needs give the same heat on complete combustion, we ignore all the well-founded and accepted views of molecular dynamics and thermo-chemistry. As the products of complete combustion of carbo-hydrogen materials were always molecularly identical—that is, carbonic acid and water—the materials themselves must have had identical molecular constitution originally, in order to exert the same amount of internal disturbance, while falling into the same new molecular arrangement. He cited many known facts to support his views, which gave rise to some discussion, and aroused especial opposition from the distinguished President of the Lyceum, Dr. Newberry, who remarked that if Professor Wurtz believed he could substantiate these revolutionary ideas, he should not pause, night or day, but devote himself exclusively to the task, the importance of the subject being unsurpassed by any other in the range of science!

With this preamble, we introduce the following extract from a report of a recent communication of Scheurer-Kestner and Meunier to the Academy of Sciences, on the Heat of Combustion of Lignites:

"Lignite, the authors found, is distinguished from coal also in this particular—that the later emits a far greater quantity of heat than that due to the combustion of its elements (carbon and hydrogen). Attention is again called to the fact that it is impossible to judge of the value of a fuel according to its elementary composition; all calculations based upon such data are quite fallacious, and the authors prove this conclusively by referring especially to one of the samples of lignite they investigated."—*American Gas-Light Journal.*

CARBONIZED SEWAGE.—Mr. Hickey is engaged in India, says *Engineering*, in testing the efficacy of his invention of preserving sewage by carbonization. The main features of Mr. Hickey's plan are that he collects the gases evolved during carbonization, which he proposes to make available for town illumination, while the coke which remains has been found to be a most excellent deodorizer, and, mixed with the ammoniacal liquors collected from the gas retorts, it also forms a valuable manure. The production of gas for lighting purposes by the carbonization of ordure is not a novelty, but dates as far back as 1686. But whether it will ever be found practicable to illuminate towns with gas produced from their sewers is very doubtful. Mr. Hickey's experiments show that gas and coke can easily be made by his process, but the pecuniary success of the manufacture is not yet settled. The gas has an illuminating power of only 2½ candles.

TRANSMITTED RADIANT HEAT.—The question whether equal areas at different points of the solar surface, transmit equal energy towards the earth has not been satisfactorily answered. The author of *Mechanique Celeste*, finding by observation that equal areas do not transmit equal energies (the central regions transmitting, in opposition to his reasoning, much greater intensity than those near the border) explains the matter by showing that the solar atmosphere retards the passage of the rays causing a great diminution of the energy of the radiant heat projected towards the earth. Capt. John Ericsson, in a series of ingenious experiments with incandescent spheres, described in full in *Engineering*, shows the inaccuracy of this theory.

FAT FOUND IN BEER YEAST.—In an article by Dr. Vogel, read before the Academy of Science, in Munich, after referring to the fact that all cereals contain a larger or smaller quantity of fatty matter, which is an essential constituent of the grain, the author describes at length his experiments made for the purpose of extracting, by the means of ether, the fat contained in beer yeast, an oil boiling at about 200° Centigrade, specific gravity equal to 0.901; decomposed when heated above 300° Centigrade, and yielding acrolein. The quantity of this oil found in one liter of the yeast amounts to from 0.2 to 0.3 drams. It appears that this oil is, in most respects, similar to the fatty matter in barley.

EFFECT OF EXTREME COLD ON SNOW.—Dr Kane, the arctic explorer, recorded the very striking and suggestive fact that snow, at a temperature of forty degrees below zero, F., loses much of its anti-fractional quality. He found it nearly as difficult to draw a sledge upon such snow as upon sand.

DISCOVERY OF A NEW PLANET.—Prof. James C. Watson, of Ann Arbor, Mich., writes to the *Journal of Science*, that he discovered a new planet, on the night of April 4th, in the constellation Virgo. The planet shines like a star of the eleventh magnitude.

PRESERVATION OF WOOD.—Gen. Haupt contributes to the May *Van Nostrand*, a review of the chief processes proposed for the preservation of wood, and adds some deductions of his own. From his experiments and investigations he concludes:

1. That so long as the cells of wood are occupied by air and moisture, no preservative solutions can be introduced, and the expulsion of air and moisture must be the first step in any effective process for preserving timber from decay.

2. That water can be expelled by a long continued application of heat, but air only by expansion in a vacuum, and the combination of heat and vacuum will secure the most rapid expansion of both water and air.

3. That the preservative fluid must be introduced while the cells are empty, consequently the process must be carried on in vacuo.

4. That no pressure, however great, applied externally to the surface of timber, can force any fluid into the interior so long as air or water is contained in the cells. When air alone is present there may be penetration to a limited extent superficially, but water is practically incompressible. If, however, the pressure is applied at one end only of a stick, as in the Boucherie process, a fluid may be forced through and exude from the other end.

GEOLOGICAL SUCCESS.—An instance of complete success in search founded on geological indications has just occurred in Sweden. An extensive coal bed of unusual depth in Europe, and of excellent quality, has been discovered at Raus, in Schonen, by boring on the strength of evidence afforded by the lithological formation existing there. At first the promises were not satisfactorily fulfilled. Eleven strata of coal, indeed, were pierced by going down 566 feet; but none of these were more than a foot or so in thickness. Five feet further a bed was penetrated over eight feet thick. Other borings prove the existence of coal of great extent. The shares of the company at once rose 700 per cent above their par value.—*Ex.*

PERUVIAN ANTIQUITIES.—The Geological museum of the University of Rome has received from King Victor Emanuel a magnificent collection of Peruvian antiquities, comprising a number of silver vases, some extremely curious musical instruments, a colored garment made from the bark of trees, and some arrows and lances. These last are notched, ornamented with feathers, and have wooden heads, showing that they belong to the period when the use of iron was unknown. The whole of these articles were found in a bed of guano, and evidently date from the earliest antiquity.

BOILER INCRUSTATION.—Experiments have been tried with favorable results, it is said, at Vienna on Bérenger's plan of treating feed water for boilers. The water is softened by a solution of lime and forced through a particular kind of filter, which retains the generated precipitate. There is no necessity for waiting for the settling of the precipitate. From 10 to 15 filters, each of 0.1 cubic metre capacity, soften about 410 cubic metres of water per day.

ART MONUMENTS.—M. Demetrio Salazaro, the Inspector of the National Museum, at Naples, is about to publish, in thirty parts, at fifteen shillings each, a series of photographs and chromo-lithographs of the Art Monuments of Southern Italy, from the fourth to the thirteenth century. This is the first great attempt of its kind, and is intended to show the growth and development of Italian art from its earliest rise.

THE vacancy at the British Geological Survey office, caused by the death of Sir Roderick I. Murchison, has been filled up by the appointment of Professor Andrew Cromhie Ramsay, L.L.D., F.R.S., as director-general. Professor Ramsay has for many years been director of the Geological Survey and Professor of Geology in the Royal School of Mines.

A REMARKABLE MINERAL.—A. Frenzel writes of a mineral, which forms in the winter in the Himmelfahrt mine at Freiberg, but vanishes in the spring, when the weather begins to grow warm, or damp, though it forms 334 metres below the surface. An analysis gave

Magnesia	16.53
Sulphuric acid	32.62
Water	50.81—99.96

THE Spectroscopic Association of Italy is the title of a new society, the main object of which will be "to enrich science, by the aid of the spectroscope, with new discoveries upon the physical constitution of the sun." The first number of the *Memoirs* of the Society has already been published.

XYLONITE, which is prepared by the action of nitric acid on woody fibre, is made into a sheeting or tissue impermeable to water, which may be used as a substitute for india-rubber in the manufacture of all water-proof articles.

REPEATED spectroscopic measurements made last year by Professors Zollner and Vogel, in Germany, show that the velocity of rotation of the sun on its own axis is at the rate of six hundred and sixty miles an hour.

CANE-SUGAR when exposed to light in sealed tubes is converted into grape-sugar or glucose. The solution should be as concentrated as possible.

MECHANICAL PROGRESS.

Economy of the Hot Blast.

The first practical application of the hot blast was made in 1828 or 1829 by J. B. Neilson, an Englishman. Mr. N. and his colleagues after determining the great value of the invention for smelting ores, expected to see it generally employed for all furnace operations; but the result has been that practically, it is almost exclusively confined to smelting the ores of iron.

The earliest carefully recorded experiments with the hot blast were made at the Clyde Iron works, with the following result:—

For the year	1829	1831	1833
Temperature of blast	Cold	458° F.	612° F.
Coal used per ton of iron	As coke.	As coke.	In raw state.
For fusion, cwt.	133	86	40
For heating air, raw coal	nil	5	8
For blowing engines, coal	20	7	11
	153	98	59
Cwt. limestone per ton of iron	10½	9	7

From this it would appear that heating the air with 5 cwt. of coal had saved 47 cwt. of fuel in the furnace, and 8 cwt. similarly applied had been followed with an economy of 93 cwt., or above 69 per cent.

Besides this advantage the make was increased by more than one-third, and a blowing engine, which only supplied three furnaces with cold blast, was equal to four when the air was heated.

The iron trade hesitated somewhat in crediting that the heat generated from 8 cwt. of fuel burnt outside the furnace, should be able to perform the duty of a very much larger weight burnt inside. Some writers on the metallurgy of iron, when speaking of the advantages of Neilson's system, have not perhaps been sufficiently careful in drawing a distinction between the saving directly due to its application and that arising in a collateral manner from its use. Looking at the question, however, in its commercial sense, the figures and language quoted from the work of Dufrenoy justified the character he gave to it.

Puddling Steel Rails.

The Flushing and North Side Railway Company with its leased roads will have laid, by the 1st of July next, 40 miles of steel track. The rails are of puddled steel, with partly iron flanges and vertically piled.

The advantages claimed for these rails are:—perfect safety against breaking, not a single rail of this kind having been broken during twelve years' use in Germany and four years use in this country, greater strength and endurance than can be obtained from steel-capped rails.

The value of the worn-out puddled-steel rails is higher in proportion to first cost than that of cast-steel rails, or iron rails with cast-steel caps, which cannot be re-rolled, but must be recast.

The only disadvantage of the puddled-steel rails is that a percentage of them may give out in the weld after a wear about equal to that of the life of three common iron rails. This is only a disadvantage in comparison to full steel or ingot rails, which have no welds, and therefore cannot fail in the same manner. Setting aside the greater safety of the welded steel rails, the question of economy in the use of either chiefly depends on their respective first cost, on their wearing qualities, and on their market value as scrap when worn out. The solution of this question will depend more or less on the individual experience of the consumers, especially of those who have tried the different kinds of steel rails.

RAILROAD IMPROVEMENT.—A Pennsylvania engineer, named Wilder, has recently hit upon an idea which, if carried out as it deserves to be, will do much toward increasing the efficiency and enhancing the economy of railroads. It provides for the laying of two narrow gauge tracks, side by side, with a space between the inner rails equal to the ordinary gauge of four feet eight inches. Thus three possible gauges will be furnished on the same line, all of which it is proposed to use. For freight, the narrow gauge will be used at a safe rate of speed, while for passenger travel, and a high rate of speed, the broad gauge will be used, the cars being mounted on four lines of wheels. This, he contends, will prevent oscillation, thereby increasing safety. He calculates by this system, and the increased weight of engines, it will permit of a rate of speed being attained as high as a hundred miles an hour.

No doubt a greatly increased speed may be attained by such a device, but when a train of cars is made to travel a hundred miles an hour, the material of which they are constructed and their manner of construction must be somewhat modified from their present material and form.

PUDDLING BY PETROLEUM.—It is asserted by the French technical journals that the experiment of using petroleum as fuel in the puddling furnace which has been in progress in a large iron producing establishment during the past three months, has proved itself to be very successful. In point of convenience, efficiency and in the superior quality of the iron produced, it is asserted that petroleum affords the best fuel that has yet been employed.

Burnt Iron and Steel.

W. M. Williams has given the result of some inquiries into the causes of this phenomenon, to the Chemical Society of London. After some remarks upon the physical characteristics of iron and steel so damaged, he asserts that he found in all the samples of burnt *iron* which he has subjected to examination, particles of black oxide more or less abundantly distributed throughout the mass. These are, however, absent in burnt *steel*. The method which he suggests of quickly detecting such damage, is to take a small quantity of fresh borings or filings from the subjected metal, cover them with diluted nitric acid. As the iron dissolves, the free oxide separates and remains suspended in the liquid, rendering it dark in color. These particles shortly disappear, and are thus to be distinguished from separated carbon. No such discoloration takes place with good iron.

The cause of the burning of iron he explains as follows: As soon as the small quantity of carbon is removed from the heated mass by oxidation, this process extends to the iron itself—not only upon the surface, but into the interior. The higher the temperature, and the longer the exposure, the greater is the quantity of carbon necessary to protect the iron. The best iron is that in which carbon is brought to the lowest possible proportion, without oxidation of the iron.

Burnt steel the author considers to be steel which has, by reheating, lost some of its carbon by oxidation, and by sudden solidification has had the resulting carbonic oxide imprisoned in the interior of its mass. The well known permeability of iron for certain gases renders such a process not difficult to understand.

The structure and properties of "burnt iron and steel," are therefore "caused by the presence of intermingled particles of combustion products breaking the continuity of the metal. The carbon is burnt in the case of the burnt steel, the iron itself in the burnt iron.

THE TURBINE PROPELLER.—As a gun recoils when fired, or as the progress of a rocket is kept up by the recoil arising from the efflux of the gases generated by the ignition of the composition with which the rocket is filled, so the progress of a vessel driven by the turbine propeller is kept up by the recoil arising from the efflux in a sternward direction of a stream of water, kept up by the action of a centrifugal pump or turbine, driven by a steam engine, drawing water from the sea and discharging it sternwards, in a continuous stream, through a bent pipe or nozzle, at a high velocity.

The turbine propeller was invented some years ago, and attracted sufficient attention to secure a competitive trial by the British Government in 1867, with screw propellers. Although the turbine did not equal (although not much behind) the screw, yet its performance at so early a stage cannot but be considered as very promising. Mr. A. Murray has lately brought up the subject again in the *Jour. R. U. S. I.*, and urges further trials and investigations. It is claimed that the turbine affords a higher per cent. of utilized power than the paddle or screw, which last, all admit, lose a large amount of power, say 40 to 50 percent. at least, while centrifugal pumps of 40 to 50 horse-power, for raising water, have been found to utilize even as high as 80 per cent., varying from that down to 50. But to determine this point satisfactorily further experiments are needed.

Other points of superiority over the screw or paddle wheel claimed for the turbine are: the power of rapidly stopping the way of a vessel; great power over a heavy leak; freedom from the chance of internal injury or of fouling; utility when the vessel is being driven by sails at the rate of 10 knots or more, (when the paddle or screw would be of little or no service,) thus obtaining a greater speed than ever yet realized on the ocean; assistance rendered to the vessel's steerage; not being affected by the pitching or rolling of the vessel; non-interference with any desired form of the ship for insuring good sailing properties; facility of bringing into action or discontinuing its use, etc.

PRESSURE IN STEAM BOILERS.—The question as to whether the pressure in a steam boiler was equal or different at top and bottom, concerning which their seems to be some difference of opinion amongst engineers—though it is difficult, from the simplicity of the facts involved in considering the question, to see how a difference of opinion should exist—has nevertheless been experimentally determined by the Messrs. Hunter, at their establishment in this city. An elbow was attached to the end of the blow-off pipe which entered the mud-drum; into this a plug was screwed, and tapped to receive a half-inch pipe; to this a steam gauge was attached and the cock opened. On comparing the indications of the gauges attached at top of boiler and to the top of drum, as above described, it was found that the pressure was greatest at the bottom, by a pound and a half, proving, as might readily have been predicted, that the pressure upon the bottom of a boiler is equal to the steam pressure indicated above, plus the weight of a water column equal in hight to the difference in level between drum and surface of water in boiler, and in diameter to that actually on the gauge.—*Jour. Franklin Institute.*

UP to 1870 there were seventeen steel works in Great Britain. There are now nine steel-rail mills in the United States, while two others are building at Chicago and Springfield, Ill., and four others are projected at St. Louis, Milwaukee, Omaha, and two on the line of the Pacific Railroad.

MINING SUMMARY.

THE following is mostly condensed from journals published in the interior,in proximity to the mines mentioned

California.

ALPINE COUNTY.

M. & N. W. Co.—Alpine *Miner*, May 11th: The main tunnel is to be pushed with vigor.

NATIVE SILVER is reported as having been found in one of the drifts of the Schenectady yesterday.

ORE at several points in the M. & N.W. mines is looking well. No. 6 drift is looking better than for some time, and No. 7, just started, is already in ore.

AMADOR COUNTY.

KENNEDY.—Jackson *Dispatch*, May 18th: The prospects in this mine are more flattering than ever before.

RICH.—Jackson *Ledger*, May 18th: As work progresses in the Phœnix, the ledge increases in width until it has reached full 20 ft. in thickness, the whole body heing first class rock. Several thousand tons of valuahle rock is upon the dump, ready for milling.

BUTTE COUNTY.

BULL CREEK MINES.—Oroville *Record*, May 18th: The Cook Co. claim cleaned up last week, after a 4 days' run, and took out 19¼ oz. Four hands are employed, which would give $25 a day to each.

CALAVERAS COUNTY.

WEST POINT.—Calaveras *Chronicle*, May 18th: The 8 stamp mill on the Zacetara is running on some very rich rock from the mine.

Some rock from the Bartolo recently treated, yielded $64 per ton. The ledge is nearly 2½ ft. in width, and works easily.

In the Harris mine the new machinery has completely freed the mine from water, and the owners are heing rewarded hy some excellent rock.

The Steger mine has temporarily suspended operations, owing to an influx of water, at 60 ft.

In theWoodland, Mr. Wood proposes to open a second tunnel to intercept the ledge about 100 ft. helow the present one.

In the Ohio Con., work is heing pushed with vigor. The tunnel is in nearly 150 ft., and is designed to cut 3 very rich veins of quartz.

NEW QUARTZ MILL.—A new quartz mill has recently heen erected in the vicinity of Campo Seco for the purpose of prospecting some of the leads in that vicinity.

EL DORADO COUNTY.

LUCKY STRIKE.—Placerville *Republican*, May 16th: Two miners on the Diamond Springs divide, found a lump of gold worth ahout $2,000, last week.

INYO COUNTY.

BULLION.—Inyo *Independent*, May 11th, May 1st. Hiskey & Walker shipped 6,459 ozs., valued at $4,000.

CERRO GORDO.—The furnaces at Cerro Gordo and Swansea are in constant operation.

MONO COUNTY.

BENTON.—Inyo *Independent*, May 11 th: The foundations of the new 10-stamp mill are heing lain, and the work hids fair to he rapidly pushed to completion.

NAPA COUNTY.

QUICKSILVER.—Napa *Reporter*, May 18: The mines near Oakville, including the Whitton, are heing vigorously worked, and are yielding well.

COAL.—Woodland *Democrat*, May 11: Mr. Beuj. Ely, of Buckeye, is one of the propietors of a coal mine recently discovered 4¼ miles southeast of Knoxville, which promises to be a good thing. The vein was discovered by a Mr. Walton, and near the surface showed a seam less than an inch wide. At 8 ft. the vein is three 3 ft. thick and widening as it goes down.

NEVADA COUNTY.

STARTED.—Nevada *Transcript*, May 15: The Providence Co., on Deer creek, have got their mill in good running order, and commenced crushing yesterday. They have out between 250 and 300 tons of splendid quartz.

NORTH BLOOMFIELD G. M. Co.—They will commence immediately to sink 8 shafts, and will give employment to 150 additional men.

WILLOW VALLEY.—The Montana Co., are fitting up hoisting works and expect shortly to be in active operation.

The Buckeye Co., have out over 100 tons of quartz, and will commence hauling it on Monday to the Oriental mill to have it crushed. The rock shows considerable free gold and is rich in sulphurets.

GRANITEVILLE MINES.—The Erie is turning out splendid rock. The Amshaw has a fine looking ledge. A large numher of men were to work on this last week. The old Scotchmen's Tunnel cement diggings are to he opened np immediately. The Black & Young is taking out better rock than ever before. The gravel diggings are being worked extensively. The claims of Morris, Quinu and Mitchell, on the north fork of Poor man's Creek are turning ont fiuely.

MOUNT AUBURN.—Nevada *Gazette*, May 18: Hoisting works are heing erected on this mine, and will soon he completed, when work will be pushed forward.

FRENCH CORRAL.—The Big Slide Co. have erected a new quartz mill—10 stamps. Ahout 150 tons of good rock is heing crushed, and the mill is heing run night and day.

GOLDEN GATE LEDGE.—G. V. *Union*,May 15: The shaft is down ahout 130 ft. and at the hottom is a well defined ledge 2 ft. thick.

PICAYUNE CO.—The Co., working in gravel on Randolph Hill, has very fine prospects ahead. The gravel will pay from $10 to $12 a day to the hand for drifting.

PLUMAS COUNTY.

LARGE YIELD.—Quincy *National*, May 11: Ferguson & Wagner, of Dutch Hill, on the North Fork, recently shipped about $5,000, the result of their Spring's run.

GREEN MOUNTAIN.—Work at this mine, near Cherokee, is progressing finely. They have completed their raise up to the surface, and a shaft will be sunk immediately.

STRUCK IT.—Mr. Carman, who has an eastern extension on the Betterton ledge, near Mohawk Valley, has struck the ledge, and obtained some fine prospects.

SAN DIECO COUNTY.

THE MINES.—San Diego *Bulletin*, May 9th: The Golden Chariot Co., San Felipe Cañon, have out about 225 tons of ore, which they expect will yield about $30,000 with which they intend to put up a mill.

SAN BERNADINO COUNTY.

RICH.—Los Angeles *News*, May 11: 60 tons of ore from Chatfield & Knights mine, Clarke dist. yielded $1,600, per ton.

SIERRA COUNTY.

GOOD YIELD.—Downieville *Messenger*, May 11: A clean up in Henry Backer's claims at Eureka, resulted in nearly 200 oz. of fine looking gold.

GOOD HAUL.—100 oz. of gold was brought down the other day from Hughes diggings at Rattlesnake, picked up from the bedrock.

HIGH COMMISSION.—This mine continues to produce splendid rock.

LIVELY.—It is confidently anticipated that we shall have a large number of capitalists among us this Summer, looking for a chance to profitahly invest their means.

SISKIYOU COUNTY.

LITTLE HUMBUG.—Yreka *Union*, May 11th: Dad Rider and Commodore Jones are running 2 sluices in their claim and are realizing from $14 to $15 to the hand. Love & Shadreau's claim is paying from a half ounce to an ounce a day to the hand. The claim of Parker & Parson is yielding from $12 to $15 per day to the hand.

TRINITY COUNTY

THE BIG DITCH.—Weaverville *Journal*, May 18th: The prospects are decidedly favorable for the construction of the Steuart Fork Ditch this Summer.

TUOLUMNE COUNTY.

GRAVEL CLAIM.—Sonora *Independent*, May 18th: Mr. Richards has made the discovery that the sheep-pen, near the slaughter yard of Vickery & Goodwin, a short distance from Springfield, is on a rich deposit of auriferous gravel, and that the prospects are good.

DAVID HUGHES' TUNNEL.—This tunnel, located in Bald Mountain, is to be worked on the hack channel.

YUBA COUNTY.

BROWN'S VALLEY.—Marysville *Appeal*, May 17th: Considerable prospecting for quartz is going on in that vicinity. The Wisconsin Co., and Jeffard & Co., are husily engaged in prospecting for extensions to the old ledges.

Nevada.

EUREKA DISTRICT.

PHOENIX AND JACKSON.— Eureka *Sentinel*, May 14th: In the Phœnix operations in the main are confined to the Adams and Farren shaft. The machinery for the hoisting works, is all on the ground and rapidly heing put in place. The Adams & Farren shaft is down 350 feet. The ore has steadily improved iu width and richness from the surface. The Jackson has attained 110 feet. The shaft will he continued 40 feet deeper, when a drift will he started south for the ledge.

LEMON MILL.—Yesterday the Lemon Mill started up, the White furnace for some time under process of construction having been completed. The capacity of the mill, when all the stamps are in motion and hoth furnaces running, will he 20 tons per day.

FREIBERG.—A smeltiug furnace of 40 tons capacity has been erected and will soon he in successful operation. There are upwards of $1,500 tons of ore on the dnmp ready for use at the furnace.

NEWPORT.—The main shaft is down about 130 feet, at which point a cross drift is heing run. This drift has heen run east and west 32 ft in low grade ore the entire length. Greater depth, it is believed, will develop higher grade ore in immense qnantities. The work of sinking will he resumed as soon as the west wall of the ledge is reached with the drift.

STRIKE.—The owners of the Hannah, in New York Cañon, have struck water at 160 feet. This is an important i'em in the history of our dist., as it has always heen argued that in limestone formation water does not exist.

ELY DISTRICT.

LOCAL RECORD.—Ely *Record*, May 12:

BULLION.—During the past week W. F. & Co. shipped $141,063.94; the previous week the shipment was only $124,332. 70.

HUHN & HUNT. — Enough ore is in sight to warrant us in the assertion that from $250,000 to $300,000 worth could be taken ont in a very short time.

ELLEN GOODSPEED.—Assays from this mine run from $86 to $310 in silver. Assays from the Eliza Sutter nearly gave $125 in silver and $8 in gold.

CHIEF OF THE HILL.—Since our last mention the west winze has heen sunk 80 ft. from the first level, and shows 3½ ft. of good ore in the bottom. Assays of ore taken from 6 different places in the mine gave an average of $103.50.

CONDOR.—Work on the old shaft has been vigorously prosecuted, and a depth of over 100 feet has heen attained. Ahout 140 ft. below the old shaft, a new one, intended to he used as the main working shaft, has just heen started and is down 8 ft. The vein of ore in this shaft is already 18 inches in width, and looks extremely well.

MOCKING BIRD.—The shaft is down 12 ft., with the ledge the full size of shaft, 6x4¼. Average assays from the ore takeu out are $98.

ORLEANS.—Work was resumed on Friday last, and will be pushed vigorously ahead. The shaft has a depth of 65 ft., from which point a contract to sink and drift 100 ft. has been let.

SPRING MOUNTAIN TUNNEL.—The tnnnel is in 180 feet; ledges have heen cut in going ahead, one at 31 feet from the mouth and the other 143. At the point wherc the first ledge was struck a drift was run 16 ft and a chamher 14x12 was opened. Here a winze was sunk to 100 ft, on ledge matter all the way, and at 55 ft a large body of ore was struck into. The second ledge struck carries a fine body of ore in sight: assays from it have gone as high as $3,000.

HUMBOLDT.

BULLION.—Unionvillo *Silver State*, May 28th: Amount shipped from Arizona since our last issue, was $5,849.

REESE RIVER.

PROGRESS.—*Revielle*,May 11th: Mr. Wreu is working the Progress and has strnck a hody of rich chloride ore ahout 10 inches in width about 10 ft from the surface. The ledge is about two feet wide.

JEFFERSON CANON.—The incline upon the Sailor-hoy is down ahout 25 ft, all the way in porphyry. The ledge is ahout 4½ feet in width, ahout 18 inches of which is first-class ore. Assays taken promiscuously from the pile range from $1,000 to $1,500 per ton.

Two inclines are heing sunk on the Prussian Ledge one of which is down 20 and the other 15 feet.

The Rappahannock Ledge has heen stripped 100 ft showing a fine hody of ore all the way averaging 2½ ft in width.

A fine body of ore 2ft wide has heen struck at the 35 ft level in the Hillside.

Ahout 7 tons of ore that will work up iuto the thousands, has been taken from the Summit Ledge.

WASHOE.

BULLION.—Reno *Crescent*, May 11th: The shipment for the week ending May 10th was 18,317 pounds, from the Crown Point and Belcher mines principally.

LOCAL SUMMARY.—Gold Hill *News*, May 18th: Succor—New shaft down 68 ft. and very good progress heing made.

CROWN POINT.—Daily yield 580 tons, from the 1,100 and 1,200-ft. levels, where all the ore hreasts are looking splendidly. The amount of rich ore in sight is immense, with no definite houndaries or extent, but embracing the whole mine at the lowest depths.

BELCHER.—Daily yield, 300 tons, from the 1,100-ft level.

BUCKEYE.—Daily yield ahout 50 tons of good paying gold ore. Drifting both north and south is heing energetically carried forward. The south drift at the 100-ft. level is in excellent ore. The drift south at the 300-ft., or lowest level, has cut into a fine hody of ore.

SOUTH OVERMAN.—This Co. are about to commence sinking a new working shaft.

KENLUCK.—Daily yield increased to 49 and 50 tons per day. A 5-stamp mill in addition to the Devil's Gate mill has heen started, crushing ore from this mine.

CHOLLAR-POTOSI.—Daily yield ahont 200 tons. Average assays $40.

UTAH.—The work of sinking the new shaft is being continued night and day.

DANEY.—North drift at the 500-ft. level in 193 ft. on the vein, following excellent indications.

HALE & NORCROSS.—For the past week the average production of ore has been 120 tons.

YELLOW JACKET.—Daily yield 30 tons. The ore streak at the 1300 ft. level, near the Kentuck line, is of too low grade to be worth extracting.

CON. VIRGINIA.—On the 500-ft. level of the new shaft they are drifting sonth in the vein along the west wall.

IMPERIAL EMPIRE.—The rumored strikes of good ore in drifts from the shaft, so prevalent during the past few days have no foundation in fact.

SAVAGE.—Daily yield about 200 tons. Night before last the winze from the 1400-ft. level made connection with the main south drift of the 1500-ft. level, giving a fine circulation of pure air.

OPHIR.—The main drift west at the 1300-ft. level is discontinued and running north substituted with good progress and prospects. The main drift west will be resumed shortly. At the 1100-ft level the main drift west is in 383 ft., and the south drift 220 ft.

UNION CON. S. M. Co.—S. F. *Stock Report*, May 15: This mine is located in the Virginia Mining District. The incorporation consists in the consolidation of the United States M. Co's and the Union Co's ground, which embraces all the ground lying hetween the Ophir and the Sierra Nevada, including several parallel ledges east and west of the Comstock, amounting to about 12,000 ft. Mr. Lee, the Sup't of the Co., informs us that they have a shaft down 130 ft., and on a line and several hundred ft. north of the Ohir Co's new shaft. It is in three compartments and in good condition, which they intend to erect machinery on immediately, and continue sinking the shaft and develop their mines at a greater depth.

WHITE PINE.

EAST SHEBOYGAN.—W. P. *News*, May 11: There is a marked improvement in the appearance of the ore body in the different openings since last mentioned.

WARD BEECHER.—Making preparation to commence breasting out in the open cut. There are upward of 5,000 tons of fair milling ore in sight.

NORTH AURORA.—The ore body in Lady's Chamher has increased in qnantity and improved in grade since last noticed. The drift running south is pushed ahead rapidly, extracting 65 tons daily.

Arizona.

MINES AND MINING.—Prescott *Miner*, May 4th: At 90 ft. from the surface the El Pasco lode is thicker and richer than it has heen at any point in the shaft above that depth.

In Mohave Co. Mr. Coover's furnace is running, and it is thought that Mr. Elder's will he runuing by tho 10th of the month.

Colorado.

CARIBOU.—Central *Register*, May 1: The Eureka lode, 300 ft. south of the Caribou lode, bids fair to prove one of the best mines in the dist. At 18 ft. the owners are taking out silver glance which assays $2,756.75.

GIBSON GULCH.—Work is soou to he resnmed on the "Clifton." The "Veto" has been worked under lease, and a fine body of mineral has been raised. Ahout 50 tons of ore is on the dump, ready for shipment, supposed to be worth abont $200 per tou. Work is actively progressing on the Queen lode. Work will bo resumed on the Franklin lode, as soon as the Co's mill at Masonville is completed.

BOULDER.—Caribou *Post*, May 3: Tommy Scott has honded his interest in the Star of the West lode, in Suowy Range Dist., to St. Louis parties for $10,000.

Idaho.

LOCAL RECORD—IDA ELLMORE.—Owyhee *Avalanche*, May 4th: Tho 7th lovel drifts aro being run with energy.

MINNESOTA.—The shaft is down 230 ft. from the bottom of which 3d level drifts are running north and south. Thoy aro hoisting about 15 tons of ore daily, estimated to be worth from $40 to $50 per ton.

MAHOGANY.—45 miners are employed in this mine. They are down to the 5th level, a distance of about 425 ft. from the surface, and have drifted some 50 ft. each direction from the shaft. Stoping is going on between the 3d and 4th lovels, and the main drifts in the 4th lovel aro being run fast.

EMPIRE.—Thoy have only worked out a portion of the first lovel, tho ore of which yielded large profits, milling $154 per ton. They have about 50 tons ou the dump at the mine.

CATALOW & Co. intend to resume work on the Blue Jacket, on the hill east of town, in afew days.

Montana.

TRINITY.—Helena *Herald*, May 2d: Bob Steele has recently discovorod now placer diggings in Trinity gulch, which pay $8 per day to the hand.

"7-30 LODE."—This is the name of a very rich silver lode recently discovered on Clancy Creek. Mr. McMurphy showed us yesterday a fine silver button taken from an ounce of ore. The assayer says it will yield at this rate $600 por ton. A shaft of 35 ft. has been sunk and considerablo ore takon out. The vein is 10 inches wide.

UNIONVILLE.—Cor. same: The National Co. have struck excellent quartz in their new mine ou the Owyhee, and will put on additional men the first of next month. They are moving their hoisting works from the old mine to the new one, and are fitting up their mill ready for crushing.

The Columbia Co. are sinking on No. 3, Union East, and are down 200 ft.

At Grizzly, McGarity & Co. have a good body of quartz.

Constans is findiug good quartz in his lode.

"Norwegian Pete" is also taking out good rock from the discovery on the Evelyn lode.

The "Spanish Boys" are taking out rock on the Shaker, at the head of Nelson, which runs at the mill nearly $100 per ton.

Judge Turnley is running $30 rock at his mill, taken out of the Park lode.

The Harvey mill starts. up on Monday next, crushing quartz from Tucker Gulch and "float" rock from the Park.

QUARTZ GULCH.—Unionville *Pioneer*, April 27th: Mont & Tag, at the mouth of the gulch, oleaned up from their bedrock flume in 20 days' work, with 4 hands, $1,200. Loutzenheiser & Co. are doing remarkably well. Richards, Duboise & Silverson, on No. 18 in the upper dist., are cleaning up from $15 to $20 a day to the hand.

QUARTZ.—Virginia *Montanian*, May 2d: Mr. Poznainsky, on the True Silver in Brown's Gulch, has tapped a splendid body of ore with his tunnel.

John How, on the Oro Cache at Summit, keeps his force of hands busily taking out ore, while the mill is pounding away with good results.

Tom Harper and Dr. Ellis, from the Iron Rod and other leads at Silver Star, were in town Tuesday with 260 ounces of retort.

At Jefferson and Boulder there are over 50 discoveries being developed, and some 400 mbn are busily employed in quartz.

The furnace of Marsh & Starrett, of Jefferson, having already made two successful runs, started up a new charge Tuesday morning.

Utah.

BLACK JACK GULCH.—S. L. *Tribune*, May 11th: Parties are preparing to erect a 10-stamp mill at the junction of Black Jack and Butterfield cañons, and have already made a good road from the mines to the site.

STRIKE.—At 45 ft. a 10 ft. vein of yellow chloride ore was struck last Friday iu the Lexington mine, Little Cottonwood. The oro is worth $100 to the ton.

CAMP FLOYD.—Cor. same: The Sparrow Hawk mill, at the lower end of Lewiston, is nearly completed.

MINING SALES.—The Orleaus Company bave sold their quartz ledge at Gold Flat, Nevada County, to some San Francisco capitalists for $15,000.

Two important sales of mining property in Camp Floyd and Tintic districts took place on the 20th. One transaction amounts to $100,000 cash, and another to $400,000 in four monthly installments.

San Francisco Stock and Exchange Board.

THURSDAY, MAY 22.

Tho sales at the Stock Board for the week ending May 15th, were $4,617,900, and make a total since January of $106,294,000. Tbo *Bulletin*, in a tabulated statement for eacb week, sums up as follows: Week ending January 10, $3,000,000; week ending Jan. 17, $3,482,500; week ending Jan. 24, $4,540,200; week ending Jan. 31, $4,208,600; week ending Feb. 7, $8,015,000; week ending Feb. 14, $7,682,900; week ending Feb. 21, $4,950,000; week endiug Feb. 28, $3,377,000; week ending Mar. 6, $3,867,600; week ending Mar. 13, $4,072,300; week ending Mareh 20, $4,309,000; week ending Mar. 27, $4,014,700; week ending April 3, $4,308,000; week ending April 10, $7,183,700; week ending April 17, $8,494,400; week ending April 24, $11,203,300; week ending May 1, $8,579,900; week ending May 8, $6,357,200; week ending May 15, $4,617,900; total, $106,244,800. These figures show an averago of $5,500,000 per week, or $286,000 per annum. Prior to last year the heaviest sales at the Board were in 1868, wbon they amounted to about $116,000,000. The sales for 1869 were $69,000,000, and for $1870 were only $51,000,000. Tho monthly averago this year bas been about $23,000,000.

The stock market has fluctuated considerably during the week, and Monday they fell heavily. Everbody was anxions to sell and nobody to buy. The whole amount of business done on that day was very small and a very general decline of prices occurred. On Friday the 17th the market was irregular but some kinds advanced a little. On Saturday stocks received a heavy blow, and everything fell considerably. Monday was worse still and the expected reaction did not occur. Tuesday morning it was weak and some kinds were lower than they have been for four or five months, but they rallied at the afternoon session. On Wednesa general advance was experienced although at the afternoon session prices were lower than in the morning. The sales this morning showed an advance in prices over last evening hut were irregular.

Tbe new shares of the Crown Point Co. are ready for distribution. The Company has filed a certificate of increase of capital stock from $10,000,000 on 100,000 shares. The amount of stock paid in is $3,000,000, and there are no debts against the Company. The Best and Belcher Company have increased their capital from $448,000 tq $2,240,000. The Consolidated Virginia have increased their capital stock from $5,800,000 in 11,600 shares to $7,080,000 in shares of $300 eacb. The Pocahontas Company will meet June 28 to consider a proposition to increase their stock from $120,000 to $1,200,000. The Buckeye Mine produced last week 150 tons of ore, averaging $16.22, and the Chollar-Potosi 1,055 tons, averaging $34 28. Th latter shipped $16,300. The Raymond & Ely Mine has sent down on May account $198,940. The Hale & Norcross took out last week 875 tons of ore and there are on the dumps 2,685 tons. The Savage took out last week 1,180 tons, assaying $27.80 per ton. The Eureka Consolidated Mine produced last week 1,100 tons of ore. The bullion product of the mine for the month thus far is 432,795 lbs and they have 1,035 tons of ore on hand. The yield of the Crown Point last week amounted to 3,000 tons of ore, valued at $111,000. The Meadow Valley Mine has sent down on this month's account $58,600.

Comparative Prices—Extremes. Advance and Decline.—S. F. Stock and Ex. Board.

	May 16.	*Highest.*	*Lowest.*	May 23.	*Adv.*	*Dec*
Alpha	$ 90	90	40	75	—	15
American Flag	15½	17	13½	—	—	—
Belcher	850	1000	400	1000	50	—
Buckeye	5½	5½	2	4½	—	1
Chollar-Potosi	124	137½	90	109	—	15
Caledonia	65	68	35	50	—	15
Cons. Virginia	65	65	35	50	—	15
Crown Point	—	155	100	135	—	—
Daney	3	4	3	4	1	—
Eureka Cons	30	30	25	28	—	2
Eureka	18	18	15	18	—	—
Exchequer	50	55	36	36	—	14
Gould & Curry	—	270	87½	205	—	—
Golden Chariot	14	14	12½	13	—	1
Hale & Norcross	150	150	70	112½	—	—
Ida Elmore	22	22	16	18	—	4
Imperial	220	300	190	230	10	—
Justice	—	21	5	21	—	—
Kentuck	340	395	260	350	10	—
Mammoth	1½	2	1	—	—	—
Meadow Valley	15	16	11½	—	—	—
Mahogany	—	19	18	—	—	—
Ophir	40	55	20	36	—	4
Orig. Hid. Treas	14	14	10	—	—	—
Overman	95	95	40	72½	—	22½
Pioche	14	17	10	—	—	—
Raymond & Ely	115	120	100	115	—	—
Savage	300	340	110	205	—	6
Sierra Nevada	25	25	15	19	—	6
Succor	6	6½	5	6¼	⅛	—
Wash. & Creole	6	6	5½	—	—	—
Yellow Jacket	160	165	100	147½	—	12½
Seg. Belcher	90	95	45	81½	—	7½

Latest Prices—Bid and Asked.

	BID.	ASKED.		BID.	ASKED.
Alpha Cons	72½	75	Ida Elmore	18½	18
Amador	—	—	Imperial	230	230
Belcher	930	940	Kentuck	350	350
Chollar-Potosi	105	107½	Meadow Valley	14½	14⅝
Crown Point	135	137½	Ophir	35	36
Daney	4	4⅛	Orig. Hid. Treas	13½	14
Eureka Cons	28	28¼	Overman	70	72½
Eureka	17½	18	Savage	205	205
Golden Chariot	12½	13	Raymond & Ely	114½	115
Gould & Curry	200	205	Sierra Nevada	20	21
Hale & Norcross	112½	115	Yellow Jacket	142½	145

Meetings and Elections.

THE Lyons and Wheeler Mining Company of Maynard District, Arizona, have elected the following officers for the current year: Archibald C. Peachy, President; R. S. Floyd, Vice President; Archibald C. Peachy, R. S. Floyd, W. D. Wheeler, Wm. M. Stewart, Frank Soule, Jr., Trustees; Bank of California, Treasuror; T. W. Colburn, Secretary.

THE South Comstock M. Co. have elected Robert Sherwood, President; J. M. Buffington, Secretary, and John Nelson, Superintendent.

THE Kinston M. Co. havo elected the following Trustees: J. B. Oberton, (President) Geo. D. Roberts, Joseph Napthaly, Maurice Schmidt and L. Greenwell; Louis Kaplan was reelected Secretary.

THE Ingomar S. M. Co. have elected the following Trustees: N. C. Fassett, L. A. Booth, George D. Roberts, P. E. Connor and A. L. Page.

THE Dunderberg Co. have elected the following officers: A. H. Rose, President; E. B. Rail, Vice President, and O. H. Bogart, Secretary.

THE members of the Mechanics' Institute met on the 18th inst. The committeo appointed to make nominations for Trustees, reported the following names: A. S. Hallidie, H. L. Davis, George Spaulding, R. B. Woodward, Asa R. Wells, S. H. Wheeler and A. S. Iredale. The report was adopted, and the meeting tben adjourned. The annual meeting will take place in Juno.

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

ASSESSMENTS.

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	DAY DELINQUENT.	DAY OF SALE
Alleghany Consolidated, Cal. Ap. 20, 25c.	June 3	June 24*
Balto. M. Co., Storey Co., Nev., Ap'l 30, $1.	June 5	June 28
Cascade Blue G. M. Co. Cal. May 15, 20c.	June 18	July 9
Crown Point R. S. M. Co., May 3, $5.	Juno 20	July 20
Daney M. Co., Lyon Co., April 3, $1.50.	May 9	May 27
Eagle Quicksilver, May 8, $40.	July 11	July 15*
El Dorado M. Co., Cal., May 13, 25c.	June 15	July 10
Francis M. Co., Cal., April 6, $1.	May 14	June 4*
Gen. Lee S. M. Co., W. Pine, Ap'l 27, 10c.	June 11	July 2
Golden Chariot, Idaho T., April 13, $1.50.	May 22	June 18
Hid. Treas. M. Co., W. P., May 11, 10c.	June 17	July 8
Hid. Treas. Cons. M. Co., W. P., May 11, 10c.	June 17	July 8
Huhn & Hunt S. M. Co., Nev., Mar. 20, 25c.	Apr. 29	May 27
Ingomar S. M. Co., Ely, April 2, 25c.	May 8	May 31*
Imperatrice Eugenie, Cal., April 26, 25c.	June 2	June 17
Jackson M. Co., Nev., April 3, 25c.	May 6	May 25
Julia G. & S. M. Co., Nev., April 22, $5.	May 25	June 15
Justice M. Co. Storey Co. Nev., $1.	June 24	July 15
Kiucaid Flat, Cal., April 23, $3.	May 27	June 17*
Lemon M. and M. Co., Eureka, Apr 1, $1.	May 7	June 12
Lord Byron G. & S. M. Co., Nev., Apr. 29, 25c.	June 3	June 22
Louise M. Co., Nevada, April 6, 10c.	May 14	June 10
Lyons & Wheeler Co., A. T., April 5, 10c.	May 15	June 3*
Lyon & Wheeler Arizona, May 18, 10c.	June 24	July 15*
Magnolia S. M. Co., Nev., April 22, 25c.	May 25	June 20
Mina Rica M. Co., May 8, 20c.	June 10	July 1*
Minn. G. & S. M. Co., I. T., May 12, $1.50.	June 22	July 20
Ohio Cons. M. Co. Cal., May 21, 10c.	June 20	July 20
Ophir S. M. Co., Nev., April 17, $5.	May 22	June 13
Pacific Borax Co., Nevada, May 4, 20c.	June 6	June 29
Page & Pauaca, Nov. April 12, 50c.	May 20	June 15
Pea Vine S. M. Co., Ely Dist., May 14, 20c.	May 20	July 12
Piermont M. & M. Co., April 16, 40c.	May 20	June 19*
Pride of Mt. M. Co. Nev., May 7, 25c.	June 17	July 10
Rising Star S. M. Co., Idaho, Ap'l 27, $1.	June 1	June 29
S. Gold Hill M. Co., Nev., Apr 1, $2.50.	May 6	May 27
S. F. M. Co., Utah Ter., April 13, 25c.	May 15	June 8*
Silver Sprout M. Co., Cal., April 29, 50c.	June 1	June 22*
Silver Wave, W. P., Nev., Apr. 10, 50c.	May 14	June 13*
Spring Mt. Tunnel Co., April 11, 15c.	May 20	June 10*
Sumner, Kern Co., April 11, $10.	May 22	June 21
Tallulah M. Co., Nev., April 5, $1.50.	May 7	June 4
Tecumseh M. Co., Cal., April 24, $5.	May 29	June 17*
Union G. M. Co., Cal., May 20, $2.59.	June 22	July 9*
Washington M. Co., May 8, $3.	June 11	Juno 29*
Wash. & Creole M. Co., Nev., May 13, 74c.	June 20	July 17
Woodland M. Co., Cal., May 21, 12½c.	June 25	July 16*

MEETINGS TO BE HELD.

Adriatic G. & S. M. Co. ..... Special Meeting, June 8
Alams G. & S. M. Co. ..... Special Meeting, June 4
Bacon M. & M. Co. ..... Annual Meeting, June 4
Bacon M. & M. Co. ..... Special Meeting, June 1
Bowers M. Co. ..... Annual Meeting, May 27
Calaveras Hydraulic M. Co. ..... Annual Meeting, May 29
Confidenco S. M. Co. ..... Special Meeting, June 4
Crown Point M. Co. ..... Annual Meeting, June 3
Del Rey S. M. Co. ..... Special Meeting, June 10
Empire M. & M. Co. ..... Special Meeting, June 8
Empire M. & M. Co. ..... Special Meeting, June 10
Empire M. Co. ..... Special Meeting, June 17
Golden Age & Empire M. Co. ..... Annual Meeting, May 27
Gold Canon Cons. M. Co. ..... Special meeting, May 31
Green G. & S. M. Co. ..... Special Meeting, June 3
Hale & Norcross ..... Special Meeting, May 30
Hartford G. & S. M. Co. ..... Special meeting, May 28
Highland S. M. Co. ..... Annual Meeting, June 4
Independent G. M. Co. ..... Annual Meeting, June 14
Independent Coal M. Co. ..... Annual Meeting, June 17
Imperial S. M. Co. ..... Special meeting, June 3
Julia M. Co. ..... Special Meeting, June 17
Kentuck M. Co. ..... Special Meeting, June 10
Mammoth S. M. Co. ..... Annual Meeting, June 3
Louise M. Co. ..... Annual Meeting, May 25
Minn. G. & S. M. Co. ..... Annual Meeting, June 3
Overman S. M. Co. ..... Special Meeting, June 5
Pocahontas G. M. Co. ..... Special Meeting, June 18
Senator S. M. Co. ..... Special meeting, May 31
Silver Hill M. Co. ..... Annual Meeting, May 27
Silver Sprout M. Co. ..... Special Meeting, June 3*
Silver Sprout M. Co. ..... Annual Meeting, June 25*
St. Louis M. Co. ..... Special Meeting, June 6
Tecumseh G. S. and C. C. ..... Special Meeting, June 12*
Wellington M. Co. ..... Annual Meeting, June 4
William Penu Cons. M. Co. ..... Special Meeting, June 25
Yankee Boy M. Co. ..... Annual Meeting, June 6
Yule Gravel M Co. ..... Annual Meeting, May 30

LATEST DIVIDENDS—(Within Three Months).

Belcher M. Co., $30. ..... Payable May 10
Belcher, $20. ..... Payable April 10
Chollar Potosi, $1. ..... Payable Feb. 10
Crown Point G. & S. M. Co., $40. ..... Payable May 11
Eastport, Coose Bay, Coal M. Co., $5.00. Payable May 13
Eureka Gold M. Co., $1. ..... Payable March 11
Keystone M. Co., $7.50. ..... Payable April 10.
Meadow Valley M. Co., $1.00. ..... Payable May 15
North Star G. M. Co., $7. ..... Payable April 9
Raymond & Ely M. Co., $7. ..... Payable May 6
Yule Gravel M. Co, 50c. ..... Payable May 1

—*Advertised in this journal.

RIPE CURRANTS.—The first ripe currants, or currants fully red if not ripe, put in their appearance in the markets last Tuesday at 25 cents a pound.

PATENTS & INVENTIONS.

Full List of U. S. Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

FOR THE WEEK ENDING MAY 7TH, 1872.

BALING-PRESS.—Frank A. Huntington and John F. Carter, San Francisco, Cal.; antodated April 24, 1872.

FENCE.—Rufus A. Riggs, Salem, Oregon.

FLAG-HOISTING APPARATUS.—John W. Mackenzie, San Francisco, Cal.

MACHINE FOR WASHING GRAIN.—George Copelaud, Denver, Col. Ter.

MACHINE FOR THE MANUFACTURE OF PNEUMATIC GAS.—Alexander Dalrymple Bell, San Francisco, Cal.; assignor to Joseph Wesley Stow, same place.

NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & Co., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than hy any other agency

San Francisco Metal Market.

Corrected weekly by Hooker & Co., 117 and 119 Cal. street

PRICES FOR INVOICES

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

THURSDAY, May 30, 1872

IRON.—			
Scotch Pig Iron, ₱ ton	$19 00	@	— —
White Pig, ₱ ton	52 00	@	— —
Refined Bar, had assortment, ₱ lb	— 05½	@	— 06
Refined Bar, good assortment, ₱ lb	— 06	@	— 07
Boiler, No. 1 to 4	— 05	@	— 06
Plate, No. 5 to 9	— 08	@	— 09
Sheet, No. 10 to 13	— 08½	@	— 09
Sheet, No. 14 to 20	— 07	@	— 09
Sheet, No. 24 to 27	— 06	@	— —
Horse Shoes	8 00	@	
Nail Rod	11		
Norway Iron	9		
Rolled Iron	6		
Other Irons for Blacksmiths, Miners, etc.	5	@	7
COPPER.—			
Sheathing, ₱ lb	— 24	@	— 28
Sheathing, Yellow	— 24	@	— 26
Sheathing, Old Yellow	— 11	@	— 11½
Composition Nails	— 24		— —
Composition Bolts	— 24		— —
TIN PLATES.—			
Plates, Charcoal, IX ₱ box	12 00		— —
Plates, I C Charcoal	10 00		10 50
Roofing Plates	11 00		— —
Banca Tin, Slabs, ₱ lb	—		— 45
STEEL.—English Cast, ₱ lb	— 16		— 17
Drill	16		17
Flat Bar	17		20
Plough Points	3 75		
Russia (for mould boards)	12½		
QUICKSILVER.—₱ lb	— —		— 85
LEAD.—Pig, ₱ lb	— 06		— 06½
Sheet	— 08		— 8½
Pipe	— 9		— 10
Bar	— 08		— 09
ZINC.—Sheets, ₱ lb	— 10		— 10½
BORAX.—Refined	— 25		— 30
Borax, crude	— 5		— —

Leather Market Report.

[Corrected weekly by Dolliver & Bro., No. 109 Post st.]

SAN FRANCISCO, Thnrsday, May 30, 1872.

SOLE LEATHER—The demand is good, with an advance in Eastern market, which will probably soon be felt here.

City Tanned Leather, ₱ lb			26@29
Santa Cruz Leather, ₱ lb			26@29
Country Leather, ₱ lb			25@28
Stockton Leather, ₱ lb			26@28
French skins are firmer with an advance in some grades. Heavy California skins are firm, with an upward tendency.			
Jodot, 6 Kil., per doz	$80	00@	
Jodot, 11 to 19 Kil., per doz	72	00@	90 00
Jodot, second choice, 11 to 15 Kil. ₱ doz	60	00@	76 00
Lemoine, 16 to 18 Kil., ₱ doz	75	00@	77 50
Levin, 12 and 13 Kil., per doz	68	00@	70 00
Cornellian, 16 Kil., per doz	70	00@	
Cornellian, 12 to 14 Kil., per doz	60	00@	68 00
Ogerau Calf, ₱ doz	54	00@	
Simon, 18 Kil., ₱ doz	65	00	
Simon, 20 Kil., ₱ doz	68	00	
Simon, 24 Kil., ₱ doz	72	00	
Robert Calf, 7 and 8 Kil	35	00@	40 00
French Kips, ₱ lb	1	10@	1 30
California Kip, ₱ doz	60	00 to	80 00
French Sheep, all colors, ₱ doz	15	00	
Eastern Calf for Backs, ₱ lb	1	15@	1 25
Sheep Roans for Topping, all colors, ₱ doz	9	00@	13 00
Sheep Roans for Linings, ₱ doz	5	50@	10 50
California Russett Sheep Linings	1	75@	5 50
Best Jodot Calf Boot Legs, ₱ pair	5	25	
Good French Calf Boot Legs, ₱ pair	4	50@	5 00
French Calf Boot Legs, ₱ pair	4	00	
Harness Leather, ₱ lb		30@	37½
Fair Bridle Leather, ₱ doz	48	00@	72 00
Skirting Leather, ₱ lb		34@	37½
Welt Leather, ₱ doz	30	00@	50 00
Buff Leather, ₱ foot		18@	21
Wax Side Leather, ₱ foot		20@	22

MINING ACCIDENTS.—A miner working in the Caledonia shaft was very severely injured, on the 16th inst., while endeavoring to lower a cage wheel which had stuck in the main shaft. The *Territorial Enterprise* says that the cage generally used was broken, and an old one which did not fit was put in its place. Thirty feet from the bottom it stuck fast and considerable cable was paid out on the roof. The miner went down to loosen it and instead of having the slack cable raised jumped on the cage, which gave way and fell with him to the bottom of the shaft. His right arm was broken, he received a severe cut on the head, and one eye was badly injured.

The Pioche *Record* says that Jacob Ackerly, employed by the Meadow Valley Co., jumped from a ladder on to some picks, which he had previously thrown into the drift, and ran the point of one into his foot, inflicting a painful wound.

Joseph Purdy was caved on in the claim of Holman & Co., accordiug to the Weaverville *Journal* of the 18th, hut was dug out without serious injury.

IN Wurttemberg, in a triangular section of land, with corners at Rottenburg, Göppingen and Gundelsheim, there are three million fruit trees in 1,050 square miles (English). With a population of 430 persons to the mile, there comes 6¼ trees per head, with an average yield of nearly three hundred weight of fruit.

Pacific Coast Products, and Their Future Market.

[By Prof. E. S. Carr—Written specially for the Pacific Coast Mercantile Director.]

California, with but little more than 500,000 inhabitants, or one and one-half per cent. of the National population, ranking in this respect as the twenty-fourth State in the Union, in the amount paid to the support of the government as *income tax*, ranks as the fourth. The assessed value of property owned in 1870, was: real estate, $176,527,180; personal, $93-116,908. Total, $269,644,088. On an actual value of $394,517,784 real, $234-270,233 personal, or a total of $628,788,017.

In estimating the prospective development of California we must add to the factors natural wealth, population and property—what carefully gathered facts show concerning the variety of her industries, and the characteristics of her people.

What is California Producing?

Answering this question as briefly as possible, and somewhat retrospectively, we have first, *gold*, of which in the last twenty-five years she has produced more than all the rest of the world. Though it is estimated that seven-eighths of the gold now in use in the country has come from her mines, these vast tributaries to the world's progress are by no means exhausted.

The actual decline in the gold product, and the depreciation of the value of mining property is owing to the discovery of valuable deposits of treasure in neighboring States, which have attracted the roving mining population, and to the diversion of labor and capital into other channels, rather than to impoverishment. The value of the gold produced in California in the year 1870, as reported by the leading newspapers, was $23,000,000; of silver, (exclusive of that counted as part of the gold yield), $1,000,000; of quicksilver, $1,500,000; of coal, $1,000,000; miscellaneous minerals, $500,000, making an aggregate of $27,000,000, or fifteen per cent. of the total annual value of the Industrial products of the State. Besides this we exported ores, *which ought to have been smelted here*, to the value of $1,064,671. The export of treasure this year, for the quarter ending April 1st, exceede that of last year by a million of dollars, not including any of that which goee east by rail directly from the minee.

Total for 1871	$3,979,278.19
Add duties, net	1,528,864.48
Net	$5,508,142.57
Total for 1872	$4,833,684.02
Add duties, net	1,137,810.01
Net	$6,031,494.03

This treasure finds its market as follows:

China	$1,747,245.00
Central American Ports	196,223.09
England	878,640.31
Japan	1,337,757.43
New York	1,052,816.19
Peru	500,000.00
Mexico	10,000.00
East Indies	170,000.00

The Japanese Government which took only $20,590 from ue last year, is requiring a large amount for its mint, and will not complete its re-coining for several years to come.

The destination of the quickeilver and copper exported during the laet quarter, is taken from the oommercial statistics of the port of San Francieco.

Quicksilver.

	Flasks	Value
New York	502	$39,119
Mexico	335	21,110
Australia	200	13,005
China	6,300	84,062
Callao	300	19,508
Total	2,737	$195,804

Copper Ore.

Great Britain	585	$35,257

Increase over same quarter 1871, $14-620.

Forty-five per cent. of the total annual value of California's products is derived from her *agriculture*.

After a careful compariecn of the report of the Federal Commission of agriculture 1868-9, with that of the State Surveyor General, and with the receipts of domestic produce at San Francisco from July 1st, 1869, to April 3d, 1870, compared with the same period of the previous harvest year, the value of these in 1870 was estimated at $89,000,000, classed as follows:

Cereals (33,788,418 bush. at from $1 to $1 05 per bush.)	$33,080,860
Hay, (388,133 tons at $15 per ton)	5,821,990
Potatoes, peas, beans, and root crops	1,500,000
Kitchen vegetables, sweet potatoes, and all products of that class	5,688,270
Fruit trees and vines	8,250,000
Domestic animals (increase and produce of	15,346,000
Improvements on farms by agricultural labor	20,000,000
Total	$89,000,000

In the years 1868-9, there were 2,132,150 acres under cultivation, and 4,463,127 acres enclosed. In the year 1870, there was more than 1,000,000 of acres *sown to wheat*; in 1871, 1,478,891 acres, yielding 17,288,544 bushels.

The unfavorable character of the last two seasons has temporarily depressed the wheat growing interest, which during the next few years must assume enormoue proportions, because it will continue to yield the largest return upon the amount of investment both in capital and unskilled labor which it employs. The available wheat lands of California now amount to five and a half millions of acres, which will without doubt be increased by reclamation, railroad facilities, etc., to 13,000,000 acres. It is a reasonable expectation that wheat growing will be developed to one-half ite ultimate capacity in the next twenty years mostly by the plaiu farming hitherto employed which gives an average return of 17 bushels to the acre. Our best resulte as showu by *country* statistics fall twenty per cent. below the average yield in England. Wheat *culture* worthy of the name, would double these figures.

What Does this Great Staple Cost?

By careful estimates made in the San Joaquin valley, where the best facilities for culture exist, the cost of putting in and harvesting one thousand acree may be stated thus: Ploughing, $395; sowing, $25.60; harrowiug, $58.28; heading, $232.38; threshing, $220; sacks, $1,950; hauling, $375; machinery, $150; seed, $1,000. Total, $4,406.26. A crop of twenty bushels to the acre, (which is a low estimate for that district in a good year) would give a yield of 20,000 bushels.

Mr. Moseley of Stockton estimates the wheat product of the San Joaquin valley counties as far south as Tulare for this year at 13,500,000 bushels, at an average of twelve bushele to the acre. Another eetimate of twenty-three counties with the San Joaquin valley with wheat at $1.00 per bushel and barley at 75 cents, gives the value of the two crops thus, wheat, $28,000,000; barley, $7,354,500. Total, $37,054,500.

Friedlander's estimate is that we shall have 12,000,000 centals or 20,000,000 bushels of wheat for export, worth at $1 per bushel, $20,000,000 in cash, enough to tax our facilities for transportation to the utmost.

In the year 1870 the United States exported to foreign countries, as shown by the Annual Report on Commerce aud Navigation, 36,584,115 bushele of wheat, worth $47,171,229. Also 3,463,333 barrels of wheat flour, worth $21,169,593.

The annexed table will show where the great markets of the world for this staple are to be found and their relative importance.

Amount of wheat and wheat flour exported from the United States in 1870, acoording to the Annual Report of Commerce and Navigation, is as follows:

	WHEAT		WHEAT FLOUR	
Names of Countries.	*No. Bush.*	*Value.*	*Barrels.*	*Value.*
To Australia	78,398	$82,182	62,260	$308,007
To China, Hongkong and Singapore	51,805	55,395	169,991	782,557
To Japan	14,470	15,178	20,014	104,284
To Sandwich Islands	987	886	8,557	42,620
To England	21,779,373	28,024,755	932,808	5,190,881
To Scotland	2,308,300	3,053,868	297,520	1,759,439
To Irelsnd	3,699,935	5,225,061	58,623	351,568

What Does it Cost to Move this Crop.

From San Francisco to Liverpool, before the opening of the railroad, the cost was estimated at 40 cents, in gold per bushel. For the entire wheat region of the State to San Francisco it may be put at 20 cents a bushel, including handling, warehousing, and all other expenees. From the field to the English dock, one year with another, it costs 60 cents per bushel, and brings in that market 30 per cent. higher than any other American. The cost of transportation from Iowa to Liverpool is $1.25 per bushel. Our wheat costs in the English market nearly the same as the best Russian, the only grain which equals it in excellence. The cost of eending our grain to China, is $3 per ton.

Barley and Other Products.

California ie the first barley-producing state in the Union. The last official report showed 696,001 acres sown, producing 9,570,321 bushels. Of other grains there were oats, 113,269 acres, producing 3,714,480 bushels; rye 3,692 acres, producing 20,-795 bushels; corn, 57,364 acres, producing 1,434,317 bushels; buckwheat, 803 acres, producing 13,479 bushels. Of minor farm products, peas, 94,106 bushels; castor heans, 682,325 pounds; potatoes, 3,092,177 bushels; sweet potatoes, 173,-405 bushels; peanuts, 193,304 pounds; beans 503,201 buehels. Of hay, 460,018 acres, producing 685,446 tons.

Taking the exportatiou for the quarter ending March 31st, 1872, as a basis, Mexico is the largest foreign consumer of our barley, the Sandwich Islands and British Columbia of our oats. Both China aud Japan are increasing their demand for these staples.

Hop Culture has been very profitable in California owing to failuree of the crop in the Eastern Statee and Europe. Eastern buyers have shipped 3,000 balés overland during the past year. Japan will prove an excellent market for all the hops which we can raise.

Flax Culture has been steadily increasing with us. From the demand for flax straw for bagging purposes, 7,376 acres were planted last year producing 760,700 pounds of seed, which finds its present market in mills of San Francisco.

Beet Culture may hereafter be considered as one of our most important industries, as it will relieve an immense drain upon our resources. The average annual importation of eugar into the port of San Francisco is something more than 50,-000,000 pounds, worth, dutiee paid, about $5,000,000. Should the euccess of the Alvarado Beet Sugar Co., who manufactured one and one-quarter millions of pounds of sugar of the finest quality last year, (worth $150,000 in San Francisco), inspire our farmers to co-operate in the production of this important luxury, we can easily retain the value of 300,000 acres of wheat which goee out of the State to purchase an article in no respect superior to our own. For thie product our market is at our own door.

Dairy Products.

The late shipmeut east of 60,000 pounds of choice table butter is one of the most significant indications of progress iu California. The produce of last year was estimated at 4,419,627 pounds of butter, and 5,488,266 pounds of cheese. One-third of this is made in Marin county. Shasta county, one of the best dairy countiee in the State, is not included in the above report. There can be no doubt that dairy farming is destined to become one of the most profitable eources of wealth to the State.

The Product of Our Vineyards.

The raising of grapee and manufacture of wine and brandy hae been brought to a degree of perfection, which places the present and prospective value of this industry beyond cavil. Our wines have received the highest encomiums from competent judges both in the Eastern States and in Europe, and their reputation is uow beyond injury from liquor speculators, or unskilled manufacturers. They have to compete in our home market with "traveled" winee, which we are childish enough to import at a cost to ourselves of more than $550,000 dollars, while wo eend one-half of our own product to the Eastern States, and our own champagne manufacturers are unable to supply the Eastern and foreign demand. Last year we produced eix million gallone of wine, worth $3,606,000, and one hundred and fifty thoueand gallons of brandy worth, dutiee unpaid, $112,500. This year we ehall produce from eight to ten million gallons of wine, worth at least, $4,500,000, with not lees than 200,000 gallons of brandy worth $150,000.

Our markets will be the following pointe, named in the order of their commercial importance: New York, (which took from one firm in the years 1871-72, 476,814 gallone, costing $375,520), Central America, British Columbia, Russian Asia, Mexico, Japan, China, Honolulu, Liverpool, Tahiti, Australia and New Zealand.

Wool.

It was not nntil 1854 that the breeding of fine wooled eheep commenced in California, ever since theu the quality of this product has been becoming more valuable, until at present the finest pasture ranches in the State are covered with flocks. In 1860 there were 900,000 sheep in the State, there are now 3,178,671. The censue returns ehow that the largeet proportional increase of the wool product of the country has beeu here, the last clip amounting to 17,565,935 pounds. Nearly all our manufactured wool finds a market in the Eastern States; its value last year amonnted to $2,000,000.

The present prospect is that our spring and fall wool clips will yield 30,000,000 pounds, and that the average value in gold will be about 40 cte. per pound, (that now coming in from the southern counties is selling at 41 cts.) making its aggregate value $12,000,000. The fruit and grape crops promise abundantly. It has been computed that the aggregate agricultural and horticultural products of 1872, uot countiug beef, pork, butter and cheese, will be worth not less than $53,000,000, of which $35,000,000 will be exported.

According to the estimates of 1870 before referred to, our manufacturee repreeent 40 per cent. of our prodnctione. During that year we exported lumber, ehingles and other foreet products, bricks, brooms, blankets, billiard tables, glue, cigare, machinery and iron work, barrels of flour, bread and crackers, with emall quautities of miscellaneous articles to the value of $2,202,205, also fish, to the value of nearly or quite $100,000. The product of the soap root, used as a substitute for horee hair was valued at $100,000.

I have already exceeded the limits proposed to myeelf in this article. Of the United States imports for 1871 from foreign countries, $13,099,687, went to pay for productione which California can grow and manufacture with unequalled facility. The sugar, butter, wine, raisins, etarch, olive oil, tobacco, eoap, imported to this State should have been produced at home. We are consuming 300,000,000 pounds of rice, with excellent rice lands undeveloped. Our ores should be reduced, our wool and leather ehould be manufactured here. The machinery for our minee, railroads, steamships, and the shipe themselves ehould be made here. All these things are needed to make us the eommercial centre of the Pacific countries.

Iron and Steel.

The immense advance in the price of all kiuds of iron within a comparatively short space of time, has taken part of the commercial world by surprise; hut it could not have hcen entirely unexpected by any one who had watched the current of events. For the past ten years, the influcnce predominaut in the commercial world aud in the social state of Europe, have heeu tendiug slowly hut surely in this direction. The immense development of the manufactures of which the raw material is iron, the extension of its consumption over vast regions where it was but hitherto little used, the rise iu wages and in general prices, and the result of the competition amougst the producers of pig iron, have all concurred in bringing ahout the present high prices. The construction of the Crystal Palace in Londou in 1851, having all the frame-work of iron, suggested a new use for that metal. Since then it has heen used extensively as a material for house-huilding, for supporting pillars, stairways, etc., for sidewalks and bridges. And siuce then, the railroad system of the world, which ahsorhs such au immense quantity of iron, may he said to have heen laid down. And new uses are heing found for it every day; the steamships of the world are now heing built of it. Then, duriug the last thirty years, the cousumption in the United Statcs has increased in a tenfold degree; where a thousand tons was used, six thousand is now used, and in this city, one house imports as much as the whole eight did, ten years ago. Then the iron trade of England with Australia. Southern Africa and India has grown up siuce. Thousands of milcs of railroad are constantly in course of construction in the latter country, as the cost of labor is next to nothing, and hundreds of ships leave England for it, freighted with iron, every year. Egypt has lately ahsorhed large quantities; Persia is heginniug to ahsorb foreign iron, and the quantity taken hy Russia from England for the great railway system, is simply enormous. Wages and the prices of necessaries of life have arisen greatly during the decade, and the competition hoth between producers and sellers of iron has heen excessive. Hence, during 1871, the workmen in Europe came to the conclusion of ceasing to work at the rates at which they had heen previously employed, aud notified their masters to that effect. The latter promised them an advance after the new year, and that promise has heen kept. The stocks have heen low, as the manufacturers did not feel justified in keeping them up, on account of the unsatisfactory state of the market, at least this is what is alleged; certaiu it is that stocks are low, that they have been purposely kept so, and that orders are now high and cannot he satisfied.

The Largest Stove Foundry.—The stove foundry of Jewett & Root, Buffalo, is said to he the largest in the world. The great stove warehouse is 100 hy 150 feet, and has seveu floors, all, except the grouud floor and sample floor, heing piled with ever dcscription of stove. (They have 250 distinct sets of patterns.) The foundry gives employment to 450 men, consumes from 40 to 55 tons of pig iron every day, and turnes out ahout 60,000 stoves a year.

Gas.—In 1860, there were 810 gas companies in England aud Wales, 141 in Scotland and 64 in Ireland. The average price charged was $1.80 per 1,000 cu. ft. Iu 1863, there were 433 gas companies iu the United Statcs, the price charged per 1,000 cu. ft., varying from $1.50 in Pittsburg, Pa., to $12.50 at Marysville, Cal.

Still Burning.—It is said several large coalpiles in Chicago have never heen extiuguished since the great fire.

Useful Information.

Ventilation—A Field for Invention.

We have made little progress in this country in the art of ventilating dwellings and public edifices. If a contract is given out for the construction of a costly house, it is as ten to one that the builder will make no provision whatever for ventilation, and if he follows his own notions he will not even secure the advantages of a good light. Now and then an architect of advanced ideas insists on ventilation and tolerable acoustic advantages for public edifices. It is estimated and we believe truthfully, that 35 per cent. of the diseases of cities are caused by improper trapping of waste pipes in houses, and of bad or altogether neglected ventilation in bed-rooms and sitting-rooms. Proximity of parlors and dining-rooms to the cold and damp ground underneath is also a prolific cause of household disease among women and children. The perfect dwelling is an invention rather of the future than of the present. It will have perfect ventilation for every room, cross lights will be avoided, the warming apparatus will be something else than close stoves, and the kitchen will be so isolated or otherwise arranged that the odors of that department will not pervade the whole house.

Sanitary considerations will have the first place, from the choosing of a site to the driving of the last nail. A house without proper drainage will be avoided as little more desirable than a pest house.

It is an open question whether the model house of the future will be furnished with gas-lights or carpets. If gas is tolerated, it will be of some standard quality, and there will be such perfect combustion that books and pictures will not be ruined. Carpets will either go by the board or the score of health, or will appear in the modified form of mats which are removed or changed every day. It may be a long way to the attainment of all these improvements. It ought not be a long way to a perfect system of house ventilation.—*Bulletin.*—

How to Make a Cheap Cellar Bottom.

In sections of the country where there is an abundance of cobble-stones, collect a few loads of them about four or five inches in diameter, grade the bottom of the cellar, lay the cobbles in rows, and ram them down one-third their thickness into the ground, so that they will not rock nor be sunk below the line of the rows by any heavy superincumbent pressure. The bottom of the cellar should be graded so that the outside will be at least two inches lower than the middle. A mistake sometimes occurs by grading the cellar bottom in such a manner that the center will be two or three inches lower than the outside. When this is the case, should water enter from the outside, it will flow directly towards the middle. A straight edged board should be placed frequently on each row of stones as they are being rammed, so that the upper sides may be in a line with each other. After the stones are laid and well rammed down place a few boards on the pavement to walk on; then making a grouting of clean sand and water lime, or Rosendale cement, and pour it on the stones until all the interstices are filled. As soon as the grouting has set, spread a layer of good cement mortar one inch thick over the top of the pavement, and trowel the surface off smoothly. In order to spread the mortar true and even on the surface, lay an inch board one foot from the wall on the surface of the pavement, stand on the board, and fill the space with mortar even with the top of the board; after which, move the board one foot, fill the space with mortar, and trowel it off smoothly. Such a floor will cost less than a board floor, and will endure as long as the superstructure is kept in repair.

A floor made in the foregoing manner on the ground in the basement of a barn, a piggery, or a stable, would be rat proof, and would be found cheaper and more serviceable than a plank floor.

A Mammoth Aquarium.—Dr. Anton Dorhn, in a letter to Professor Agassiz, writes that he has matured a plan of establishing a large laboratory for marine zoölogy in the Mediterranean. He has obtained permission of the authorities of the city of Naples to construct a large building, at his own expense, in the Villa Reale, at Naples, close to the sea containing a large aquarium of the public, and extensive rooms for naturalists of every country. Dr. Dohrn, with two or three other German zoölogists, will settle there, and conduct the administration of both the aquarium and the laboratories. He wishes information regarding this proposed laboratory to be widely extended, and earnestly invites all who may visit Naples to visit the aquarium. An annual report of the work done and the progress made at the zoölogical station will be published. A committee has already been formed to give further dignity and importance to this project, consisting of Messrs. Helmholtz, Dubois-Reymond, Huxley, Darwin, Van Beneden, etc, and, in America, Professor Agassiz.—*Once a Week.*

A Flying Dragon.—Among the remains discovered last year in Kansas by Professor Marsh and party were bones of the flying dragon. Professor Marsh judges that the dragons, to whom these fragments of bone belonged, must have measured, from tip to tip of their extended wings, some twenty feet.

Light, Heat, and Electricity from Motion.

The celebrated Jacob Perkins when in London, in 1837, exhibited at the Adelaide Gallery the phenomena produced by the contact of soft iron with steel in motion, which he described at the time as follows:

"The action of a soft iron disk upon hard steel, such as a file, is exhibited four times a day. This has been regularly kept up for three years, yet it has undergone very little wear. I am of opinion, in fact, that if the file had never been held upon it until it had attained its full velocity, there would not have been any loss of metal. I do not know to what extent the combustion of steel by soft iron may have been carried in the United States, but our experiments are so brilliant as to excite the highest admiration, and to induce numbers to repeat their visits to the Gallery. Our disk is a foot in diameter and an eighth of an inch thick. It requires about a three-horse power to drive it, and revolves about 6,000 times in a minute. It is very accurately fitted up with friction wheels. The blaze of light, which rises about twelve inches, perpendicularly, from the point of contact, is so vivid that few persons can look steadily at it even at noon day. The stream of light is about an inch and a half thick at the distance of a few inches from the point of contact; and at the distance of seven or eight feet, it spreads out to about ten inches. The sparks not unfrequently touch the ceiling, which is about twenty feet high; a ring of fire is seen all around the disk, appearing like a band of light about five-eighths of an inch wide. Of what does this light consist? It is manifestly different from that of the sparks, which all fly off in a tangent. In operating with the disk, it never becomes warm; the file, however, has to be held at least two inches from the sharp end, as it becomes highly heated. The whole appearance, in fact, is very interesting, and when fully investigated, I am well convinced that some of the phenomena will no feund to depend upon electricity."

Origin of Lager Beer.—The German words lager beer signify stock beer—i. e., beer that has been stowed away. The story, as told in Germany is an old one, and runs thus: Many years ago, a shoemaker near Bamburg, sent his apprentice to get a bottle of Bamburg beer, which was sold at that place; but the boy not knowing this, went to the city itself. On returning he met an acquaintance of his who told him that when he would come home his boss would whip him for staying so long. The poor boy who was frightened at this, thought it better no to go home at all, but took his bottle, buried it under a tree, and ran away. He went among the soldiers, where he distinguished himself so that in a short time he became an officer. When one day his regiment was quartered in this little town, the officer thought it proper to pay a visit to his old boss, but not before he had got the bottle of beer which he had buried some years before under the tree. When he entered he said, "Well, sir, here I bring you your bottle of Bamburg beer that you sent me for." The shoemaker not knowing what this meant, was told by the officer all about it. The bottle was opened, and the beer was found to be of superior quality. When this fact was made known, some of the brewers built deep vaults, where they put their beer, and called it after it had lain some time, lager, which did not mean anything more than lying. The officer afterward married the daughter of the shoemaker, and drank a good deal of lager beer, receiving in his occupation the assistance of his father-in-law.

An Ancient of the Earth.—An almost entire human skeleton, fossilized, has been found in Hungary, together with a stone hammer, in a geological formation, indicating that the living man existed long before the mammoth age. The contemporaneity of man with the mastodon had before been pretty well established by discoveries in the lacustrine deposits and bone caves of Europe, including a tolerably well carved image of the mammoth on a piece of bone. All recent researches establish for man an antiquity so remote that the period in years cannot be calculated. The evidences on this score that have been accumulated in California are particularly numerous and convincing, and will astonish the world when collectively presented.

Plumagery.—The most skillful use of plumagery there is any record of, seems to have been practiced in Canton, China, long before that country was well known to outside barbarians. Bird's feathers were woven into cloth which was called, in the native vernacular, goose-velvet. The foundation of the fabric was silk, into which the feathers were skillfully and ingeniously woven, on a common loom, and it seems to have made the most elegant appearing cloth for a garment ever produced. We saw a sample of it some years ago, in the hands of a missionary, who was informed that its manufacture had been discontinued many years before.

Household Utensils of Paper.—In Pearl street, New York, there is a mill which makes from paper such articles as milk-pans, cups, bread-pans, wash-bowls, etc., which are said to be superior to wood or metal. The paper after being pulped, is pressed into shape, dried, enameled, and subjected to a heat that would destroy some utensils of the kind. The material is light and easily handled, and does not rust, shrink, leak or easily break.

Good Health.

The Cause of Hunger.

When the system begins to need nutriment, it sends a fluid from every portion of the body toward the stomach, where it accumulates in little reservoirs, the distension of which causes the sensation of hunger; the fuller they become, the more hungry are we. This fluid not only gives notice that food is needed, but it has the power of dissolving it, as water dissolves sugar, and thus prepares it for yielding its nutriment to the system. If, therefore, a person eats without an appetite; without being hungry, there being none of that dissolving fluid in the stomach, the food is not dissolved, does not undergo any healthy change; on the contrary, being kept up to the stomach heat of about a hundred degrees, it soon begins to ferment, to decay, to rot; if meat, it literally becomes carion; if vegetable, it sours; in either case, generating gas and wind, causing unseemly belchings and noisome eructations, or these gases, being confined, distend the stomach, causing pressure against the nerves, originating various pains and discomforts more or less distressing, to last sometimes for hours or half a night, preventing refreshing sleep, to be followed by a day of general discomfort and unfitness for business. Sometimes the stomach becomes so distended with wind that it crowds up against the lungs, preventing them from receiving their proper amount of air, and there follows a distressing feeling of impending suffocation. These same effects follow when too much food is eaten, more than there is fluid in the stomach to dissolve.—*Dr. Hall.*

Education and Health.—It is impossible that the mass of men can be healthy, and so moral and successful, without some knowledge of their structure, and of its laws, which they must obey or suffer. How can a young woman be called educated who is ignorant of physiology, of her duties as a mother, of the divine art of nursing? How many men know anything of the relations of waste and supply in the nervous economy? Why, not one man in a hundred knows even what the stomach is made for, and the other ninety-nine are constantly transgressing rules they have never learned. We may take the old parable of the apple in the garden as an illustration of the way men's stomachs make havoc with their moral sense. Not one man in a hundred knows or suspects that God made the air to be breathed. Every part of his house may be reeking with miasma, the cellar full of all evil, the partitions clotted with dormant mischief, and he never dreams of it, but goes on nailing down his windows and listing his doors. If we could only see the air we have once breathed over! Even the architects of our public halls and theatres and churches have the crudest notions of ventilation.—*Henry Ward Beecher.*

Sleeplessness and the Remedy.—The best anodyne is a liberal amount of muscular activity out of doors every day. Persons who sit around the fire and lounge on the sofa, or read or sew a great part of the day, need not expect sound sleep; only the laboring man can taste it in all its sweetness. Many fail to sleep at night because they will persist in sleeping in the day time. It is just as impossible to healthfully force more sleep on the system than the proportion of exercise requires, as to force the stomach to digest more food than the body requires. Rather than court sleep by industrious activities, many persons resort to medicine, and every new drug which is heralded as a promoter of sleep becomes at once immensely popular, even though it is known to possess dangerous qualities. Chloral hydrate has had a great run, and even young men are known to be purchasing it at the drug stores, to be used in promoting sleep; it should never be taken unless advised by the family physician, for the medical journals are constantly publishing cases where serious harm and even fatal results attend its habitual use.—*Journal of Health.*

Dark Rooms — Sunshine.—Windows were originally intended to let in light and air. Modern housekeepers, however, from the mansions of the wealthy to the cabins of the very poor, vie with each other in shutting out the blessed sunshine and pure air. Windows are studiously curtained, double, dark, and very generally closed. Let the shades run up easily on rollers attached to the sash, and the sash always dropped an inch or two.

Sunlight is an element of life. It decomposes and scatters, in connection with pure air, these death seeds. When fevers are epidemic, in large cities, or in wards of hospitals, the sunless rooms and sides of streets report a much larger number of deaths than ever found where sunshine can enter, even for one hour a day. Is it from indolence or ignorance, or sheer thoughtlessness, that the people seem to study how to shut out the sunshine? Blinds and vines, curtains and draperies, are used to bar the entrance of the life-preserving sunshine. Death lurks in darkness. Even the potato vine cannot thrive in a sunless cellar.—*Journal of Health.*

Heat of the Body.—Warm weather is coming; we need less internal heat; and as this internal heat comes from the food we eat, we do not need as much food: hence, like a watchful mother, Nature takes away our appetite, so that we may not eat so much as before, to burn us with fever.—*Dr. Hall.*

How to Cure Stammering.

Lute A. Taylor, of the La Crosse (Wis.) *Leader*, who has been an inveterate stammerer, writes as follows about the way to cure the habit: "No stammering person ever found any difficulty in singing. The reason of this is that by observing the measure of the music—by keeping time—the organs of speech are kept in such position that enunciation is easy. Apply the same rule to reading or speech, and the same result will follow. Let the stammerer take a sentence, say this one—'Leander swam the Hellespont'—and pronounce it by syllables, keeping time with his finger, letting each syllable occupy the same time, thus: Le—an—der—swam—the—Hel—les—pont, and he will not stammer. Let him pronounce slowly at first, then faster, but still keeping time, keeping time with words instead of syllables, and he will be surprised to find that, by very little practice, he will read without stammering, and nearly as rapidly as persons ordinarily talk or read. Then practice this in reading and conversation until the habit is broken up. Perseverance and attention is all that is necessary to perform a perfect cure."

Warm Bath in Insanity, and in Burns.—Dr. Wilkins, in his *Report* to the California Legislature, on Insanity, refers to the warm bath as a favorite treatment in Italy and in some parts of Holland and France. He often saw a dozen patients in one bath-room with their heads alone in sight, the bathing tub being covered except a hole for the head. There they usually remain from one to three hours, in some instances six to eight hours, and occasionally for days at a time. Dr. Guddeu, of Zurich, kept a man thus immersed for five days, on account of a high state of excitement connected with bed-sores. The patient is represented to have slept well a portion of the time, and to have been cured of the sores. No exhaustion or ill consequences followed. A case is related of a man scalded by steam, and not insane, who was placed by Hebra in a tepid bath and kept there for three weeks, until a new cuticle had formed over the entire surface. This patient recovered without inconvenience. The water was kept at the temperature most agreeable to the patient. Thus employed it is said to relieve effectually the extreme pain from the burns.

Decay of the Teeth.—The acids which cause the decay of the teeth are conveyed in the secretions of the gums and the mucous membrane of the lips and cheeks; and the usual points of attack are in the interstices and the groove in the facial walls of the teeth. The calcularly nature of the saliva is antagonistic to the acids and preserves the teeth from their dilapidating influence. Teeth are protected from this disease by the following conditions: Their irregular shape and order that the situations for the deposit of acid be as few as possible; the conservation of the teeth from noxious influences by constant brushing; the healthy structure of the tooth itself and of the mouth generally. Heider observed that the yellowish white teeth are less subject to the attacks of caries than those of a bluish shade, the enamel of the former being much harder; and the molars have been found to contain more mineral substance than the incisors.

Sunshine and Sleep.—Sleepless people—and there are many in America—should court the sun. The very worst soporific is laudanum, and the very best, sunshine. Therefore, it is very plain that poor sleepers should pass as many hours as possible in sunshine, and as few as possible in the shade. Many women are martyrs, and yet they do not know it. They shut the sunshine out of their houses and their hearts, they wear vails, they carry parasols, they do all possible to keep off the subtlest and yet most potent influence which is intended to give them strength and beauty and cheerfulness. Is it not time to change all this, and so get color and roses in your pale cheeks, strength in our weak backs, and courage in our timid souls? The women of America are pale and delicate; they may be blooming and strong, and the sunlight will be a poteut aid in this transformation.

Embalming.—The art of petrifying the human body is said to have reached a high state of perfection at the hands of the Italian professors. They can render the body like stone, or by immersion in certain liquids it seems only to be asleep. Gozini, of Genoa, has a curious museum of humanity petrified, well worth seeing. The ancients mummified, but that changed the appearance, while this process leaves the subject life-like in appearance. The body of Mazzini is to be so preserved.—*Ex.*

The art of embalming has probably been brought to as high a state of perfection in this city as ever at any time at any part of the world. The process here employed leaves the body in a perfectly natural state—the color upon the cheeks and lips, and and even the delicate pink upon the finger nails is brought back, after death, almost, or quite as natural as in life.

Eating.—It is a great mistake to suppose that the more one eats the stronger he becomes. Gourmands are not giants. We gain in strength in proportion as the food eaten is digested, assimilated and converted into new and perfect material. Intemperance in eating is only more common than intemperance in drinking; but, according to the Latin proverb—"*Plures crapulâ, quamgladious*—"Gluttony kills more than the sword."

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Illustrations and Reports of Mining Enterprises Wanted.—Drawings or photographs of mining works that are of general interest to our readers are solicited for publication in this journal. Official reports of Companies, and description of mines of importance, or of special interest, are also desired. Sketches of any new method and discoveries will be very acceptable.

San Francisco:

Saturday Morning, May 25, 1872.

Gold and Legal Tender Rates.

San Francisco, Wednesday, May 22, 1872.—Legal Tenders buying, 89; selling, 90. Gold in New York to-day, 114.

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British Columbia Items.—On Williams Creek the Cariboo Company are at work, and the Ballarat and Forest Rose companies are idle, but will resume work shortly On Harvey Creek all the companies are preparing for summer work. News from the new Omineca is meagre, but it is expected that the camp will he very lively this summer and $7 per day is expected to be paid for labor. Some of the claims are making expenses, but with the exception of a strike made a few miles above Germansen, which paid two ounces to the hand, and only two feet to bed rock, nothing big has been struck. Provisions are high.

Nevada Borax.—The borax fields of Nevada are at length attracting attention abroad, and parties in Europe have recently been making inquiries in regard to them. It is stated that there are at least 3,000 acres in Esmeralda county, the deposits on which vary from half an inch to three feet in thickness.

Railroad Party.—The train containing the Directors of the Pennsylvania Central Railroad arrived here on the 17th instant. The excursion is under the direction of J. Couthony, of the Pullman Palace Car Company. The excursion is one of pleasure only, and the party will visit Yosemite Valley, the Big Trees, and other points of interest in the State before their return.

The members of the American Society for the advancement of Science are expected to arrive in this city about the first of August.

Mining as an Investment.

It is unfortunate for the mining interests of the Pacific Coast that the difference between mining with the pick, gad and shovel, and mining with certificates of stock is not more generally recognized. The fascination of gaining sudden wealth in "stocks" is very great, especially to those of small means who fail to see why they have not an equal chance with the capitalist in proportion to their investment. Those who are familiar with the ways and means of mining capitalists, "rings" and brokers could tell them why; but a deaf ear is turned to all advice and remonstrance. A good many think they have "reliable information," supposed to be known to the favored few, but they show their stupidity hy not being aware that this "reliahle information" dodge is one of the most powerful tools used by "mining sharps" to rid themselves of stock about to fall. The temptation of large returns for small investments is alluring although the man of business recognizes the fact that high interest and bad security go hand in hand.

The dangers incident to stock speculation should be seriously considered by small operators, for it is a business in which advantages of any kind may he taken by dealers, since it has become by popular consent and custom to be looked upon not only as honorable, but, since in our day success is the criterion of merit, the capitalist who has notoriously amassed his wealth hy sharp practice and at the expense of hundreds of others, is regarded, like Merdle in "Little Dorrit," no matter what his social characteristics may be, as one who has shown marked ability, and whose acquaintance should be cultivated. This speculative mania has wrought a pernicious influence in the community, while the mines that have been its objective point have neither been injured or improved by the reputation which the value of their stocks have given them.

The Business of Mining

Legitimately conducted, is one peculisrly suited to the people of this coast since it promises large returns and embraces so wide a field. If we can only succeed in awakening a deeper interest in it *as a business* among our capitalists, it will not only realize extensive returns to them but afford employment and profit to the industrious laboring classes. By this we mean mining—quite apart from any speculstive operations in stock, for while we desire to encourage legitimate mining enterprises, mere speculation should be discouraged.

The question will be asked by some who have been victimized in large companies, why are there so many failures, and why are so small a proportion of the mines called at the Stock Board dividend-paying? If the men who ask these questions were interested enough to take a trip through a few districts where hard-working miners are developing their own claims, and then return to San Francisco and get a few points concerning the management of large companies, the conclusion they would he compelled to draw would answer the questions satisfactorily. Moreover, the proportion of amount of dividends and assessments should he taken into consideration before any rash assertions are made. This month, for instance, 11 assessments so far have been made, and only five dividends have heen paid by mining companies called at our Stock Boards. The five dividends amount in the aggregate to $1,067,000, and the eleven assessments amount in the aggregate to $351,750, leaving a clear gain in favor of stockholders of $715,250. When the two sides are represented in figures, which are matters of fact, even now when mining is seemingly in disgrace because stocks are low, the account balances very favorably.

The great mistake has been that quartz mining has been considered as an exception to general business rules, but hard experience has proven that it has its definite business restrictions like everything else, which cannot be disregarded without failure. The extravagance that has prevailed has chiefly originated in the inflated notions which have existed respecting the richness and inexhaustible quantity of ores attainable, which it is always presumed will increase in both quautity and quality with depth. This delusion is not yet fully dissipated. Existing local circumstances, geological formation, width, ore supply, etc., must he taken into consideration before such conclusions are adopted. Superficial bonanzas which do not "go down" are frequently mistaken for veins of illimitahle depth, mills and hoisting works erected, and expenditures made heyond all reasonable hounds—and failure the result. It will not do to huy everything and anything which the owners call a ledge, or hy supposing it rich enough to invest $40,000 or $50,000 in machinery, etc., hefore it is known whether there is any ledge or not. Such a course ignores common sense and prudence, and exerts a disastrous influence on all legitimate mining operations.

Some of the Mistakes in Mining.

It has been the object in past days to get the greatest possible amount of money in the shortest possihle time, and the consequence of this mismanaged proceeding has been seriously felt. Millions of wealth have been made inaccessible by this thoughtless work and reckless thirst for gain. We have had, unfortunately, altogether too much amateur mining. People have gone into it blindfold and come out with their eyes very forcibly opened. In many places where the mines were unquestionably rich, and which in England, or any other country, where they are worked with care and systematic economy, would have paid handsome dividends, this smateur mining has made the companies bankrupt. Many instances are known where expensive mills have been erected in a good agricultural and grazing country, fitter for the plow than the pick, 15 or 20 miles from timber or a good supply of water, and further off still from any mine that by any geological or metallurgical possibility could be made to pay.

There is no business iu which men exercise so little judgmeut or foresight as they do in buying mining property, and in which the simplest rules are so eompletely ignored. If the business were entered into with the same precautions that are generally shewn by those who engage in commercial and mechanical pursuits, it would present less hazard, and he attended with less failure than any other. The history of mining camps is continually repeating itself without the examples being heeded. Surface ore comes cheaply and gives speedy returns, hut with the increase of depth the difficulty and expense of mining increases and the quality of ore often changes requiring more capital and more extensive machinery. In large companies, when the value of ore depreciates, the supply is kept up by extracting an amount that ought to take years instead of months to get out, the mine is ruined by had timbering and bad hasty work. More ore is taken out than the milling facilities require, which in our large mines, well supplied with mills, is seldom judicious.

Mills are always considered an immediate and absolute necessity without the probable permanency of the lead being inquired into. Heavy and expensive machinery is frequently shipped great distances before 10 tons of mineral-bearing rock are in sight. The estimates are invariably too small and assessment after assessment is levied before the mill can be finished; and, if more hy luck than management, the company pay a dividend, it is but the precursor of more assessments. No money is spent in actual development of the mine but is rather consumed in unnecessary expenses. It is better to first hegin to develop a lead before talking ahout working the rock from the first honanza struck, for the ore is just as safe on the dumps or in the mine until enough is in sight to at least pay for a mill. Still stockholders invest, generally, with the expectation that the mine immediately declare dividends, and if a mill is not erected very shortly and money forthcoming, they draw out. They begin backward, get the mill first and the mine afterward; instead of developing the claim, they only partially prospect it and then put up a mill. The mines should he properly opened, not gouged out, and a judicious superintendent will only extract as much rock as is necessary to carry it on. Many mines are upheld and salaries paid not by the proceeds of the mines but by direct calls on the stockholders in the shape of assessments.

The vicious constitutions of many of our companies are not always, however, to be attributed to design, but from undue haste and a want of knowledge, while defects have led to irregularities. Perhaps fraud would be a more fitting term in some instances where dividends have heen declared on borrowed money and an assessment levied immediately after to pay the loan. Such things are monstrous business ahsurdities. Stockholders have shown little or no discretion as to who should manage, and the consequences have fallen not only on them, but, if the same capital had heen properly expended it would foster and establish mining as a staple industry instead of what some suppose it—a rock to be avoided. It is of little use to point out instances as heacons to guide the unwary, for while stockholders show the apathy in the management of their mines that they do, it is difficult to protect them from the snares of designing men. It is a business which demands superior skill, judgment, education, and experience to insure profitable development, even with rich lodes. Mining engineers of sufficient attainments can generally tell whether the ground is ore hearing and can prepare sufficiently accurate estimates of cost, expenditure, etc., to warraut owners to go on or abandon the work.

[Concluded next week.]

Congressional Affairs.—A bill was introduced in Congress by Mr. Sargent, immediately after the passage of the Mining Bill, given in our last issue, which provides that land shall not he excluded from entry under the homestead or pre-emption laws, unless it is shown that *bona fide* mining claims exist upon it. This is This is intended to overcome the difficulties experienced since the Department of the Interior issued the "numerical land order" last year.

A bill has been introduced by Senator Casserly granting right of way and ten sections of land to a company to aid them in constructing a ditch from the Mountain Lakes of El Dorado County to a point in Sacramento County. Said ditch to carry 5,000 inches of water.

The Senate Committee on Mines and Mining have reported an amended bill to incorporate the Utah Railroad, Mining and Land Company. The Company proposes to incorporate with a capital of $5,000,000, and a right to increase it five-fold, to develop the resources of Utah by the erection of works, construction of railroads, working of mines, etc., in different counties, so as to connect the mineral districts with the adjoining railroad. A number of English capitalists are to he interested.

Utah News.—A dispatch from Salt Lake City states that a great body of ore, running to thousands of dollars per ton, has been struck in the 400-ft level of the Emma mine. Nearly $200,000 in silver bullion were received in Salt Lake City last week, and another car-load from Butterfield Cañon has arrived, weighing ten tons, and valued at $8,000. An effort is heing made to obtain a futher reduction in freight on ores for the East. Numhers of strangers are in the city, and the stages to the mining camps are all crowded with passengers. A dispatch of the 21st states that Judge Strickland delivered a decision on that day iu the Flagstaff mining suit refusing the injunction. It is understood that the plaintiff will file a new hill, praying for a restraining order, and also institute proceedings to set aside the patent. The struggle for this valuable property is creating considerable excitement in mining circles. There has heen another heavy snow slide at Little Cottonwood, in which several miners were buried, but were rescued uninjured, except one, who had his leg broken. A dispatch dated Salt Lake, 20th inst., states that on that day mining property in Tintic and Camp Floyd Districts to the amount of $500,000 was disposed of. A number of Pittsburgh capitalists are in Salt Lake City negotiating for mines.

Labor Strike.—The great lahor strike in New York last week for the eight-hour system was participated in by a large number of persons of many different trades. The proceedings of the meetings are said to have beeu conducted in an orderly mauner and no trouble occurred. The strike seems to have been entirely successful, employers having conceded to the terms imposed, hut whether it will be lasting or only temporary remains to be seen.

The Frear Artificial Stone.

The attention of the scientific world has for some years past been directed to the importance of devising some method for the production of an artificial building stone, which may be furnished at a low price, and at the same time meet all the conditions required for building purposes.

The very great expense of quarrying and dressing natural stone, and the unsightly, inartistic appearance of brick structures, operates as a very great drawback to the permanent and solid growth of many of our cities; or at least these difficulties lead to the erection of cheap wooden structures, or those of mixed material, which soon perish from natural disintegration, or from the conflagrations which are invited and fed by their combustible nature.

The grandest prize yet awarded to inventive genius awaits the one who will produce an artificial stone which shall be composed of elements easily attainable, which shall be durable, impervious to moisture, and capable of being easily shaped into architectural and artistic designs, and which at the same time can be afforded at a price which, while it will enable the wealthy to erect mansions and public buildings of elaborate and costly designs, may at the same time be brought within the means of the less wealthy, whose only ambition is to put up cheap, durable, fire-proof structures, at about the cost of ordinary brick.

Many processes have from time to time been suggested and a large number of patents have been secured, both in this country and in Europe, for meeting the conditions required. The records show that 28 different patents for the manufacture of artificial stone have been taken out in this country, alone, within the past fourteen years—not more than three or four of which have stood the test of practical application. Among those which seem to have met with a most decided approval we may mention that obtained a few years since by Mr. George A. Frear, of Chicago, and which after four years of practical trial, and of final crucial test in the great Chicago fire, is now presented by its proprietors in the fullest confidence that all requirements have been fully and fairly met.

A large number of massive and elegant structures have been put up with this material, now known as "Frear stone," in Chicago, and in several of our Eastern cities, and among these one of the most elegant church buildings in New Haven, Conn., which is constructed of Frear stone from foundation to turret.

The Frear stone seems to combine, in an extraordinary manner, all the elements of durability. It is free from metallic admixtures; it is impervious to moisture; it is uniform in structure and constitnent parts, and the adhesiveness of its cementation is most extraordinary, resisting alike fire, water and frost.

Its manufacture is extremely simple, requiring no machinery beyond the molds in which the blocks and designs are cast. The cementing material is simply Portland cement and shellac. This being moistened and mixed with moist sand the whole mass is tamped into a mold, when it soon sets and dries.

The simplicity of the manufacture enables it to be furnished cheaper than any other artificial stone with which we are acquainted.

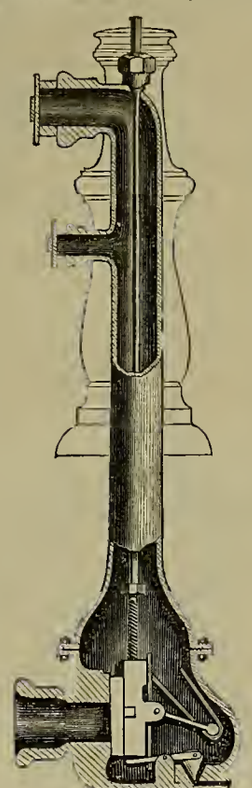
Mr. George D. Dornin, Vice President of the Fireman's Fund Insurance Company of this city, has twice visited Chicago since the great fire there in the interest of his Company. He has carefully examined this stone in the city of its birth; has seen it in all its varying conditions, use and wear; exposure to wet, frost, fire, and water under the most intense heat, and pronounces it equal to any kind of building material used in that city. This opinion, coming from a gentleman writing and acting in the interest of one of our leading insurance companies is entitled to great weight.

Commander Reese, of the United States Navy, subjected a single inch cube to a pressure of 6,000 pounds under a hydraulic press, at the Washington Navy Yard, without breaking it; this is equal to 864,000 pounds to the superficial foot, and we do not know of any architecture in this country which requires over about 30,000 pounds to the superficial foot.

We are pleased to learn that a company, comprising among its members some of our most substantial and thorough going business men, has been organized in this city for the manufacture of the Frear stone here. They have already commenced operations on Bluxome street between Fourth and Fifth, with an office at 638 Market street, where specimens of the stone can be seen, also photographs of numerous buildings which have been erected at the East wholly or in part of this material. Specimens which have been through the Chicago fire are also exhibited. We deem this enterprise one of the most important yet established in this city.

Brown's Patent Fire Hydrant.

The Brown hydrant, an illustration of which is herewith given, appears to us to possess an evident superiority over those



BROWN'S PATENT FIRE HYDRANT.

at present in use in this city. One particular advantage is that it admits a free, unbroken flow of water through curved and easy lines and no obstruction is presented. The valve or gate employed is the single disk which was recently illustrated in our columns. This gate lifts to a chamber, and out of the current of water, is easily operated and not liable to stick. The hydrant is made with one or more discharges as desired and is heavy and not liable to get out of order or be easily broken, as is the case with lighter ones.

It is stated that by actual test there is a saving of more than fifteen per cent. over the old hydrant on account of the abrupt angles in the latter and the valve opening into and blocking up the water-way.

The extinguishing of fires without the aid of engines, by means of the pressure on the street mains is always desirable when that pressure is obtainable, and in this city incipient fires are often extinguished by taking water through hose direct from the hydrant to the fire, thereby preventing disastrous results. The double discharge is an advantage in this case since if hose is attached to the hydrant, when the engines arrive more or less time is lost in detaching the hose and putting on that belonging to the engine. By the double discharge a stream may be on the fire all the time and the hydrant hose be removed only when the engine stream is under way. In view of these facts it is evident that a hydrant which, from its peculiar construction does away with a large amount of friction as does the Brown, commends itself.

An examination of this hydrant may be made by parties interested at the store of Brittain, Holbrook & Co., Nos. 111 and 113 California street.

Iron, Steel and Hardware—A large three-story fire-proof brick building has been recently erected on Market street in this city, between First and Fremont streets, by J. S. Van Winkle for the firm of Van Winkle & Davenport importers and dealers in Iron, Steel and heavy Hardware.

The lot, which was purchased for the purpose last fall, is 46x137 feet and in a good locality for the business. The building in its interior arrangements is very complete and convenient. The largest truck can drive in, receive and deliver goods with the greatest possible dispatch. The house as may be seen by reference to their card is now open for business, a full share of which it will doubtless receive. Both members of this firm are long and widely known on this coast. Mr. Van Winkle, as will be remembered by many of our old residents, started business in this city as early as October, 1849. In November, 1851, he removed to Sacramento, since which he has passed through many vicissitudes of fortune. He there put up three buildings and remained on the same lot for upwards of twenty years, being in the meantime twice burnt out with no insurance, and suffering otherwise heavily from numerous floods and losses attending the same. But reverses seem only to have given a new impetus to energy and determination, which we trust will receive the reward, they merit.

Tunnels.—Work on the Detroit side shaft of the *Detroit River Tunnel* was commenced Dec. 1st, 1871, and finished Jan. 31, 1872. The drainage tunnel from bottom of the shaft has been excavated for 130 feet. It rises on a grade of 1 in 1,000 to the center of the river and is not to be straight, but to have two short curves. On the *Hoosac Tunnel* there remained, on Feb. 1st, 1872, only 2,501 feet in the eastern part, and 4,644 feet on the western part, to be driven. Its completion is promised by autumn of 1874. An *English Channel Tunnel Company* has been registered in London to excavate a trial shaft and driftway on the English side, and, if the scheme is found practicable, to push the work on until the French shore is reached. The experimental section contemplated will cost $10,000,000.

Nevada Items.—The arrangements between the Elko and Hamilton Railroad and the Syndicate have been satisfactorily completed, by which the latter advances the bonds on thirty-three years, seven per cent. mortgage, for the construction and fitting out of the road. Work will be commenced about the 1st of July, and the road will give more convenient access to several mining districts, and will afford means to ship the ore of Treasure Hill and Eureka, which could not otherwise be transported with profit. The wagon roads from Elko to White Pine are in excellent condition. A large force of men is to be put at work on the property of the Empire City mining company in Railroad District.

The Eureka, at Grass Valley, which for many years previous to its late decadence has been the leading mine in that favored locality, is still without any new developments, notwithstanding the occasional rumors to the contrary. In the meantime the Idaho, next adjoining on the same ledge southward, has taken the place formerly occupied by the Eureka as the leading mine in Grass Valley. The improvement in this mine is creating a renewed interest in the second extension south.

New Incorporations.

The following have filed certificates with the County Clerk, San Francisco:

Geddes and Bertrand Mill and Mining Co. May 16. Location: Eureka District, Nevada. Capital stock. $4,000,000, in 4,000 shares. Trustees—Louis Bertrand, Samuel Geddes, S. W. Lee, M. C. Hilliard and E. A. Fargo.

Gopher Gold and Silver Mining Co.—May 15. Location: Devil's Gate and Chinatown Mining District. Capital stock $3,000,000, in 30,000 shares. Trustees—J. P. Jones, J. A. Pritchard, S. A. Raymond, B. H. Freeman and Henry Raymond.

Alta S. M. Co.— May 15. Location: Gold Hill District, Storey County, Nevada. Capital stock, $3,600,000, in 36,000 shares. Trustees—C. Jones, C. B. Land, J. L. Vanbokkelen, W. F. Meyers and M. D. Townsend.

South Comstock G. & S. M. Co.—May 15. Location: Gold Hill District, Storey County, Nevada. Capital stock $4,000,000, in shares of $100 each. Trustees—Robert Sherwood, A. K. P. Harmon and James A. Pritchard.

Leo M. Co.—May 15. Location: Gold Hill District. Capital stock $3,200,000, in 32,000 shares. Trustees—F. Schwartzchild, L. W. Wood, Wm. H. Shears, H. W. Byington and A. Staples.

Alabama and Humboldt Consolidated M. Co. May 16. Location: Storey County, Nevada. Capital stock $2,800,000, in 2,800 shares. Trustees—Charles Jones, C. B. Land, A. Fleischhacker, John Gillig and Wm. H. Watson.

Chief of the Hill M. Co.—May 16. Location: Ely District, Lincoln County, Nevada. Capital stock $3,000,000, in 30,000 shares. Trustees—J. B. Haggin, John P. Jones, Chas. L. Elliot, A. C. Kibbe and Jessie S. Wall.

Wolverine M. and M. Co.—May 16. Location: Calaveras County, and the Independence and Railroad Flat District. Capital stock $2,000,000, in 20,000 shares. Trustees—B. M. Hartshorne, W. H. Taylor, Wm. Norris, W. H. Moor and E. Norton.

Setting Sun S. M. Co.—May 16. Location: Ely District. Capital stock $2,400,000, in 24,000 shares. Trustees—M. J. McDonald, Robert Sherwood, Joseph Clark, John W. Gashwiler and E. J. Baldwin.

Victor S. M. Co.—May 16. Location: Ely District. Capital stock $1,800,000, in shares of $100 each. Trustees— John W. Gashwiler, Robert Sherwood, M. J. McDonald, E. J. Baldwin and Joseph Clark.

Black Bear and Yellow Jacket M. Co. May 17. Location: State of California. Capital stock $3,000,000, in shares of $100 each. Trustees—Thomas Bell, Thomas Fredderspoon E. N. Hooper, Joel F. Lightner and John A. Gashwiler.

Bohemian Club.—May 17. Trustees: D. P. Belknap, Henry George, Frederick Whymper, S. C. Rogers and Benjamin Napthaly. Objects—The promotion of social and intellectual intercourse between journalists and other writers, actors and musicians, professional and amateur, and others associated by reason of knowledge and appreciation of polite literature, science and the fine arts; and also the collection and preservation of records, mementoes and archives illustrating the progress of literature, science and art on the Pacific coast, and calculated to perpetuate the memory of those who have been, or shall be, instrumental in promoting such progress.

Clipper S. M. Co.—May 18. Location: Gold Hill District, Storey County, Nevada. Capital stock $3,100,000, in shares of $100 each. Trustees—M. D. Townsend, Henry Baker, A. E. Head, S. W. Lee and W. S. Hobart.

Louisville Consolidated M. Co.—May 18. Location: State of Nevada. Capital stock $2,000,000, in shares of $100 each. Trustees—A. Austin, Grove Adams, G. W. Grayson, Fred. A. Gibbs and C. J. Lansing.

Horticultural Hall Association.—May 18. Object: To carry on and conduct horticultural exhibitions, to purchase and improve real estate for the benefit of the association. Capital stock, $60,000, in 600 shares. Trustees—Robert J. Betge, Wm. Meyer, Christian Westphal, E. L. Reimer and P. A. Miller.

Pennsylvania S. M. Co.—May 21. Location: White Pine County, State of Nevada. Capital stock, $2,000,000, in 20,000 shares. Trustees—Alvinza Hayward, Andrew Jackson, Jasper O'Farrell, Robert Sherwood, George W. Cope, D. L. McDonald and J. G. Messec.

The Angel's Quartz Mining Company filed an amended certificate May 21. Location: Angel's Camp, Calaveras County. Capital stock $1,800,000, in 18,000 shares. Trustees—Wm. Maltman, Wm. A. Baker, W. R. Ward, A. N. Bell and G. J. Slocum.

The Champion Cons. G. and S. M. Co. May 22. Location: Wallapai District, Mohave county, Arizona. Capital stock $4,000,000, in 40,000 shares. Trustees—W. H. Raymond, R. B. Gray, C. J. Deering, W. H. Smith and S. L. Theller.

Dunderberg M. Co.—The number of shares in this company is 50,000 instead of 5,000 as we stated last week.

Dana's Mineralogy.—Appendix to the last edition of *Dana's Mineralogy* has just been issued. It contains 24 pages, 8 vo., and has been prepared by Prof. G. J. Brush. It contains descriptions of 87 minerals by him during the past four years.

Domestic Economy.

Mushroom Catsup.

Below we give Dr. Kitchiner's mode of making thie article, taken from his "Cook's Oracle;" Take care that they are the right sort and freshly gathered. Full grown flaps are preferred. Put a layer of these at the bottom of a deep earthen pan, and sprinkle them with salt; theu another layer of mushrooms and some more ealt ou them, and so on alternately, salt and mushrooms. Let them remain two or threo hours; by which time the salt will have penetrated tbe mushrooms, and rendered them easy to break. Then pound them, iuto a mortar or mash them well with your hauds and let them remain for a couple of days, no longer, stirring them up and mashing them well each day. Then pour them into a stone jar, and to each quart add an ounce and a half of whole black pepper aud balf an ounce of allspice; etop the jar very close and set in a stew-pan of boiling water, and keop it boiling for two hours at leaet. Take ont the jar, pour the juice clear from the settlings througb a hair seive, without queezing the mushrooms, into a clean stewpan; let it boil very gently for half an hour. Those who are for superlative catsup will coutinue the boiling till the mushroom juice is reduced to one-half thc quantity. It may then bo ealled double catsup. There are several advautages attendiug this concentration; it will keep much better, and only one-half the quantity be required, eo you can flavor sauce without thiuning it; ueither is this an extravagaut way of making it, merely the aqueous part is evaporated; skim it well and pour it into a clean dry jar; cover it close and let it stand in a cool place until next day, pour it off as gently as possible (so as not to disturb tbe settlings at the bottoms of the jar) through a tamis or a thick flannel bag, till it is perfectly clear; add a tableepoonful of good brandy to each pint of catsup and let it stand ae before; a fresh sediment will be deposited, from which tbe catsup is to be quietly poured off and bottled in pints or half pinte (which have been washed with brandy or spirits). It is best to keep it in such quantitics as are soon used. Take especial care that it is close corked and sealed or dipped in bottle cement.

Rules for Washing Dishes.

Scrape the dishes, put away any food which may remain on them, and which it may be proper to eave for future use. Put grease into the grease pot, and whatever else may be on the platee, into the slop pail. Save tea leaves for sweeping. Set all the dishes, when scraped, in regular piles, the smallest at the top.

Put the nicest articles in the wash dish and wash them with hot suds, with tbe swab or nicest dishcloth. Wipe all metal articlee as soon as they are washed. Put all the rest into tbe rinsing dieh whicb should be filled with hot water. When they are taken out lay them to drain on the waiter. Then rinse the dishcloth and hang it up, wipe the articles washed and put them in thoir places.

Pour in more hot water, wash the greasy dishes with the dishcloth made for them; rinse them and set them to drain. Wipe them and set them away. Wash the knives and forks, being careful that the handles are never put in water; wipe them and tben lay them iu a knife dish to be scoured.

Take a fresh supply of clean suds, in which wash tbo milk pane, buckets, and tins. Then rinse and hang up this dishcloth, and take the other; with which, wash the roaster, gridiron, pots, and kettles, Then wash and rinso the dishcloth and hang it up. Empty the slop bucket and scald it. Dry metal teapots and tins before the fire. Then put tbe fireplace in order, and sweep and dust the kitchen.—*Catherine E. Beecher.*

Goon Temper ann Goon Cooking.—It is astonishing how much the cheerfulness of a wife contributes to the bappiness of home. Wo remember hearing a husband say that he could guage the temper of bis wife by the quality of her cookiug; good temper even influenced the seasoning of her soups and the lightness and delicacy of her pastry. When ill temper pervades, the pepper ie dashed in as a cloud, perchance the top of the pepper box ie included, as a kind of diminutive thunder bolt; the salt is all in lumps and the spices seem to betake themselves all to one spot in the puddings, as if dreading the frowniug face above them. If tbere be a husband who could abuso the smiles of a really good tempered wife, we should like to look at him! Among tbe elements of domestic happiness, the amiability of the wife and mother is of tbe utmost importance—it is one the of best securities for the happiness of home.—*Ohio Farmer.*

Fire Kindlings.—In France a very convenient and ecouomical kindling is made by dipping corn-cobs for about one minute in a hath composed of 60 parts melted resin and 40 parts tar. They are next sproad out to dry on metallic plates, heated to the temperature of boiling water. They are then assorted, according to size, and tied up in bundles. They sell for 1 to 2 centimes (⅕ cent) apiece. Tho "Compagnie des allumettes landaise" employs 30 workmen and makes about $40,000 worth a year.

Helpful Hints for the Household.

Rice Cakes.—One pint of boiled rice, a teacup of flour, two eggs, a small spoonful of butter, a teaspoonful of salt, and milk sufficient to mako a muffiu batter. Bake on a griddle. Served hot. Eat with butter and powdered sugar.

A Goon Custarn.—Upon five eggs, well beaten, pour oue quart of milk scalding hot, etirring all the time; sweeten to taste; flavor with lemon or nutmeg; bake twenty minutes in an oven at a moderate heat. A custard made in this way is superior to one made of eold milk, as the taste is richer, and it does not "whey."

Crisp Muffins.—One pint of sifted Iudian meal.

One pint of milk or cream.

Two eggs.

A teaspoonful of salt.

A spoonful of butter or lard.

Drop the batter in a hot, greased pau or oven by spoonfuls, taking care that your muffins do not touch. Let them bake till crisp and brown.

Soft Ginger Cake.—One egg, one cup of molasees, epoonful of ginger, one eup and a half of sour cream, one beaping teaspoonful of soda, and flour for rather a thin batter.

Sugar Cookies.—One cup of butter, one eup of sugar, three eggs, one teaspoonful of soda, half a nutmeg grated; roll thin and bake in a quick oven.

Velvet Cream.—One half ounce isinglass dissolved in one and a half cups of white wine, to which is added the juice and rind of one lemon and three quarters of a pound of white sugar, Simmer till mixed; strain and set to cool. Add a pint aud a half of rich cream, and stir till quite cold; then set in molds on the ice till stiff as blanc mange. Orange peel and juice are finer than lemon.

Plain Cream.—One quart of sweet milk, one eup of cream, one coffecup of sugar, or less if you prefer, boiled with a piece of orange peel, or flavored with almond. Moieten four spoonfuls of sea moss farina with cold milk, and stir into a boil. Two spoonfuls of rose brandy is a delicious flavor for this cream. Stew any juicy fruit nicely, sweetening right, and when boiling stir in a spoonful of corn starch wet in eold wator for every pint of juice. This gives a jelly-like appearance and clearness to the fruit without impairing the fruit in any way. While only a moderate quantity of sugar is used, the juice has almost a candied look. Cranberries, barberries, and such sour fruit are improved by it. If the juice is strained, the corn etarch addition will make a very tolerable jelly, much pleasanter than the isinglass jellies. This must be poured in flat glass dishes to the depth of half an inch, and cooled. When firm, pour on the cream, let that stand, and add another layer of fruit. This will be found a delicious substitute for pies in summer when pastry is too rich to be eaten.

Wood Fires.

We often wonder why in an age abounding in inventions for household comfort, the oldest and best of all—a wood fire on the hearth—has almost disappeared. It cannot be on the ground of its greater expense, for that is not a trifle compared to luxuries which we see everywhere. Scrupulous housewives, we believe, object to it as untidy. But from sucb pharisaic regard of the outside of the cup and platter, may we be delivered! Now, in the first place, nothing keeps the air of a room so fresh and sweet as an open wood fire. Its advantage in point of healthfulness over ordinary ways of warming are immense. For a room of ordinary size, in this elimate, it gives amply sufficent heat. And what a wonderful promoter of cheerfulness it is! It is as much bettor thau the open coal fire than that is better than the black hole in the floor called a register. Its voice, as it purrs and crackles and roars, is enough to drive away the worst fit of the blues. Its mountain flames give the cheapest light in tho world. The depthe of its glowing coals continually allure and charm the eye. Thero are not many human beings who are as good company for every mood. After the day's work and fret it brings calm and cheer—whiles away all troubling thoughts. If the mind is at work, its unobtrusive companionship sooths and aids. When ono is weary, he may find restful occupation in watching the freaks of the flames, and listening to their changeful voice. It brigbtens people and brings them together. To what scenes of friendship and social enjoyment does it lend a uniquo charm! It is the luxury of luxuries, a thing without which lifo is incomplete.—*Beecher.*

How to Keep Cheese.—A good way to keep cheese from moulding or getting too dry is to place it between two wooden bowls and put them in the coolest, darkest corner of the cellar. We bought one last Novemober weighing nearly forty pounds, and treated it after the above method; what there is loft of it at the present time (April 19th) is moist and good; not an ounce has been wasted because of mould. Perhaps otbers may bave a better way. If so please let us hear about it. I am perfecly eatisfied with our way. The experiment was purely an original one and the test was satisfactory. The wooden bowls want to be largo enough to encircle the cheese, and the edges must meet, not tightly, but so air can circulate slightly around the cheese.—*Ohio Farmer.*

Porcelain Wash-Tubs.

In a private letter from a lady residiug in Brooklyn, N. Y., to a correspondent of the Press, a bit of useful information relative to the new porcelain waeh-tubs, is extracted for our columns: "Several of tho wealthy families of Brooklyn, one in particular residing at Montague Terrace, have introduced into their dwellings these new stationary tubs; they are modols of convenience in washing, and save an immenso amount of work; a large washing is done in a great deal less time than by the use of other tubs or inventions; they are very expeneive but very conveuient and a great improvement on other labor-saving washiug apparatus."

In the *Mechanic and Inventor* we find a short allusion to this new invention. It corroboratcs tbe statement of the lady, and gives a little additional as follows: "An importer of erockery ie dreaming of a fortune from the eales of "stationary wash-tubs" made of porcelain, each baving a currugated inclinod side for a rub-board. The porcelain tubs are about as large ae the ordinary wooden stationary tubs. They are among the neatest of household appliances; yet tbe prices asked for them are beyond all bounds of reason."

Something New for the Kitchen.

One of the slowest and moet tiresome operations of the kitchen is tho beating of eggs; and wheu the work is supposed to be thoroughly done in the usual manner, the eggs are far from being in the best condition for uee. Eggs, when properly beaten, should be thoroughly aerated—a condition which cannot be secured by the ordinary spoon or knife process in ten timee the space of time in which they can be perfectly aerated by the device herewith sbown. A single egg, when properly beaten, ought to fill a good sized tumbler. In such condition two eggs will go as far, in making cako, etc., as three when beaten in the ordinary manner. Neither milk uor any otber liquid can be thoroughly mixed with egge until they are properly beaten—reduced to a perfectly aerated mass, of uniform consistency. For bread, cake or custard the air globules should be so finely divided ae to be barely discernable by the naked eye. The work can be thoroughly done by this device in from one-fifth to one-tenth of the time ordinarily required.

Various devices have been presented to the public for beating eggs, but nothing, we think, equal to the one herein shown. This, in fact, is the ouly aerating device ever made, and ie very properly called the "Aerating Egg Beater."

This beater, ae will be seen by reference to the engraving, is simply a tin can with a coue bottom and a cone dasher, the lower portion of the dasber being perforated with very small holes, as shown. Under this arrangement the upper portion, when forced down, fills with air, which is forced through the egg, thereby finely dividing and thoroughly aerating tbe mass. This useful little kitchen device can be had of Wiester & Co., on New Montgomery street, in this city, who are aleo the authorized agents for selling territory for the patent on the Pacific Coast.

Little Conveniences.—Being at the house of a farmer in the extreme western portion of the State not long since, we opened the stable door, which tbe wind blew back upon us. Turning to find something wherewith to fasten it back, lo! thero was a hasp and staple for that very purpose! Only one farmer in fifty is thus thoughtful about littlo mattere; one in ten perhaps, would have had a loose rock or a prop for this purpose. But how mueh better is the hasp and staple, always in place and of little cost. Glancing about tho stable and shed, we found everything else in just this neat, thorough, perfect order. Everything in its place, and there were lots of little handy fixings and conveniences to save steps or to save work.—And these are the things that, summed up, give dignity and importance and value to life. It is the part of wisdom to provide them.

How to Make Rugs.—A little western girl, thirteen years of age, tells the *Kansas Farmer* how she made a cheap and pretty rug. She says:—I took a piece of fine fence wire and a file and made a crochet hook. I then got a coffee sack and cut it out square and hemmed it; then I took some cloth and tore it into strips like carpet rags. I then took my hook and a strip of cloth, and held the cloth on the under side and stuck the hook through the carpet sack, catching the cloth and drawing it in a little loop on the upper side. In my rug I have made a basket of flowers, and for a border I made a row of scollops.

Parsnips.—Boil with the skins on, then peel and cut in transverse slices and drop into a cream gravy, in whicb let them simmer on tbe stove a few minutes.

Another way is to boil and mash tbem, and moisten with milk or tbin cream, or boil, peel and set a few moments in a hot oven to brown a little.

Warmed-over Potatoes.—Chop cold boiled potatoes; put them in a dripping-pan, or earthen or stone baking dish. Pour over them a gravy, made after the above receipt, and let them bake slowly in the oven an hour or so. A delicious dish.

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16v20-3m JOHN F. LOHSE, Secretary.

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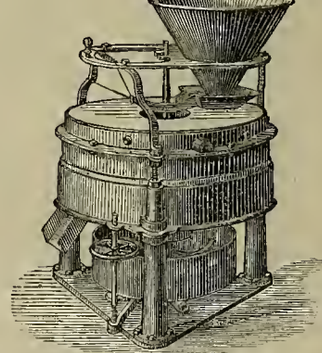

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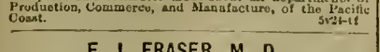
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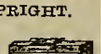
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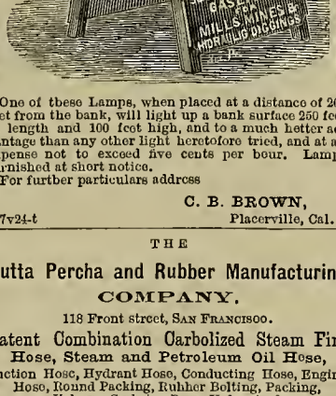

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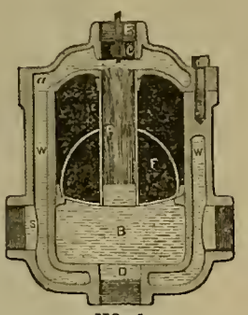
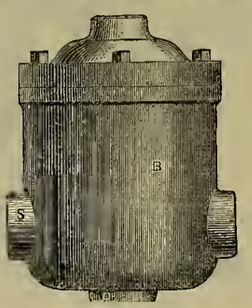


NO. 1.
The annexed engravings represent a Condenser intended to be attached to the ordinary steam pump, thereby bringing it within the class of low pressure, or more properly speaking, of condensing engines; the steam, when it has done its work in the cylinder, instead of being exhausted into the atmosphere, is conducted to the condenser, on its entry into which, it meets the water drawn by the pump, and is immediately condensed.
The Cut No. 1 represents a vertical section of the Condenser, and No. 2 an elevation.
The flange D is bolted to the suction orifice of the pump, and the flange S to the pipe leading to the well, or whatever source of supply the pump may have; W is a water jacket surrounding the main chamber of the condenser, B, and with which the suction pipe, S, communicates, permitting a free circulation of water within the jacket and into the hollow cover or top through the series of openings, one of which is shown at A, and from thence into the body of Condenser, B, through pipe P, carried by float F; the pipe P also acts automatically as a valve to enlarge or contract the space through which the water enters it, by which means the possibility of the condenser being at any time flooded is avoided. The pipe P, it will be observed, also acts as guide to float F.
The valve, C, (shown in Cut No. 1), which is raised or lowered by means of screwed stem—shown coming through elbow in Cut No. 2—is for the purpose of increasing or decreasing the flow of water according to the capacity of the pump to which it is attached.


NO. 2.
The exhaust pipe from steam cylinder is screwed into cover at E; the exhaust steam is thus thrown directly into contact with the water entering the condenser on its way to water cylinder of pump through D. A vacuum being of course immediately formed, acts on the exhaust side of the steam piston, aiding it in its work. If at any time it is desirable to run the pump without the condenser, it is only necessary to turn the three-way cock, which is placed in the exhaust pipe into such a position as to cause the steam cylinder to exhaust into the atmosphere; when this is done the pump is perfectly free from the condenser, and acts as if it were not attached. This condenser is specially useful for pumps running in mines, or any other position where trouble is experienced in getting rid of the exhaust steam. Address H. L. BREVOORT,
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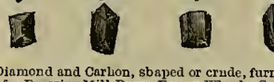
Fig.1 Fig.2 Fig.3 Fig.4

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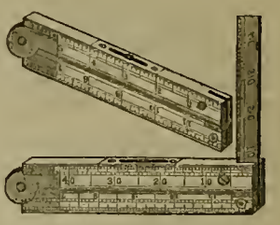
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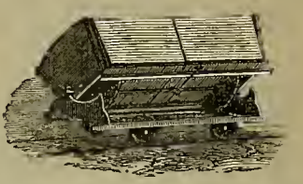
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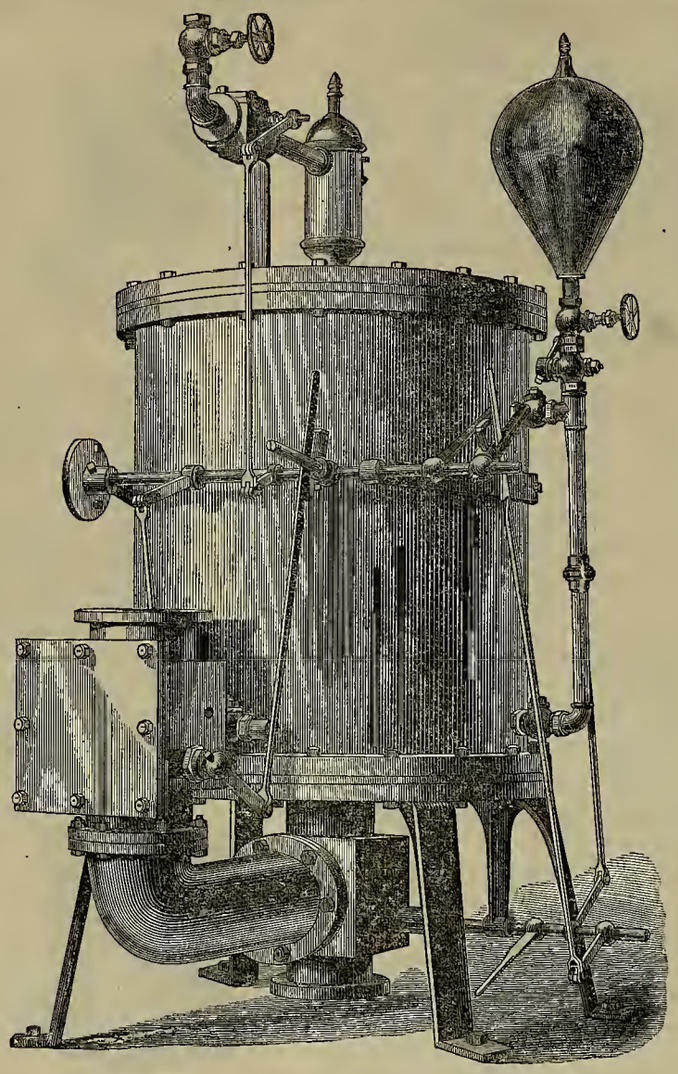

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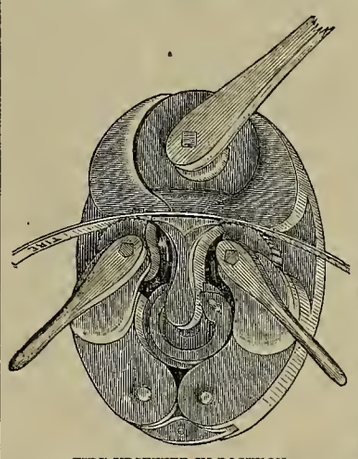

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Owing to the time necessary to mail the present large edition of the Scientific Press we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

Ingomar Silver Mining Company.—Location of Works: Ely Mining District, Lincoln County, Nevada.

NOTICE.—There are delinquent upon the following described stock, on account of Assessment (No. 1) levied on the second day of April, 1872, the several amounts set opposite the names of the respective Shareholders as follows:

Names.	No. Certificate.	No. Shares.	Am't.
Adams, L S	18	200	$50 00
Cavallier, J P, Trustee	217	100	25 00
Cavallier, J P, Trustee	237	100	25 00
Cavallier, J P, Trustee	238	100	25 00
Cavallier, J P, Trustee	239	100	25 00
Cavallier, J P, Trustee	245	50	12 50
Cavallier, J P, Trustee	247	50	12 50
Cavallier, J P, Trustee	248	50	12 50
Cavallier, J P, Trustee	249	50	12 50
Cavallier, J P, Trustee	251	50	12 50
Cavallier, J P, Trustee	266	50	12 50
Cathcart, A B, Trustee	179	25	6 25
Charles, H A, Trustee	297	50	12 50
Church, H C	98	500	125 00
Church, H C	99	100	25 00
Church, H C	103	100	25 00
Church, H C	105	100	25 00
Church, H C	106	100	25 00
Church, H C	108	100	25 00
Church, H C	111	50	12 50
Church, H O	112	50	12 50
Eaton, W L	208	50	12 50
Kent, R F, Trustee	306	25	6 25
Neal, Chas S, Trustee	9	250	62 50
Neal, Chas S, Trustee	10	250	62 50
Neal, Chas S, Trustee	11	250	62 50
Neal, Chas S, Trustee	14	100	25 00
Neal, Chas S, Trustee	23	300	75 00
Neal, Chas S, Trustee	33	250	62 50
Neal, Chas S, Trustee	34	100	25 00
Neal, Chas S, Trustee	35	100	25 00
Neal, Chas S, Trustee	36	100	25 00
Neal, Chas S, Trustee	37	100	25 00
Neal, Chas S, Trustee	39	50	12 50
Neal, Chas S, Trustee	42	25	6 25
Neal, Chas S, Trustee	85	100	25 00
Neal, Chas S, Trustee	86	100	25 00
Neal, Chas S, Trustee	87	100	25 00
Neal, Chas S, Trustee	89	20	5 00
Neal, Chas S, Trustee	92	10	2 50
Neal, Chas S, Trustee	94	10	2 50
Neal, Chas S, Trustee	131	100	25 00
Neal, Chas S, Trustee	133	100	25 00
Neal, Chas S, Trustee	136	100	25 00
Neal, Chas S, Trustee	137	100	25 00
Neal, Chas S, Trustee	142	100	25 00
Neal, Chas S, Trustee	143	100	25 00
Neal, Chas S, Trustee	149	100	25 00
Neal, Chas S, Trustee	150	100	25 00
Neal, Chas S, Trustee	151	100	25 00
Neal, Chas S, Trustee	152	100	25 00
Neal, Chas S, Trustee	154	100	25 00
Neal, Chas S, Trustee	156	100	25 00
Neal, Chas S, Trustee	172	25	6 25
Neal, Chas S, Trustee	183	100	25 00
Neal, Chas S, Trustee	186	100	25 00
Neal, Chas S, Trustee	189	200	50 00
Neal, Chas S, Trustee	192	100	25 00
Neal, Chas S, Trustee	194	100	25 00
Neal, Chas S, Trustee	200	100	25 00
Neal, Chas S, Trustee	209	10	2 50
Neal, Chas S, Trustee	224	200	50 00
Neal, Chas S, Trustee	225	200	50 00
Neal, Chas S, Trustee	226	200	50 00
Neal, Chas S, Trustee	228	100	25 00
Neal, Chas S, Trustee	229	100	25 00
Neal, Chas S, Trustee	231	100	25 00
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Neal, Chas S, Trustee	236	100	25 00
Neal, Chas S, Trustee	250	200	50 00
Neal, Chas S, Trustee	254	100	25 00
Neal, Chas S, Trustee	257	100	25 00
Neal, Chas S, Trustee	258	100	25 00
Neal, Chas S, Trustee	259	100	25 00
Neal, Chas S, Trustee	260	100	25 00
Neal, Chas S, Trustee	261	50	12 50
Neal, Chas S, Trustee	268	100	25 00
Neal, Chas S, Trustee	269	50	12 50
Neal, Chas S, Trustee	296	50	12 50
Neal, Chas S, Trustee	302	50	12 50
Neal, Chas S, Trustee	329	50	12 50
Porry, John, JI, Trustee	175	50	12 50
Richardson, E A, Trustee	300	25	6 25
Sleeper, George, Trustee	170	300	75 00
Sidea, B F, Trustee	284	50	12 50
Sides, B F, Trustee	285	100	25 00
Sides, B F, Trustee	286	100	25 00
Sides, B F, Trustee	310	40	10 00
Sides, B F, Trustee	311	40	10 00
Sides, B F, Trustee	312	40	10 00
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Sides, B F, Trustee	315	10	2 50
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Sides, B F, Trustee	322	10	2 50
Sides, B F, Trustee	323	10	2 50
Sides, B F, Trustee	324	10	2 50
Sides, B F, Trustee	339	65	16 25
Sides, B F, Trustee	340	35	8 75
Sloan, H H	118	50	12 50
Sloan, H H	123	20	5 00
Sloan, H H	124	20	5 00
Sloan, H H	125	20	5 00
Sloan, H H	127	20	5 00
Tibbey, E S, Trustee	223	25	6 25
Uhler, J Clem, Trustee	290	500	125 00
Uhler, J Clem, Trustee	292	500	125 00
Uhler, J Clem, Trustee	293	500	125 00
Uhler, J Clem, Trustee	294	100	25 00
Uhler, J Clem, Trustee	325	100	25 00
Wiederhold, C	63	100	25 00
Wiederhold, C	64	50	12 50
Wiederhold, C	66	25	6 25
Wiederhold, C	69	10	2 50

And in accordance with law, and an order of the Board of Trustees, made on the second day of April, 1872, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the office of the Company, Room 21, Hayward's Building, 419 California street, on Friday, the thirty-first day of May, 1872, at the hour of one o'clock, P. M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

CHAS. S. NEAL, Secretary.

Office, Room No 2, Hayward's Building, 419 California street, San Francisco, California.

Stockholders' Meeting.—A meeting of the Stockholders of the Silver Cord Mining Company, San Francisco, Cal., will be held at the office of the company, 418 California street, on Monday, the 27th day of May, 1872, at 3 o'clock, for the election of Trustees for the ensuing year, and for the transaction of any other general business.

W. J. WILLIAMS, Secretary.
Per order of the President.
ma18-2t

Alleghany Consolidated Gold Mining Company—Location of works, Alleghany, Sierra County, Cal.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 26th day of April, 1872, an assessment of twenty cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at his office, 37 New Merchant Exchange, California street. Any stock on which said assessment shall remain unpaid on the third day of June, 1872, shall be deemed delinquent, and will be duly advertised for sale, at public auction, and unless payment shall be made before, will be sold on Monday, the 24th day of June, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. M. BUFFINGTON, Secretary.
Office, No. 37 (third floor), New Merchants' Exchange, California street, San Francisco
ma4-1t

Eagle Quicksilver Mining Company---Location of works, Santa Barbara County, California.

Notice is hereby given that at a meeting of the Board of Trustees of said company, held on the 8th day of May, 1872, an assessment of $40 per share was levied upon the mines of said company, payable immediately in gold coin of the United States, to the Secretary at his office, room 5, No. 302 Montgomery street, San Francisco, California.

Any shares upon which said assessment shall remain unpaid, on Thursday, July 11th, 1872, shall be deemed delinquent, and will be duly advertised on Saturday, July 13th, 1872, for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 15th day of July, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.
Office—Room 5, No. 302 Montgomery street, San Francisco California.
ma11.

Kincaid Flat Mining Company—Location of works, Tuolumne County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 23d day of April, 1872, an assessment of Three Dollars per share was levied upon the capital stock of said company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, No. 220 Clay street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 27th day of May, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 17th day of June, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

R. H. CORNELL, Secretary.
Office, No. 220 Clay street, San Francisco, Cal. ap27-4w

Lyons & Wheeler Mining Company—Location of works, Maynard Mining District, Mohave County, Arizona Territory.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 18th day of May, 1872, an assessment of Ten Cents per share was levied upon the capital stock of said Company, payable immediately, in United States coin, to the Secretary, at the office of the company, Room 3, No. 419 California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on Tuesday, the 24th day of June, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 15th day of July, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. W. COLBURN, Secretary.
Office, Room 3, No. 419 California street, San Francisco, California. my25-td

Mt. Jefferson Milling and Mining Company.—Location of works, First Garote, Tuolumne county, California.

NOTICE.—There are delinquent upon the following described stock, on account of assessment (No. two (2) levied on the third (3) day of April, A. D. 1872, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No Certificate.	No. Shares.	Am't.
Creamer, J. M	63	75	$22 50
Galloway, W. T., Trustee	60	50	15 00
Lewis, L. J., Trustee	50	100	30 00
Lewis, L. J., Trustee	57	75	22 50
Lewis, L. J., Trustee	64	25	7 50
Lewis, L. J., Trustee	65	125	37 50
Martin & Lane	12	200	60 00
Richardson, E. A., Tr	16	1380	414 00
Richardson, E. A., Tr	18	200	60 00
Richardson, E. A. Tr	19	200	60 00
Richardson, E. A. Tr	20	200	60 00
Richardson, E, A. Tr	21	100	30 00
Richsrdson, E. A. Tr	22	100	30 00
Richardson, E. A. Tr	23	100	30 00
Richardson, E A. Tr	24	100	30 00
Richardson, E. A. Tr	25	100	30 00
Richardson, E. A. Tr	26	100	30 00
Richardson, E. A. Tr	27	100	30 00
Richardson, E. A. Tr	28	50	15 00
Richardson, E. A. Tr	29	30	9 00
Richardson, E. A. Tr	34	100	30 00
Richardson, E. A. Tr	36	100	30 00
Richardson, E. A. Tr	38	100	30 00
Richardson, E. A. Tr	46	300	90 00
Shattuck, D. D	65	13150	3945 00
Shattuck, D. D	62	150	45 00
Stilea, A. G	9	500	150 00
Stilea, A. G	42	1130	339 00
Woolsey, E. W	10	100	30 00

And in accordance with law, and an order of the Board of Trustees, made on the third day of April, 1872, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the office of the Company, on the twenty-second day of May, 1872, at the hour of 2 o'clock P. M., of said day, to pay said Delinquent Assessment thereon, together with costs of advertising and expenses of sale.

J. W. CLARK, Secretary.
Office, 418 California St., Room No. 2. ma11-3t

Mt. Jefferson Milling and Mining Company—POSTPONEMENT.—The sale of delinquent stock on the above assesament is hereby postponed until Wednesday, the 29th day of May, A.D. 1872, at 2 P. M., at office of company. By order of the Board of Trustees.

J. W. CLARK, Secretary.
ma18-2t

Mina Rica Mining Company—Location of works, Auburn District, Placer county, State of California.

Notice is hereby given, that at a meeting of the Trustees of said company, held on the 8th day of May, 1872, an assessment of 20 cents per share was levied upon the capital stock of said company, payable immediately in United States gold and silver coin, to the Secretary of the company, at the office of the company, No. 320 California street, room No. 5, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Monday, the 10th day of June, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday the first day of July, 1872, to pay the delinquent assessment, together with cost of advertising and expenses of the sale. GEO. H. KINNEY, Secretary.
ma11-4t No. 320 California St, San Francisco, Cal.

Office of the Silver Sprout Mining Company—San Francisco, April 29, 1872.

In accordance with a resolution adopted at a meeting of the Board of Trustees of the Silver Sprout Mining Company held this day, a special meeting of the stockholders of said company is hereby called, the same to be held at the office of the company, No. 318 California street (Room No. 1, second floor), San Francisco, California, on Monday, the 3d day of June, 1872, at 1 o'clock P. M., to take into consideration and decide upon the proposition to increase the capital stock of said company, from three million five hundred thousand dollars, divided into five thousand shares, of the par value of seven hundred dollars each (the present capital stock), to five million dollars, divided into fifty thousand shares, of the par value of one hundred dollars each.

NATHANIEL PAGE,
A. WINGARD,
B. F. TUTTLE,
} Trustees.
ma4-4t

Ophir Copper, Silver and G. M. Company —Location of works, Ophir, Placer County, Cal.

NOTICE.—There are delinquent upon the following described stock, on account of assessment levied on the 18th day of March, 1872, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Allen, M W	336	25	$ 15 00
Brown, Chas. F	342	7 ½	4 50
Bunker, G F	341	220	132 00
Brush, R G	222	100	60 00
Brush, R G	289	65	39 00
Brush, R G	230	30	18 00
Brush, R G	239	50	30 00
Brush, R G	246	38	22 80
Brush, R G	288	62	37 20
Brush, R G	291	65	39 00
Bloomer, Theo. H	232	30	18 00
Brandt, Mrs. E	315	50	30 00
Bufford, H L	315 ½	5 ½	3 30
Baum, Chas	316	100	60 00
Brush, R G, Trustee	320	100	60 00
Brush, R G, Trustee	331	50	30 00
Everson, Wallace	328	200	120 00
Garniss, Jas. R	283	100	60 00
Garniss, Jas. R	337	40	24 00
Hinckley, Geo. E	334	50	30 00
Kip, Jr. W I	337	500	300 00
Meade, O	244	25	15 00
Purdy, G W	215	50	30 00
Quade, A	299	100	60 00
Reynolds, W O	210	19	11 40
Rogers, Geo P	324	25	15 40
Swain, H C	79	137	82 20
Swain, H C	80	137	82 20
Swain, H C	298	200	120 00
Swain, H C	245	100	60 00
Swain, H C	294	50	30 00
Swain, H C	295	50	30 00
Swain, H C	296	20	12 00
Swain, H C	303	50	30 00
Swain, H C	318	50	30 00
Swain, H C	319	50	30 00
Swain, H O	320	50	30 00
Swain, H O	326	50	30 00
Swain, H C	327	50	30 00
Swain, H C	340	2 ½	1 50
Swain, W B	11	5	3 00
Swain, W B	10	5	3 00
Stackpole Thos	335	25	15 00
Wightman James	——	400	240 00

And in accordance with law, and an order of the Board of Trustees, made on the 18th day of March, 1872, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of John Middleton & Co., No. 310 Montgomery Street, on the 17th day of May, 1872, at the hour of 1 o'clock P. M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

R. G. BRUSH, Secretary.
Office: N. E. Cor. Sansome and Halleck Streets. Entrance on Halleck Street. apr27-3w

Ophir Copper, Silver and G. M. Company—POSTPONEMENT.—The above sale is hereby postponed until Monday, May 27th, at the same hour and place. By order of the Board of Trustees.

R. G. BRUSH, Secretary.
m25-1t

Piermont Milling and Mining Company—Location of works, Piermont Mining District, White Pine County, Nevada.

NOTICE.—There are delinquent upon the following described stock, on account of assessment (No. 3) levied on the 16th day of April, 1872, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Briggs, Charles A	15	583⅓	$233.33
Briggs, Charles A	47	111	44.40
Perkins, J E, Trustee	21	1000	400.00
Perkins, J E, Trustee	23	1000	400.00
Perkins, J E, Trustee	41	381	152.40

And in accordance with law, and an order of the Board of Trustees, made on the 16th day of April, 1872, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the company, on the 19th day of June, 1872, at the hour of 2 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

J. W. CLARK, Secretary.
Office, 418 California street, San Francisco, Cal. m25

San Francisco Tunnel and Mining Company.—Location of Works, Little Cottonwood Mining District, Utah Territory.

NOTICE.—There are delinquent upon the following described stock, on account of assessment (No. 1) levied on the 13th day of April, 1872, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Brommer Diederick	48	3000	$750 00
Moroney, Paul	5	3000	750 00
Reticker, Chas	8	3000	750 00
Seaman, LaFayette	7	3000	750 00
Selby, T. H	4	3000	750 00

And in accordance with law and a supplementary order of the Board of Trustees, made on the 30th day of April, 1872, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the office of said company, on the 10th day of June, 1872, at the hour of 2 o'clock P. M., of said day, to pay said delinquent assessment thereon together with costs of advertising and expenses of sale.

J. W. CLARK, Secretery.
Office, 418 California street, San Francisco.

Silver Wave Mining Company----Location of works, White Pine Mining District, White Pine county, Nevada.

NOTICE:—There are delinquent upon the following described stock, on account of Assessment, No. 8, levied on the 10th day of April, A. D. 1872, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificates.	No. Shares.	Am't.
Barton, W H, Trustee	352	240	$100 00
Barton, W H, Trustee	376	10	5 00
Barton, W H, Trustee	490	50	25 00
Breed, H L, Trustee	394	20	10 00
Cope, Geo W, Trustee	508	100	50 00
Crocker, J H, Trustee	492	100	50 00
Crocker, J H, Trustee	493	50	25 00
Holmes, H J	511	447	223 50
Loveland, L F, Trustee	217	50	25 00
Pomeroy, E B	474	200	100 00
Richardson, E A, Trustee	429	100	50 00
Richardson, E A, Trustee	430	100	50 00
Richardson, E A, Trustee	471	100	50 00
Richardson, E A, Trustee	450	150	75 00
Richardson E A, Trustee	486	80	40 00
Richardson, E A, Trustee	496	50	25 00
White, Jas T	309	12	6 00
Woods, F H, Trustee	375	22	11 00
Woods, F H, Trustee	434	10	5 00

And in accordance with law, and an order of the Board of Trustees, made on the 10th day of April, 1872, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of said Company, on Thursday, the 13th day of June, A. D. 1872, at the hour of 2 o'clock P. M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

J. W. CLARK, Secretary.
Office, 418 California St., Room 102, San Francisco, California. ma18-4t.

Silver Sprout Mining Company—Location of works and mine, Kearsarge District, Inyo County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 29th day of April, 1872, an assessment of fifty cents per share was levied upon the capital stock of said Company, payable immediately in United States gold coin, to the Secretary, at the office of the Company, Room No. 1, second floor, 318 California st., S. F. Any stock upon which said assessment shall remain unpaid on the first day of June, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the 22d day of June, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. B. WINGARD Secretary.
Office, Room No. 1, second floor, No. 318 California street, San Francisco, Cal.

Stockholders Notice---Office of the Tecumseh Gold, Silver and Copper Mining Company, San Francisco, May 6th, 1872.

In accordance with a Resolution adopted at a meeting of the Trustees of the Tecumseh Gold, Silver and Copper Mining Company, held this day, a special meeting of the stockholders of said Company is hereby called, the same to be held at E. Magrisch's Hall, S. W. cor. of Kearny and Clay Sts., opposite the Plaza, San Francisco, Cal., on Wednesday, the 12th day of June A. D. 1872, at 2 o'clock P. M., to take into consideration and decide upon the proposition to increase the capital stock of said Company from one hundred fifty-three thousand and five hundred dollars, divided into six hundred and fourteen shares of two hundred fifty dollars each, the present capital of the Company, to three millions of dollars, to be divided into thirty thousand shares of one hundred dollars each.

J. TH. HELMKEN,
J. F. G. EGGERS,
JACOB HAHN,
F. SCHUMACHER,
} Trustees.

Stockholders Meeting.—Office of the Silver Sprout Mining Company, No. 318 California street, San Francisco May 23, 1872.

NOTICE is hereby given that the annual meeting of the stockholders in the above named company will be held at their office, No. 318 California street, (Room No. 1, second floor,) San Francisco, on Tuesday, the 25th day of June, 1872, at the hour of 1 o'clock P. M.

may25-4t T. B. WINGARD, Secretary.

Tecumseh Gold, Silver and Copper Mining Company.—Location of works, Gepher District, Calaveras County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 24th day of April, 1872, an assessment of Five ($5.00) dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, F. J. Herrmann, at the office of the company, No. 634 Washington street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 29th day of May, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 17th day of June, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

F. J. HERRMANN, Secretary.
Office, 634 Washington street, San Francisco, Cal. Office hours from 11 A. M. to 2 P. M. ma4-4t

Union Gold Mining Company.---Location of works, Howland Flat, Sierra county, State of California.

NOTICE.—There are delinquent upon the following described Stock, on account of assessment (No. 5) levied on the 11th day of April, 1872, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. shares.	Amount.
Mahoney, Denis	46	100	$100.00
Mahoney, Denis	47	50	50.00
Mahoney, Denis	62	75	75.00
Mahoney, Denis	63	100	100.00
Mahoney, A. C	65	15	15.00
Male, William F	129	60	60.00

And in accordance with law, and an order of the Board of Trustees, made on the 11th day of April, 1872, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the office of the Company, Room No. 22, Merchants' Exchange Building, California street, San Francisco, California, on Monday the 3d day of June, 1872, at the hour of 1 o'clock, P. M. of said day, to pay said delinquent assessment thereon, together with coats of advertising and expenses of sale.

ALFRED K. DURBROW Secretary.
Office—Room No. 22, Merchants' Exchange Building, California street, San Francisco, California. my18-3t

Washington Mining Company---Location of works and mines, Mariposa County, State of Cal.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 8th day of May, 1872, an assessment of $3 per share was levied up the capital stock of said company, payable immediately in United States gold and silver coin, to the Secretary at the office of the company, No. 318 California street, San Franco.

Any stock upon which said assessment shall remain unpaid on the 11th day of June, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the 29th day of June, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. B. WINGARD, Secretary.
Office—Room No. 1, second floor of No. 318 California street, San Francisco. ma.11-4

Woodland Gold Mining Company—Location of works, West Point Mining District, Calaveras County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 21st day of May, 872, an assessment of 12½ cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, Room 64, Merchants' Exchange, California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the 25th day of June, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 16th day of July, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

F. MADGE, Secretary.
Office, No. 64 Merchants' Exchange, California street, San Francisco, California. may25-td

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4v23tf

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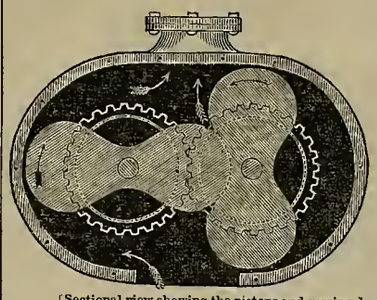

[Sectional view showing the pistons and gearing.]

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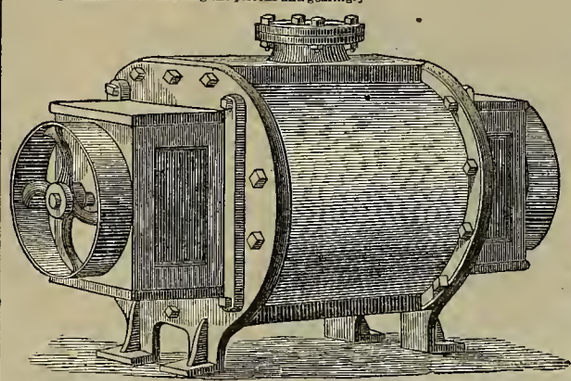

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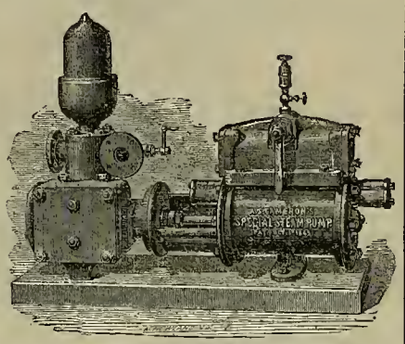

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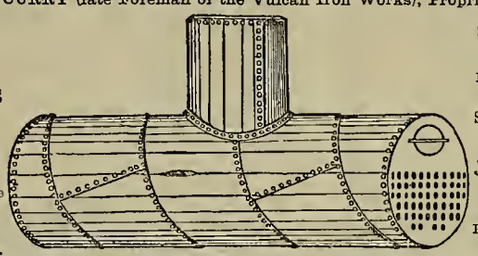

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22v22-3m

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C. E. McLANE.....Vice President.
JOSEPH MOORE.....Superintendent.
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24v17-qy

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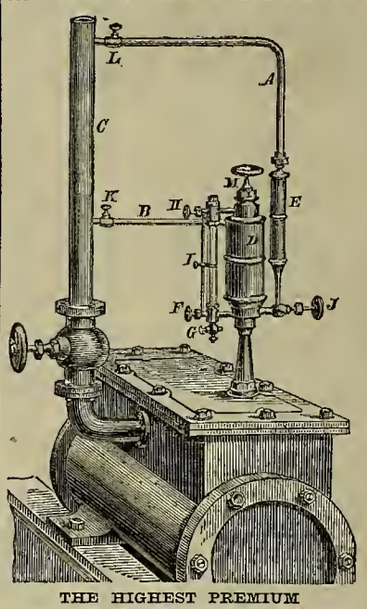

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Notice is hereby given, that the copartnership heretofore existing between A. J. Severance, Charles W. Randall and J. Gus. Burt, under the firm name of "Severance, Holt & Co.," is this day dissolved by mutual consent. A. J. Severance, having purchased all the interest of his late partners, will continue the business of manufacturing and selling Diamond Drills, as before, under the style of A. J. Severance & Co.

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Office, 315 California street. A. J. SEVERANCE,
CHAS. H. RANDALL.
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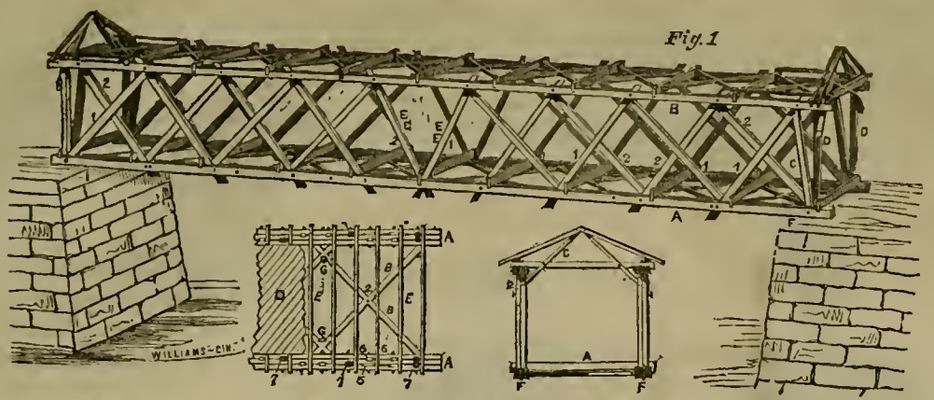

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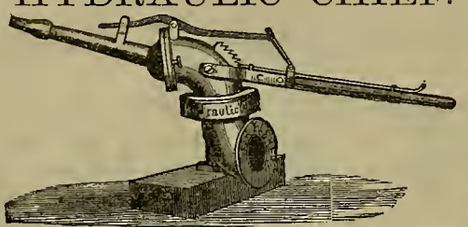

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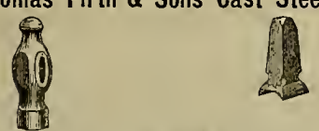

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U. S. PATENT OFFICE, WASHINGTON, D. C., April 16th, 1872.—On the petition of Charles F. Stanford, of San Francisco, Cal:—Praying for the extension of a patent granted to him on the 27th day of July, 1858, for an improvement in Feeding Quartz, etc., to Machines for Crushing and Grinding the same.

It is ordered that the testimony in the case be closed on the 25th day of June next, that the time for filing arguments and the Examiner's report be limited to the 5th day of July next, and that said petition be heard on the 10th day of July next,

Any person may oppose this extension.

m11-3t M. D. LEGGETT, Commissioner.

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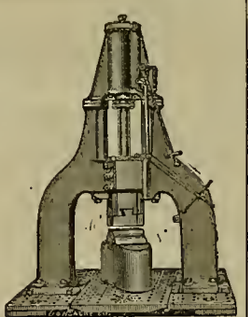

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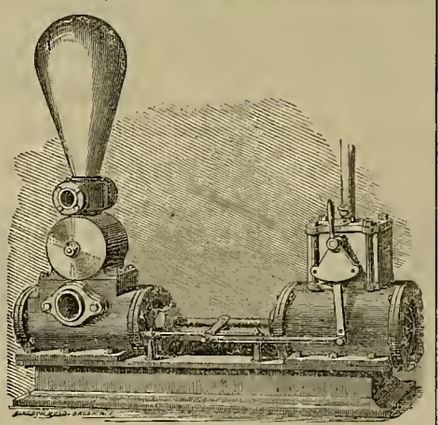

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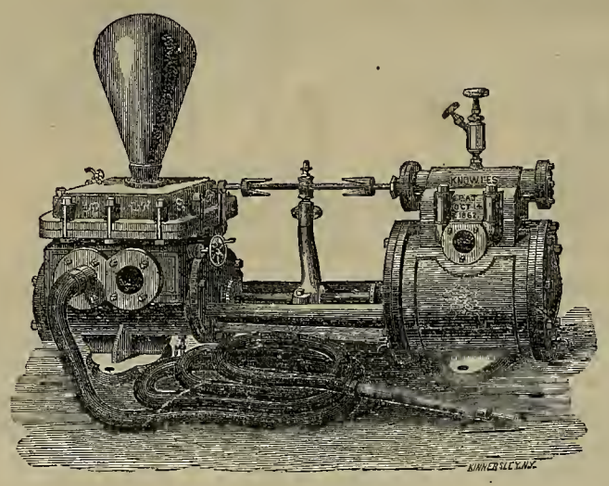

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VOLUME XXIV. Number 22.

The Danks' Puddler—Unexpected Difficulty.

A practical trial of the Danks' Puddling Furnace was lately made in England, under the immediate supervision of the Iron Master's Council, in which the machine, after several trials, received the general approval of the Council, while all doubt of its success, if any existed, was finally removed. One or two gentlemen expressed some doubt as to whether the machine would be able to produce iron of the quality required for the finest of the Staffordshire brands of manufacture; but it was freely admitted that there was no doubt about its being perfectly fitted for a large part of even such exceptional work; while for the production of iron generally, it was all that could be desired.

All this gratifying approval, however, was soon after suddenly chilled by the information conveyed to Mr. Danks that the iron masters had been examining into the validity of his patent, and found that it was invalid; but the reasons upon which their opinion was based were not revealed. The supposition, however, is that the conclusion was reached that there was a lack of novelty in the machine, which would be fatal to the stability of the patent. How such an opinion could be arrived at in the face of the universally admitted fact that no other inventor had been able to reach any practical degree of success, it is difficult to understand.

The iron masters notified Mr. Danks that in consequence of this conclusion they had decided not to ratify the preliminary agreement, in which it promised to pay the inventor $250,000 for the privilege of building 200 of his furnaces, but that they would graciously consider his case and secure him such award for his invention as he might be morally entitled to at the hand of the associated iron interest, which would be so largely benefited by the practical value which his genius had added to the inventions of others.

The committee, in return, were politely assured by Mr. Danks, that in case their declaration was persisted in he should take active measures to secure his rights against all infringers, and that any subsequent arrangement with the iron masters would have to be made on a different and less favorable basis than the one which they proposed to repudiate.

There appears to be a very general feeling among the masses of even the iron men, that injustice is intended towards the inventor, and the wish is freely expressed that he may finally receive a full and ample reward for the great benefit which must certainly accrue from this important invention. All inventors must certainly wish him the fullest success in the contest which thus seems to be precipitated upon him in the very hour of his success.

THE FIRST COAL ever mined in the United States was dug up near Richmond, Virginia. Bituminous coal was mined there as early as 1700, and in 1775 was extensively used in the vicinity. During the revolution a Richmond foundry employed this coal in making shot and shell for the use of the Continental forces.

PROFESSOR ALBERT HOPKINS, Professor of Natural Sciences at Williams College, Mass., died on the 24th ult. He was the brother of President Hopkins, who recently resigned his position in that institution, and was well known in the scientific world.

Hungerford's Improved Water Wheel.

This invention is intended to provide an improvement in turbine or other water-wheels, and consists in a novel arrangement of one or more adjustable gates, through which water is admitted to the wheel. These gates are curved and can be operated by a screw rod and nut so as to regulate the amount of water admitted to the wheel, according to the amount of fall of water and the power required to be exerted by the wheel.

Figure 1, is a side sectional view, and figure 2, a plan. *A*, is the central shaft to which the wheel, *B*, is secured, and *C* is the outer inclosing case, water being admitted through the passage, *D*. *E* is a circular disk or plate, extending around the journal of the shaft, *A*, and forming the upper side of the chamber or case in which the wheel, *B*, revolves. The sides of the case are formed by adjustable curved gates, *F*, which in the present case are three in number, as shown. These gates are formed in a curve, commencing at the outer or movable end, and drawing gradually nearer to the wheel until at the extreme inner end they are secured by a lug, or ear, *a*, to the top and bottom of the case, so as to keep its extremity to its place at all times.

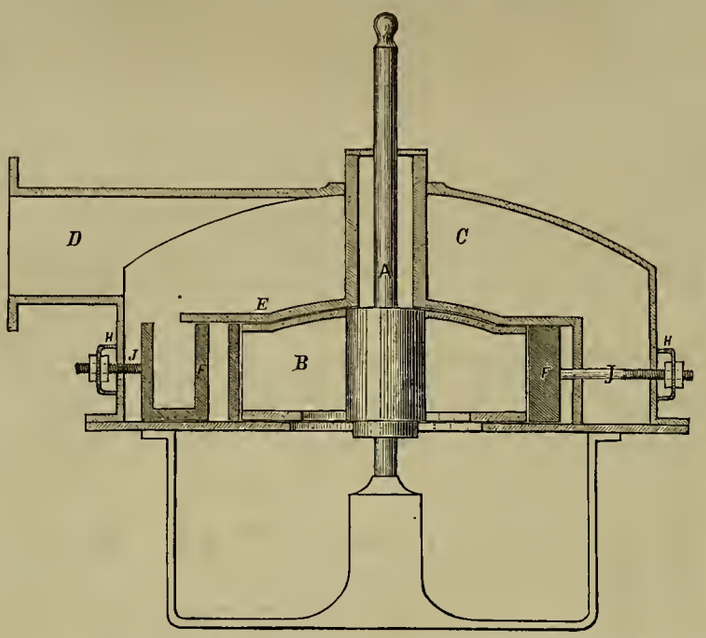

FIG. 1—HUNGERFORD'S IMPROVED WATER WHEEL—SECTIONAL VIEW.

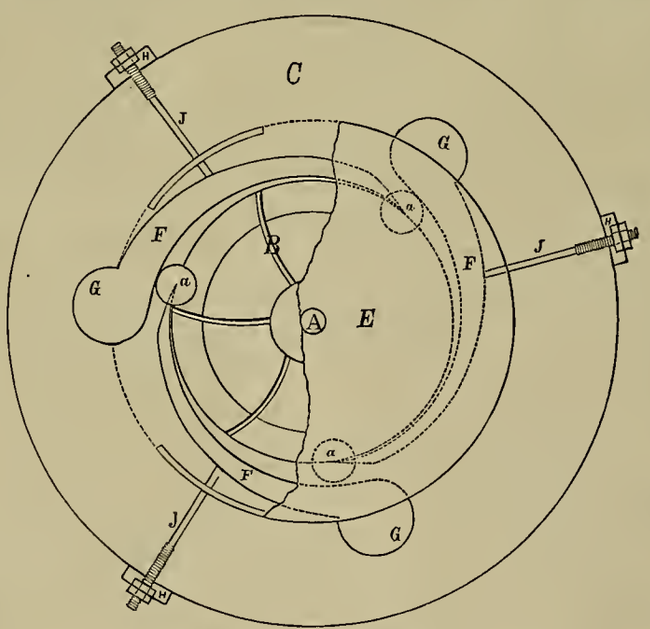

FIG. 2—PLAN OF WHEEL.

The outer or movable end of these gates has a motion about the pivot, *a*, in their adjustment, so as to allow their movable ends to be brought nearer to, or further from, the periphery of the wheel. The outer end of each gate is cylindrical in form, as at *G*. In order to open or close the gates, a screw rod, *J*, passes from each gate to the outside of the casing, and a suitable nut, *H*, operates the rod, thus moving the gate as shown.

The operation will be as follows: water being let in through the supply passage, *D*, will rush in through the passages formed by the position of the curved gates, *F*, and striking the wheel will cause it to turn.

These adjustable gates are employed to contract or enlarge the water passage leading to the wheel, according to the head or fall of water to be obtained, as by reducing the size of the water passages, and consequently the amount of water admitted to the wheel, in proportion as the highth of fall is increased, the power of any given amount of water can be proportionately increased.

This invention has been patented, through the SCIENTIFIC PRESS Patent Agency, by Morgan Hungerford, of San Francisco, Cal.

ARIZONA AFFAIRS.—General Howard has, after a very short experience among the Apaches, given General Crook permission to deal with them as they deserve to be dealt with. In his order to Gen. Crook, he says that his office as special Commissioner was to make one more effort to settle all trouble peaceably, but since the murders and robberies still continue, there is no course left but to deal with the Indians with vigor until they are made to feel the power of the Government. The order is a sensible one and was no doubt very acceptable, not only to Gen. Crook but to all the inhabitants of the Territory, Gen. Howard, like every one else who ever went to Arizona has been able to see the Indian question in its proper light and shows his good sense in throwing the discretionary power given him by the authorities, on the right side. In a speech made by him he declares that his views as to the proper military course to be pursued in Arizona are almost identical with those of Gen. Crook. His mission to Arizona was not to prevent war upon hostile Indians, but to enforce the treaty provisions on both sides, settle the good Indians upon reservations, and enjoin obedience to the laws.

It is to be hoped now that Gen. Crook has the proper authority to pursue the course he chooses, that he also possesses the requisite force of troops, etc., to carry out his views since they will no doubt be congenial to the people of the country. We hope to hear shortly of a cessation of the robberies, murders and other outrages committed upon citizens of the United States by the red skins, for the efficient commander will doubtless make short work of the Indians concerned in them.

The Future of the Pacific Coast.

When Sir Isaac Newton, the greatest of modern philosophers, lay at the point of death, his friends, assembled at his bedside, were grieving at the loss the world would sustain by the death of so great a man; the dying philosopher, observing their emotion, and comprehending the cause uttered these memorable words: "Weep not for me my friends, I am but as a mere child upon the sea shore picking up pebbles, compared to what those who come after me will be able to accomplish. I am but at the doorstep of knowledge." And thus it is ever. Compared to the possibilities of those who succeed us we are but mere children upon the seashore picking up pebbles. We are only at the doorstep of knowledge, intelligence and power. Those who came to California early were, it is true, blessed with opportunities of a high order, but, compared to those who came after them, and those who will come in the future, they were but as children upon the seashore picking up pebbles—at the doorstep of intelligence and power.

The Wealth of the Future.

Let us estimate the aggregate of the wealth of the inhabitants of the Pacific Coast in 1860; what was it as compared with the aggregate of the wealth of the inhabitants of this coast in 1870? Look at the increase of wealth of San Francisco, alone, in those two years. Contemplate the vast area of streets that has been opened and the multitude of solid, substantial buildings that have been erected in those ten years; and behold it, to-day, in spite of the financial depression that we have recently experienced, occasioned principally by the great drought from which our mining and agricultural regions have suffered. Contemplate, too, the great increase in all the elements of wealth to be found in the numerous cities, towns and villages, that have sprung into existence on this coast in the past twenty years; the railroads, canals, tunnels, etc., that have been constructed in the past few years, and think what the next twenty years will do for us, with the vast lines of railroads that are already built, or in course of construction, and in contemplation. Who is he that has prescience enough to estimate what will be the aggregate of wealth of the Pacific Coast in the year 1900, when the Central Pacific and the Northern and Southern Pacific railroads shall have developed the hundreds of now barren wastes, that will then be noisy with the active millions of people that will then populate the vast cities, towns and villages that will meanwhile spring into existence all around them?

The Improvements of the Future.

Independently of these, who can estimate the value of the millions of acres of now unproductive lands that shall be opened up to our farmers by the immense net work of railroads and canals which shall be constructed in all parts of our State by that time? Think of the vast benefits which our miners and agriculturists will realize from the completion of the numerous works now latent in the minds of some modern DeWitt Clintons. The numerous projects such as Lake Tahoe; the irrigation canals, that will make our adobe lands prolific, in spite of droughts; the millions of tule lands that in a few years will be reclaimed and yield never failing and abundant harvests. Think of the vast mines of wealth that will flow into the coffers of our manufacturers when the thousand and one industries that now are unthought of on our coast are in active operation, and that shall check the mighty export of our precious metals to procure their supply from other parts of the civilized world. Think of the immense lines of steamships that shall bring the commerce of China, Japan, and the islands of the Pacific, and even India, to our doors. The barriers of prejudice and ignorance are rapidly falling before the silent but overwhelming approaches of commerce and civilization.

The Men of the Future.

All that we need is men, not mere humans, dwarfed by prejudice and ignorance, but men who have large brains and comprehensive intellects to grapple with the mighty problems now waiting to be solved. Not men like the Chineso, who will build a great wall to keep out civilization, and the arts and sciences, and allow the surrounding natives to progress while they are dormant and slothful. Men who will not allow their "lights to be hid under a bushel," but will "let them shine before men." Men whose reputation for intelligence, industry and integrity shall be known to the furthest confines of the earth; men who while they have intelligence to conduct gigantic enterprises and manufacture goods that shall flood the markets of neighboring countries, shall realize the value of the printing press in heralding their achievements to the uttermost parts of the earth. Men who shall appreciate the advantages of enterprises like ours and aid them, and avail themselves of its benefits, and make the manufactures of the Pacific Coast what the manufactures of Birmingtou, Sheffield, Manchester, London, Liverpool, Paris, Antwerp, New York, Boston, Pittsburgh, etc., have done for theirs. All it wants is men like these. Shall we have them?

The Vintage of 1871.

The following article from the *Commercial Herald and Market Review* of the 10th inst., is written by one of the best posted wine dealers in the State, and, as will be seen, fully sustains the estimates of the Wine Growers' Association:

Enough reliable data has reached us at this time from the various wine counties of the State, to make a very close estimate of the total amount of wine made during the last vintage. While the grapes were coloring, various experts supposed that the product would reach eight million gallons, from the fine appearance of the vines, which were overcharged with grapes; but the ravages committed by the grasshoppers and sun-blast in the lower, as well as some of the mining counties, far exceeded their expectations, and diminished by more than a million and a half gallons what could have been reasonably expected. Various estimates have since been made as to the entire yield, some of which are unfortunately far above the mark; while others, just as unfortunate and more damaging in their influence, belittle the amount, through gross ignorance. In this latter connection, we allude to a wine article that appeared in the *Alta* on the 2d of this month. The writer sets forth his belief that no more than four and a half million gallons were made last vintage, and gives the puerile reason for the statement that only 800,000 gallons of the previous vintage was exported, that only 1,300,000 gallons were brought to the city, and that therefore, in his opinion, there was not 5,000,000 gallons of surplus, or, to use his own words, "or anywhere like it." These statements were made in the face of the printed report of the Committee on Statistics of the Wine and Brandy Growers' Convention of Sacramento, who placed the yield at 6,000,000 gallons. This convention had representatives from every prominent wine county in the State, and every prominent wine-grower in the State was represented, at least by a neighbor, if not present himself. The committee carefully gathered from each of these representatives a close estimate of his individual district, and submitted the sum total to the convention, which was adopted, after reading, and became embodied in their pamphlet. The proposition to set aside a report gathered under such favorable auspices, by the opinion of a single person, who is no authority on the subject, is simply preposterous.

All the more recently gathered information confirms the estimate of the Sacramento Wine Convention, that the last vintage fully reached six million gallons of wine. This information more than verifies their statements concerning brandy, and in all probability they will be fifty thousand gallons under the real amount distilled at the time the convention met. In careful estimates made from actual yields of a number of individual vineyards, we have found that the lowest yield was four gallons to every seven vines which were six years old and over—this being the average in Santa Clara, portions of Napa, Santa Cruz and Sonoma counties. In Sacramento, El Dorado, portions of Napa, Solano, Stanislaus, San Joaquin and Amador counties, the yield was one gallon of wine to every two vines. In Los Angeles county, in fair years, the yield is three gallons to every five vines. Now, in the Sacramento Convention it was admitted as a fact, that there were in the State fifteen million vines in full bearing—that is, six years old; and taking the lowest produced average for last year for only these fifteen million vines, we ought to have made eight million seven hundred thousand gallons of white and red wine. Deducting from this one and a half million for the losses in Los Angeles; another half million for losses in the mining counties, and seven hundred thousand for distillation, we still have six million gallons left, with fifteen millions vines from five years to one year old, to furnish us with all the grapes we may have used for the table. The yield of these latter fifteen million vines, estimated from their respective ages, would be over twenty-one million pounds, giving thirty pounds of grapes to every man, woman and child in the State for eating.

New and Curious Building Materials.

To make planks out of sawdust has hitherto been regarded as equally feasible with spinning ropes out of sand. However, the manufacture of planks out of sawdust is now unquestionably possible, though we do not say economical; still the operation by which this might be accomplished, slightly varied, yields products not only curious but economical, and some of them, we believe, are destined to find large application as building materials.

The chemical material lignine, or cellulose, (woody fibre) was regarded until quite recently as insoluble; but it has been discovered that the fluid "*cupro ammonium*" dissolves woody fibre with great facility. There is good reason for belief that materials built up by taking advantage of this curious solvent property of cupro ammonium will before long be turned to great practical use, by effecting, however, not complete, but partial solution. Thus, to take a simple case, a sheet of paper could be rendered waterproof by being dipped momentarily in cupro ammonium, then passed between rolls to squeeze out excess of moisture, and finally dried. Such paper might be made into a bag and filled with water, and would not allow any fluid to come through except through such apertures as all paper invariably possesses. Hence to treat a single thickness of paper for the sake of waterproofing it is of little use; but if two thicknesses be dipped momentarily in the bath and then passed face to face through rolls, the two surfaces adhere so absolutely that, after drying, the plane of juncture is invisible and cannot be rendered visible by dissection. Moreover as the chances against the exact correspondence of two apertures in the two opposite sheets are almost infinite, a waterproof bag could be made.

What can be effected on two sheets can be effected on any number, and thus artificial lignine sheets may be built up of any thickness, from that of paper to that of plank or scantling if desired. The material, when in a certain state of moisture, molds with almost the same facility as potter's clay. It readily corrugates, either by fluted rolling or by rectangular pressure, and the corrugated material, extremely light, hard and almost indestructible chemically, is destined, we believe, to supplant corrugated iron in numerous applications of the latter. Water has no effect on it, and acids but little; in fact, the only agent which they cannot stand is ammonia.

It is a noteworthy fact that although cupro ammonium rapidly dissolves lignine, yet the first result of immersion is a strengthening of the fibre. A piece of linen, for instance, after being dipped for an instant in the fluid, has a greater cohesive force than it had before. This result appears to be due to a contraction of the tissue by the chemical action, and, suggests comparison with the curious accession of strength imparted to paper by instantaneous dipping in concentrated sulphuric acid, although a more prolonged immersion destroys the same paper.

Fabrics of great tensile and cohesive strength may be prepared by alternating canvas with paper or canvas with canvas. Thickness for thickness, we do not think that any timber can equal the strength of these compound fabrics. For building purposes there are numerous applications. For roofage the very thinnest double tissue paper would be both water and wind-tight, and nothing would be gained by using thicker material, except for providing against the casualty of snow and other extraneous weight. We have, however, seen a specimen made of six thicknesses of common brown paper and corrugated, which seems stout, strong and reliable enough to be proof against all ordinary casualties. As regards ornamentation, the natural tint of some of these cupro ammonium lignine structures is very elegant, and they readily take any sort of paint.

Many other utilities will suggest themselves. Among these the manufacture of tubing is important. Possibly the material may be turned to good account in hat-making—probably in boot making. We have even seen a waterproof paper cape, the only obvious defect of which was a trifle too much of rigidity.—*Condensed from Engineer.*

Shipping Wheat in Bulk.

There is an exceedingly onerous tax upon the grain growers of this State, which is not felt by their more favored co-laborers of the Atlantic States, and which annually eats largely into the profits of the California producer. We allude of course to the use and cost of sacks, to be given away with the sale of the grain. A farmer in the Atlantic States would no more think of giving away the sacks in which he delivers his grain, than he would his wagon that carries both sacks and grain to the market; and there is no more reason for his doing it.

There should be erected along the lines of the railways, and at all interior shipping ports, contiguous to grain producing districts, convenient repositories for the storing of the grain in the country in bulk, and where farmers can deliver it by the wagon load, retaining their sacks. Cars and water transports should receive the same and again deliver it in bulk at different grain-loading elevator stations; and here again, ships should receive it once more in bulk, as is done at all the ports of the Atlantic, for shipment to foreign countries.

It is idle talk, to say that grain cannot be shipped from California in bulk. It has been done successfully, and can be again, and the sooner a united and determined effort is made by our farmers, to provide a remedy and utterly throw off this sack-parasite that annually fastens with such expensive effect upon their purses, the better it will be for them.

A unity of action is required, and we know of no better way to bring it about, than to have a conference of the different Farmers' Clubs throughout the State as proposed by the Contra Costa Club, in this number of the RURAL, and unite upon some effort or action, either to break up or act independently of the sack "ring," that would control the market and exact their own prices.

Whiskey from Tule.

The pith or spongy, central part of the Tule, is found by analysis to contain gluten and starch in large quantities, whilst the green outer covering abounds in albumen. These substances all possess the constituents of alcohol, and are easily convertible into that material by the requisite means and process.

The ripened, but not dried tule, after being minutely divided by suitable machinery, is subjected to boiling in dilute sulphuric acid, which converts the starch and other sugar-producing constituents, into glucose or uncrystallizable sugar—molasses—which being diluted with water to the proper degree, a ferment is added which brings out or produces the spirit by the common process of fermentation; the mash is then distilled in the ordinary way producing tule whiskey.

POWDERED COAL FOR UNHEALTHFUL PLANTS.—In a communication addressed to the *Revue Horticole*, the writer states that he purchased a very fine rose-bush, full of buds, and, after anxiously awaiting their maturing, was greatly disappointed, when this took place, to find the flowers small, insignificant in appearance, and of a dull, faded color. Incited by the suggestion of a friend, he then tried the experiment of filling in the top of the pot around the bush, to the depth of half an inch, with finely pulverized stone coal. In the course of a few days he was astonished at seeing the roses assume a beautiful red hue, as brilliant and lively as he could desire.

He tried the experiment upon a pot of petunias, and soon after all the pale and indefinite colored ones became of a bright red or blue, and the white petunias were variegated with beautiful red stripes. Some of the lilac petunias became a fine dark blue. Other flowers experienced similar alterations; those of a yellow color alone remained insensible to the influence of the coal.

COTTON manufacturers in the south are on the increase; 150,000 spindles are now in active operation. Most of the mills are in Georgia. Those now in operation are said to pay from 10 to 20 per cent. on capitals ranging from $100,000 to $1,250,000.

SCIENTIFIC PROGRESS.

New Sensitive Singing Flame.

Philip Barry described in *Nature*, of last November, a very sensitive flame, produced by placing a piece of ordinary wire gauze on the ring of a retort stand, about 4 inches above a Sugg's steatite pin-hole burner, and lighting the gas above the gauze. At the least noise the flame roars, sinking down to the surface of the gauze, becoming at the same time almost invisible. It is very active in its responses, and being rather a noisy flame, its sympathy is apparent to the ear as well as the eye. W. E. Stevens writes to the *Am. Jour Sci.* that a simple addition to this apparatus gives a flame which, by slight regulation, may be made either (1) a sensitive flame merely, that is, one depressed and rendered non-luminous by external noises, but which does not sing; (2) a continuous singing flame, not disturbed by outward noises; (3) a sensitive flame, which only sounds while disturbed; or (4) a flame which sings except when disturbed. The last two effects are novel. To produce the flame it is necessary merely to cover Barry's flame with a moderately large tube, resting it lightly on the gauze. If the gauze and tube be raised, the flame gradually shortens and appears less luminous, until at last it becomes violently agitated and (2) is produced. The sensitive musical flame (3) is produced by lowering the gauze until the singing just ceases. It is in this position that the flame is most remarkable. At the slightest sharp sound it instantly sings, continuing to do so as long as the disturbing cause exists, but stopping at once with it. So quick are the responses that by rapping the time of a tune, or whistling or playing it, if the tones are high enough, the flame sounds faithfully at every note. By slightly raising or lowering the jet the flame may be made to sing at a hiss, the rattling of keys, folding paper, or even moving the hand over the table. On pronouncing the word "sensitive" it sings twice; and in general, interrupts the speaker at almost every "s" or other hissing sound. All the experiments can be made under the ordinary pressure of street gas, three-fourths of an inch of water being sufficient.

Varieties of Matter.—We extract the following from an article by Prof. Morton in the May number of the *Am. Jour. Sci.*: Matter exists certainly under two and probably under three varieties: *ordinary* or *gross matter*, directly recognized by our senses; *universal* or *luminiferous ether*, filling all space and pervading the insterstitial spaces of all bodies of ordinary matter, the existence of which is inferred from optical phenomena; and *electric ether*, associated with all bodies of ordinary matter, whose existence is inferred from electrical phenomena. Possibly these varieties may not differ in their essential nature. It is at least conceivable that the atoms, so called, of ordinary matter and of electric ether are condensed groups of atoms of the universal ether; and hence that there is essentially but one form of matter in existence. It may be that the electric ether, the supposed agent of electrical phenomena, may be shown ultimately to be identical with the luminiferous ether; but in the present state of physical science they cannot be so regarded. It is supposed by some physicists that electrical phenomena may consist in some mode or modes of motion of the atoms of ordinary matter, and that the forces of electric attraction and repulsion may originate in such motions. But this notion cannot be regarded as anything more than a conjecture. The existence of an electric ether has not been as conclusively established as that of the luminiferous, but all the phenomena give decided intimations of the operation of such an agent, and thus serve to confer upon the hypothesis of an electric ether a high probability.

An Educational Experiment.—A novel and interesting experiment in the field of elementary instruction has just been resolved upon in Saxony. Hitherto, as everywhere else, so in that small but highly developed kingdom, the youth of the lower order, upon being apprenticed to a trade, have been left at liberty to forget what they learned at school. Attendance at Sunday schools and evening instructions provided by the State, and charitable societies, were perfectly optional. By law this liberty is abridged, and compulsory attendance at evening schools exacted for a period of three years. This is, we believe, the first time in the annals of the world that an attempt has been made by a State to extend the education of the humbler classes beyond the merest rudiments, and after they have entered upon the business of life.—*Ex.*

Narcotic Action of Tobacco.—Vohl and Eulenburg have investigated the narcotic action of tobacco, especially examining the action of tobacco smoke. As the result of their analysis, they are led to the opinion that the disagreeable symptoms of the incipient smoker and the chronic affectations produced by excessive smoking, as well as the poisonous effects of tobacco juice when swallowed, are due to the pyridine and picoline bases, and not to the nicotine. They explain the fact that stronger tobacco can be smoked in cigars than in a pipe, by finding that more of the volatile bases are present in pipe smoke, more especially of the very volatile and stupefying pyridine; while in a cigar little pyridine and much collidine are formed.

Aniline Colors Poisonous.—According to Drs. Pohl and Eulenberg, of Cologne, aniline colors are poisonous. Aniline itself is an acknowledged poison, and all coloring matters containing unchanged aniline are therefore capable of poisonous effects. In the preparation of the colors the strongest oxidizing agents are used, and of these many are violent poisons, as arsenic acid, chlorides of zinc and tin, antimony and lead compounds. If any of these substances remain in the manufactured coloring matter, of course the article is dangerous; not of itself, for this is innocuous, but from the metal poisons it contains, and from the acids combined with them, as hydrochloric, acetic, arsenious and picrine acids. Moreover, many coloring substances are manufactured from the residues of aniline factories, and these contain the largest amounts of poisonous matters. These last, on account of their less cost, are extensively used, principally for red carpets, toys, common articles of confectionary, bonbons, drops, etc.; also for toys made from transparent rubber, and for nursing bottles. Cases of poisoning from woolen and mixed goods, dyed with aniline colors are known. The same is true of pheuil colors, and the subject demands stongly the adoption of sanitary regulations.

Effect of Colored Light on Vegetation.—The opinion of Poey's that violet light has a most favorable effect upon the growth of animals and plants led a Mr. Bert to make experiments (not yet quite concluded) on a large scale. He placed 25 plants of different families, which differ greatly in respect to need of light, in compost beds, covering these, first, with common glass; second, with dull white glass; third, with blackened glass; fourth, with red; fifth, with yellow; sixth, with green, and seventh, with blue glass. The red, green and blue were, examined in the spectroscope, almost monochromatic; but the yellow glass transmitted all other colors, only more weakly. Experiments carried on from June to the end of August gave the following results: In general the green light is as bad for plants as is darkness; red is less injurious, though decidedly hurtful; then comes yellow; least injurious is blue. But all colors are unfavorable for plants, except when combined in the proportions contained in white.

Auroral Displays in the U. S.—The *American Journal of Science* gives a table of the auroral displays in the United States, in the year 1871. The total number of days is 170, divided as follows:

Jan.	11 Days	July	9 Days
Feb.	13 "	Aug.	12 "
March	15 "	Sep't.	13 "
April	16 "	Oc't.	15 "
May	17 "	Nov.	19 "
June	17 "	Dec.	12 "

During the past three years the number was as follows:

1869	192 Days
1870	233 "
1871	170 "

The correspondence of these results with the number of spots visible on the sun's surface is quite noticeable. The disturbance of the sun's surface attained its maximum in 1870, and is now rapidly declining. It is anticipated that the number of auroras visible in the United States in subsequent years will exhibit a similar decline.

The Parchment Fluid of the chemist C. de Sonvageon is said to have the property of preserving paper from the injurious effects of moisture. Drawings which can be injured by rubbing are moistened with the fluid on the back side at first (the fluid is applied by means of a sponge), or if this is not possible a paper is laid over them and the fluid applied to this. After the first coat has dried on, which requires about twenty minutes, the fluid can then be applied without further precaution. If the drawings are not liable to rub out, the fluid can be put on directly in the beginning. Paper thus treated has, besides its unsusceptibility to injury from moisture, the following valuable properties: 1. Spots of all kinds can be removed by washing with soap-water; 2. Drawings in lead or chalk can be permanently fixed; 3. Paper treated with two or three coats of the preparation can be written on with lead or ink, and the writing can no washed off.

The Lowest temperature at which seeds can sprout has been generally taken to be 4° or 5° Reaumer (41° to 43° Fah.). Decandolle found that all the seeds with which he experimented, sprouted at a temperature of 4° or more; only the *lepidium sativum* (garden cress) and *linum usitatissimum* sprouted at 3°, and 5 out of 30 seeds of the *sinapis alba* (white mustard) at 0°. Uloth, according to the *Flora*, on clearing out an ice-cellar, found in pieces of ice fully sprouted seeds of maple and wheat, which flourished when transplanted to soil. The cellar was fully dark and the temperature zero (32° Fah.) at the spot where the seeds were found.

The Thermometer at High Altitudes.—The higher we ascend, the colder it becomes; and yet at very great elevations the rays of the sun exert a heating power greater than that which they are found to produce in the valleys. Prof. Piazzi Smith found, that on the top of Teneriffe, at an elevation 10,000 feet above the level of the sea, a thermometer exposed to the direct rays of the sun showed a temperature of nearly 200° Fah.!

MECHANICAL PROGRESS.

More About Lubricators.

The best efforts of both mechanics and chemists have been directed to the preparation of a perfect lubricator, and although much remains to be accomplished, yet the results already attained are exceedingly satisfactory. For light machinery the requirements are that the lubricating material shall be a good anti-friction agent, not easily deteriorated by the combined action of friction and air; and for some purposes, at least, such as sewing machines, that it shall be cleanly. These conditions are most perfectly fulfilled by well purified oils, such as sperm or olive. The gummy and gelatinous matter, as well as all moisture, must be thoroughly removed, and oil in this condition is readily found in market, being prepared for the use of gunsmiths, clockmakers, sewing machine workers, etc. Lubricating material for heavier machines is still more easily found of tolerable quality, and it is only when we come to really heavy work that we again find it difficult to obtain a really suitable article.

All surfaces which are pressed together with great force should be lubricated with a comparatively hard material; otherwise the lubricator will be expelled from between them, and the friction will soon become greater than at first. Hence, instead of liquid oils, the heavy semi-fluid petroleums have been used with great success; and where matter of animal or vegetable origin is employed, the solid fats, such as lard, tallow, palm oil, etc., are preferred to the true oils. Nor does the intelligent mechanic stop here. In order still further to harden the oil or grease, be employs alkali, and by the use of caustic soda he converts it into a mild species of soap. But where the work is heavy, and especially where the surfaces are soft, the best lubricating material is plumbago. We have seen it tried on wooden surfaces, such as wood screws, which will perform at least twice as much work after being carefully rubbed with a mixture of soap or tallow and plumbago.

In the case of wooden bearings nothing that we have ever seen tried, lessens the friction as well as plumbago. The same is true in regard to cast-iron surfaces such as the ways of heavy planers. These often cut in such a manner as to become almost unmanageable, in which case a little really good plumbago remedies the evil at once. Poor plumbago, on the other hand, only aggravates the evil. The use of plumbago for this purpose has long been known, but until quite recently, no effort seems to have been made to call general attention to it.

Metalline.

The famous anti-attrition used in Europe consisted simply of plumbago and lard, and at different times attempts have been made to create an excitement by the announcement of a new lubricator under some high sounding names, such as metalline, mineralline, etc.; the entire virtue of such materials, where they possessed any virtue at all, being due to plumbago. A striking example of this was given a few months ago, when almost every industrial journal in this country and Europe rang with the praises of metalline; although to judge by the final result, these laudations were based upon a very slender foundation of fact.

But although we have particularly recommended the use of plumbago for heavy machinery, it must not be supposed that it is unfit for lighter work. Sixty years ago, M. Lewis Herbert, of Chelsea, Eng., used it in a very refined state as a substitute for oil, in diminishing the friction of the rubbing parts of the clock. He applied it to a siderial time-piece, in January, 1816, between which period and 1827 the time-piece was cleaned three times without renovating the plumbago; the friction places being only wiped with a fine muslin rag. In a communication to the Society of Arts, in 1827, eleven years after the plumbago had been applied only once, he states that the time-piece was going as well as ever. He found great difficulty in applying it to the jewelled pallets of the escapement, but got over this by applying it to the friction plane of the teeth of the swing-wheel; and he adds, "so, ever since the clock has gone without oil."

We feel assured that the principal reason which has hitherto kept plumbago from being generally used as a lubricator has been the difficulty of obtaining a good article. Until within a comparatively recent period, no effort has been made to place before the public an article prepared with special reference to lubricating purposes; but we are happy to observe that a movement has been made in this direction, and really suitable specimens can now be readily obtained.—*Handicraft.*

Ventilation and Heating.—It is said that an apparatus has now been perfected which may be applied to cooling the air of theatres, halls, and all public or private dwellings. One of these machines will either produce 200 pounds of ice per hour, or will furnish in the same time 33,000 cubic feet of air, cooled to a temperature of 33 degrees Fahrenheit. It is probable that in a few years we will turn on from the same registers the cool air in summer and the hot air in winter. The application of such an apparatus to the pipes of a heater would be extremely simple, and furnish just what we want when the heater is off duty.

Keenan's Boiler Coating.—Much value is assigned to a substance known as Keenan's Boiler Coating, as a means of preventing the radiation of heat from steam-boilers, and the saving, in consequence, of fuel as well as of time in bringing steam up to the proper degree of tension. The substance is a pulp composed of paper, oil, and certain chemicals, and is laid cold on boilers, steam chests, steam-pipes, or any other article that is to be protected from the outer atmosphere to the thickness of an inch and a quarter; on superheaters two inches are required. The boiler, however, must be kept warm during the coating process. When the pulp has properly set it receives three coats of paint, and can, if necessary, be grained and made to look ornamental.

The editor of the London *Mechanics Magazine* has recently examined certain boilers coated with this substance, and found that with boilers in actual operation the exterior exhibited a gentle warmth just perceptible to the touch. He also was informed that it was the practice of the stokers to draw their fires at half-past three in the afternoon and to close the dampers, the steam being then at about thirty-five. On resuming work in the morning at five o'clock, A. M., the gauges generally showed twenty-five pounds of steam, or a loss of only ten pounds during the night as the result of radiation.

Wall Paper Impressions.—About one year ago, some fertile-minded genius hit upon the idea that the most perfect imitations of different kinds of wood for wall paper would be impressions taken from the wood itself. With this notion in his head he went to work, and the result is, an exact copy of the surface of the plank in use. Thus a walnut plank is planed off and from its surface is printed thousands of sheets of wall paper. The same process produces *fac similes* of oak, mahogany, maple, and in fact, all kinds of timber. We yesterday examined specimens of this beautiful work at the paper house of Miller & Badger, in this city, and confess our astonishment at its completeness. The copies are like printed sheets from engraved plates. When hung and varnished this class of paper presents a rich and beautiful appearance.

Steam on City Railroads.—On city cars the great and positive objection to steam has hitherto been the noise of the exhaust steam. This noise is entirely suppressed by an appliance adopted by L. J. Todd, Leith, England. He uses a fan blast and drives the fan with a turbine, by changing the blast nozzle from the funnel, so as to cause it to discharge the exhaust steam against the turbine. The waste steam from the fan is led into the funnel by an opening, the area of which is so large as to positively prevent the noise usually occasioned by exhaust. It will be seen that this is also an excellent method of applying blast, as it is increased or diminished just in proportion to the rate of speed, and ceases when it is not wanted. An auxiliary pipe from the boiler direct can be used to drive the turbine if desirable when the engine is standing still.

Why Railroad Bridges Break.—A correspondent of the *Business Guide* submits the following theory: It is the custom to allow trains to approach the bridge at full speed, slacking up only when immediately before and while on the bridge. The brakes are thus applied to the wheels while on the bridge; the rails on which the wheels are running must therefore resist the momentum, and as they are fastened directly to the bridge, a tremendous longitudinal strain is brought to bear upon it. Especially is this the case when the locomotive has passed over and the train, with brakes down, is still on the bridge. To illustrate this philosophy, take a small wagon and place it on a light table, lock the wheels and attempt to draw it across the table. It will be readily seen that the table is drawn over in the same direction.

Burnt Cast Steel that has been spoiled by overheating can be partially restored, it is said, by heating it over and quenching in water four or five times, each of less extent than the first overheating and decreasing; lastly, hammering the steel till nearly cold, to give the greatest condensation before hardening. Some prefer the steel thus recovered for cutting tools, and the treatment really produces a remarkable change, as a fragment of the same bar in the spoiled state will be extremely coarse, and another of the restoration as extremely fine.—*U. S. R. R. and M. Register.*

A cement of great adhesive power may be made by rubbing together, in a mortar, two parts of nitrate of lime, twenty-five of water and twenty of powdered gum arabic, this forming a transparent cement of wonderful strength and applicable to wood, porcelain, glass and stone. The surfaces to be united should be painted with the cement and firmly bound together until the drying is complete.

The Value of Pig Iron manufactured in the United States last year was $75,000,000. The product of the rolling mills and forges was $63,000,000, the value of other manufactures was $762,000,000, and the entire value of manufactured iron for the year was $9,000,000.

MINING SUMMARY.

THE following is mostly condensed from journals published in the interior, in proximity to the mines mentioned.

California.

ALPINE COUNTY.

MILLS.—Monitor *Miner*, May 18: The two quartz mills will start up soon.

GLOBE.—The steam hoisting works are to he started up and a full force put on shortly.

ORE.—200 lbs. of ore from the M. &. N. W. mine assaying over $80 per ton was shipped to New York this week.

AMADOR COUNTY.

GOVER.—Jackson *Ledger*, May 25: The main shaft 7 hy 4½, is down 80 ft., with well defined ledge, foot and hanging walls. Tho Co. have erected hoisting works of a substantial character. The rock from the main shaft looks remarkably well. South of the main shaft 250 ft., another shaft has been started and is down 25 ft. The rock in the last mentioned shaft is very rich, showing free gold and rich sulphurets.

GOOD HOPE.—Preparations are being made for starting up this mine again.

MAHOGANY.—This mine, near Sutter, is producing very rich rock.

PHOENIX.—Jackson *Dispatch*, May 25: Preparations were commenced this week to erect a 40-stamp mill on the mine.

CALAVERAS COUNTY.

GWIN MINE.—San Andreas *Citizen*, May 25: This mine is soon to get under full headway again. Mr. Gleason is working the lower mill and mine, and has struck rock of extraordinary richness in the 300 ft. level.

FRESNO COUNTY.

STAYTON MINE.—Gilroy *Advocate*, May 25th: Five pounds of cinnahar, assayed gave 2 lhs. 4 oz. pure quicksilver.

INYO COUNTY.

WAUCOBA DIST.—Inyo *Independent*, May 18th; Mr. Brady has a force of 10 to 15 men employed in mining, putting up a rook breaker and making preparations for building a furnace.

CERRO GORDO.—An extensive strike of lead is announced in the Union mine.

NEVADA COUNTY.

SHAMROCK.—G. V. *Union*, May 21: In the Shamrock the miners are down on the ledge for 50 ft. The ledge at that depth is 6 inches thick and shows well in sulphurets, galena and some free gold.

TOWN TALK.—Yesterday we saw at Findley's bank gold dust worth at least $3,000, the result of 4 weeks run. The expense of the run was under $1,400.

NAPA COUNTY.

OVERLAND.—Napa *Reporter*, May 25: This Co., near Oakville, have struck a fine deposit of cinnabar.

BLAST.—2,800 lhs of giant powder was discharged in a tunnel 60 ft in length yesterday at Dutch Flat. It shook up some 20 acres of surface.

PLUMAS COUNTY.

FLUMING ENTERPRISE.—Quincy *National*, May 18th: Mr. McVay, of Meadow Valley, has made locations, and been busy securing titles, &c., with a view of constructing a flume through the valley, to carry off the immense deposits of tailings in Spanish Creek, and also a branch flume to work the Elizabethtown flat.

SAN DIEGO COUNTY.

ITEMS—BANNER DISTRICT.—San Diego *Union*, May 16th: Two-fifths of the Antelope mill and mine, were sold to Chester Gunn for $5,000 on the 7th inst. One-fifth of the same property was sold on the same day to J. E. Duprez for $2,500.

STONEWALL.—The new steam pump has a capacity of 7,000 gallons per hour. The engine recently purchased—40 horse power—has been placed in position, and the mill has been entirely re-set. In about 30 days they will add to the 5 stamps they use at present, an additional 5.

San Diego *Bulletin*, May 18th: THOMPSON & BICK, the discoverers of the ledge some 14 miles west of Julian, are running a tunnel in the hill, about 130 ft from where they discovered the ledge, intending to strike it 50 ft below the surface. They have tunneled 120 ft, and expect to find the ledge within 25 ft further. The croppings are rich.

SISKIYOU COUNTY.

RESUMED.—Yreka *Union*, May 18th: Work has been resumed on the Siskiyou Quartz ledge on the Middle Fork of Humbug.

TUOLUMNE COUNTY.

GOLDEN GATE LODE.—Sonora *Independent*, May 25th: This lode continues to prospect well, and several extensions have been located to the extent of nearly 2 miles; all of which prospect as well as the original. It is 4 ft 10 ½ inches wide.

CHISPA.—A fine nugget of pure gold, weighing about $20, was found, one day last week, on the Columbia and Jamestown road.

Nevada.

ELKO COUNTY.

RAILROAD DISTRICT.—Elko *Independent*, May 25th: The State of Maine tunnel on Gold Hill, has struck a large body of pay ore at the back end of the tunnel within 20 or 25 ft of a 90 ft shaft. The Last Chance on Bunker Hill, has an inclue shaft 90 ft decp, which has opened out an immense body of rich ore, from which has been extracted some 400 tons of first class ore. The Hussey tuunel has struck a fine ledge of first class ore, and has upon the dump 100 tons of ore.

EUREKA DISTRICT.

THE CONS.—Eureka *Sentinel*, May 18th: Two additional furnaces to he erected immediately.

WORK TO BE RESUMED.—Work is to be resumed this week on some mines belonging to Alec. O'Neil and others, in the Diamond range.

ORANGE MINE.—Is near the summit of Prospect Mountain. An incline is down several hundred feet and rich ore is being extracted. Recently a large body of high grade ore was found in the upper level.

RICHMOND CO.—This Co. will start up their large furnaces of 74 tons capacity on Monday next.

ELY DISTRICT.

LOCAL REVIEW—Ely *Record*, May 19: BULLION.—This week W. F. & Co. shipped $90,131,98.

AMAZON.—The main shaft is down 65 ft. showing ore throughout, assays from which run from $60 to $300 per ton.

SPRING M. TUNNEL.—Have commenced work on the ledge struck in the winze sunk from the chamber opened up where the first ledge was cut. The ore shows well in the face of the drift.

CONDOR.—Old shaft down 110 feet and still sinking on contract.

VANDERBILT.—The shaft is down 125 ft. The rock in the bottom is changing for the better, quartz coming in, and prospects excellent. At a depth of 150 ft. a drift will be run.

CHAPMAN.—The main shaft is down about 300 ft., and still sinking. The mine is well opened, and has about 350 ft. of drifts run on the ledge.

PAGE & PANACA.—Shaft down 230 ft., and sinking rapidly.

CHIEF OF THE HILL.—The ledge in the west winze continues to widen, and shows mineral 4 ft. in width.

GRAY EAGLE.—The shaft is down 25 ft. and shows ledge matter 3 ft. in width, with ore throughout.

HIGHLAND DIST.—OTHELLO M.—Working in tunnel on west end, and shaft on east. Assays run from $50 to $500 per ton.

EXCELSIOR.—Connections for air have been made. On Friday night last cut into a solid vein of ore on the lower level, 115 ft. from the surface.

SAN JOSE CONS.—Main shaft down 90 ft. and shaft from the bottom of this, following the ledge, down the same distance, showing mineral throughout.

ARKANSAS.—Sinking the shaft with 3 shifts, and down about 110 ft. Between 35 and 40 tons of good ore on the dump.

SPRING MOUND.—Commenced timbering the shaft on Saturday last.

STIRLING.—Shaft down 98 ft.; ledge in bottom 5 ft. wide, ore looks well and assays over $100 to the ton.

HUMBOLDT.

BULLION.—Unionville *Silver State*, May 25: Amount shipped from the Arizona, since our last issue, was $7,770.

REESE RIVER.

OREGON.—Reese River *Reveille*, May 18: Never looked better; large quantities of magnificent ore coming out.

SAYBROOK.—Taking out ore from the 110 and 150 ft. levels; ledge 12 inches wide; ore fair, fifteen tons on hand; work-10 men.

NORTH STAR SHAFT.—Wyman & Co., have about 30 tons of high grade ore on haud; ledge looking well. O'Neil & Co., have about 20 tons of good ore out and are getting more, mine looks fine.

GROVE TUNNEL.—Working 10 men, Rich ore is coming from the 225-ft. level; ledge 10 to 12 inches wide.

SOUTH SONOMA.—Sinking incline in the east level in good sulphuret ore; driving ahead in upper level but getting no ore; 5 men at work.

LANE & FULLER—PACIFIO CO.—Working 50 men at 4 levels; getting ore from all the levels; since our last report the Co. have had 60 tons worked, of which the first-class went $930 per ton, the 2d-class $310, and the 3-class $150; 50 tons ready for the mill.

SARATOGA.—Ledge 6 to 18 inches wide; working 10 men; about 20 tons in the house.

WEST TROY INOLINE.—Pay has just been struck; incline 300 ft. deep; hoisting by means of a whim; working 4 men.

DIANA.—Getting first-class ore.

MORGAN AND MUNCEY.—Good ore coming out; ledge holds out well.

PRUYN AND PULLEN.—Getting very fair ore; looking better than at last report; working 6 men; incline down 200 ft.

DOLLARHIDE INCLINE.—Working 6 men; running cross-cut to strike the ledge at 300 ft.

SEMANTHE.—Working 2 men at 160 ft. level; six inch ledge; looking very good; abont 5 tons of ore on the dump.

IOWA TUNNEL.—Hatfield, Braggs & Co. are running the tunnel ahead to cut the Huhbard ledge; have cut 3 ledges in running the tunnel 200 ft.

WHILATCH UNION.—Three Cos. at work. Reed & Co. are running hoisting works and working 4 men at the 218 ft. level; getting an average of $200 per ton.

SAM BRANNAN.—Incline down 150 ft.; at the last crushing the first-class ore went $600 per ton, second-class $135, third-class $75.

VIRGINIA SHAFT.—Ledge 6 to 10 inches wide; ore fair at 100 ft., workiug 4 men.

PATRIOT.—Incline down 200 ft., at which point the ledge is 18 inches thick and the ore very rich; working 4 men.

OAKLEY AND JAMISON.—Tunnel in 75 ft.; in exceedingly rich ore, with a good sized ledge.

MANHATTAN.—This mill is steadily at work night and day.

CITIZEN'S MILL.—In *statu quo*.

WREN'S CONCENTRATOR.—These works are shut down for a thorough overhauling.

BELMONT—EL DORADO SOUTH.—Double shafts have been put on every breast. The 340 ft. levels are going ahead 2 ft. per day. The sinking of the main incline is being pushed ahead. On Thursday last very rich black metal ore was struck at the extreme bottom, 375 feet from the surface, and the indications are that an immense body of this ore is at hand. Working 31 men.

LIDA VALLEY AND COLUMBUS.—The "Lida Belle" at 10 ft. shows about 16 inches of high grade ore. A contract has been let to continue the shaft to 20 ft. At Columbus, the 5-stamp mill of Sweetwater, Hazelton & Co. is running steadily on ore from the Cos. mines and custom ore.

WASHOE.

BELCHER.—Gold Hill *News*, May 25: Daily yield 300 tons, from the 1,100-ft. level principally. The Belcher folks have got their new hoisting machinery nearly all in place at their shaft, and the works will he ready to start up about the first of next month. The incline is down to the 1,000-ft. level, and drifting both ways from it and toward it is being energetically prosecuted. There is about 400 ft. of intervening ground to drift through between the incline and the workings at that level before the connection will be effected. The 1,200-ft. level is opening out finely and looking better than ever.

HALE & NORCROSS.—Daily yield 130 tons principally from the north portion of the 1400-ft level. The ore breasts of the 1400-foot level are being extended northward and upward in the vein, the highest raise above the sill floor being nearly 50 ft, showing the ore to be of inferior character to that below, not averaging so well. The north drift has reached the Savage line and will counect with the drift being run from that mine for ventilation. At the 1500-ft level the east drift is in 115 ft from the incline. The north drift is in 93 ft from the incline, and is altogether in the west country rock—west of the ledge.

SAVAGE.—Daily yield, 190 tons, averaging as per assay $27. At the 1500-ft level the drift south is being pushed ahead to connect with the drift from the Hale & Norcross for air. The cross-cut from this drift is being vigorously driven ahead. Breasting out ore body in the winze is commenced, and it is opening out finely. Work on the north drift at the 1500-ft level is suspended for want of proper ventilation at present.

CROWN POINT.—There was quite a decrease of the usual ore production this week, owing to trouble with water tapped at the 1300-ft level.

YELLOW JACKET.—Daily yield about 25 tons of fair grade ore from the old workings.

JUSTICE.—The water is at last reduced in the shaft down nearly to the track floor of the drift at the 400-ft level. The Co. are taking out some very good paying ore from their portion of the old Waller's Defeat ground.

OVERMAN.—The pumps are put in, and sinking the main shaft deeper will be resumed at once. The west drift of the 1000-foot level is in good working ground with promising indications.

CHOLLAR-POTOSI.—Daily yield 160 tons, from the old workings. The main shaft and incline of the Co. is being cleaned out to deeper sinking and prospecting.

IMPERIAL-EMPIRE.—The two drifts toward the Imperial and Empire mines respectively, at the 1650-ft level have neither reached the ledge as yet, but will shortly.

OPHIR.—The main drift at the 1100-ft level is in 400 ft, and cross cutting east from the end of it was commenced Tuesday.

BUCKEYE.—A new and very promising development of $60 ore is made in the south drift at the 100-ft level.

DANEY.—Shaft 45 ft below the 500-foot level and still sinking, although with considerable water to contend with. Drifting north at the 500-ft level is going on energetically.

MCMEANS.—The new tunnel has tapped the back ledge, and good milling ore is being taken out.

JULIAN.—The 800-ft station has been reached by the shaft, which progresses deeper at the rate of 3 ft a day.

GOLD HILL TUNNEL.—The new shaft of the 1000-ft station of the tunnel, is fairly commenced and being sunk rapidly.

GOULD & CURRY.—The incline is being sunk a the rate of 3 ft a day. The east drift from the tenth station is also progressing satisfactorily.

SUCCOR.—New shaft is down 80 ft, and work progressing well.

SILVER HILL.—Shaft enlarged and thoroughly retimbered 110 ft.

BALTIMORE.—New engine and other machinery being put in place and sinking the main shaft rapidly.

SUTRO TUNNEL.—Entire length 2,893 ft.

WHITE PINE.

TREASURE HILL MINES—EBERHARDT.—White Pine *News*, May 18: Breasting out and running ore through the tunnel to No. 15 loading station. The grade is of a fair milling quality.

WARD BEECHER.—Connection is made with the Phillpotts chamber to the drift leading to the Engine shaft. A force of men is at work in the North end of the mine, on good ore.

NORTH AURORA.—There has never been discovered in White Pine Dist. a richer and more extensive body of ore than is in sight in the Lady's chamber and other openings of this mine. From present appearance, we should judge that the ore supply from this one mine alone would keep the mills of the Co. running for at least a year, with a probability of a continuation of the ore for a much longer time. There is about 100 tons of ore extracted daily from the North Aurora and Ward Beecher.

NOONDAY.—The grade of the ore has increased since last reported on.

BEECHER CONS. M. & M. CO.—The mines of the corporation, consisting of 300 ft. of the Ward Beecher Cons. and 325 ft. of South Ex. Hidden Treasure, are showing well. In the Anchor tunnel incline, the ore extracted will mill $35 to $50 to the ton.

EAST SHEBOYGAN.—Work is prosecuted vigorously and there is a marked improvement in the appearance of the ore body since our last Review.

COPPER GLANCE.—Work in the north drift is going ahead with favorable indications of soon coming into a body of good ore.

SECOND SOUTH EX. HIDDEN TREASURE.—Work progresses in the north shaft with good indications.

OUTSIDE DISTS.—Bald M. dist. is 60 miles South of Elko, in the Ruby range of mountains. There are copper and silver ledges showing well-defined walls. There are parties negotiating for the purchase of several of the copper and silver mines.

ROBISON DIST.—The Canton will start up the furnace, recently purchased, as soon as coal is at hand. The mines owned by the Co., are looking well. There is a large amount of ore on the dumps, ready to be shipped to the furnace. There are at least 100 mines discovered.

Arizona.

YAVAPAI CO.—MINES AND MINING.—Prescott *Miner*, May 11: Shaft is down about 20 ft., at which depth there is an immense body of ore, much of which, yields 50 per cent. silver. The rock also carries considerable gold.

J. Cusenbary has gone to work on his

silvor mine, near Castle Creek, pieces of ore from which have assayed as high as $25,000 to the ton. There is on the mine a shaft 45 ft. in depth.

Colorado.

SHIPMENTS. — Georgetown *Miner*, May 9: Since last report, G. W. Hall & Co, have crushed, sampled, packed and shipped 80,116 lbs. of ore.

Baily & Nott have forwarded 100,955 lbs of ore.

The amount of oro crusbed, sampled and sacked at the mill of tbe Snowdrift Limited, during the past month, was 91,890 lbs. This ore assayed from 70 to 1,000 ozs. per ton of 2,000 lbs.

Palmer & Nicbols have shipped bullion bars as follows: Apr. 6th, bar, 65t·90 ozs.; 736 fine; $623.20, coin value. Apr. 11, 504·95 ozs.; 839 fine; $547.77, coin value. Apr. 24, 1,235·95 ozs.; 831 fine; 1,327 90, coin value. Apr. 30, bar, 421 ozs.; 799 fine; $434 94, coin value. May 6, bar, 755·30 ozs.; 560 fine; $546 84, coin value.

ITEMS.—Hood & Co. have commenced mining on a large scale on Clear Creek and Columbian Mt. They are working three lodes, tbe Goshen, Burnett, and Martha. Theso lodes show from 4 inches to 1 ft. of ore, which carries from 200 to 500 ozs. of silver per ton.

A number of samples of ore from the newly discovered mines on tho head of the San Juan river, Conejos Co., have been assayed. The richest ore was from a lode known as the Little Giant, which yielded $31,267; 52 in gold, and $119 08 in silver per ton. A number of samples of silver ore from the vicinity of Loma, in Costilla Co., assayed from $42 to $76 per ton.

MINING NEWS.—The Argyle T. and M. Co. are running a tunnel into Red Eagle, on the north side of Clear Creek, about 5¼ miles below Georgetown.

The Jndd & Co. works are going forward finely.

Caribon *Post*, May 11: S. S. Moore & Co. are drifting on tho Silver Point and taking out a large quantity of valuable ore. The Boulder lode is about to be re-opened. Stewart's mill, Georgetown, will he ready in about a month to commence reducing ores again.

Central *Register*, May 8: Bates & Sou started their new mill, in Nevada Gulch, last Tuesdsy.

FISKE LODE.—Samo paper, 15th: Mining matters on tbe Fiske lode are quite active, and ore in considerable quantities is being taken out.

ST. LOUIS S. & R. Co.—Central *Herald*, May 15: Tho works of this Company are rapidly approaching completion.

The continusl new discoveries of rich and extensive silver deposits on Mts. Lincoln and Bross, in the South Park, is exciting much attention, and attracting hundreds of adventurous miners,

CARIBOU.—The Silver Point is said to be very wide, and assays give a yield of from $5,000 to $15,000.

NEVADA.—On the Ophir Co.'s property on tbe Kansas lode 26 men are employed.

Esst of tho Ophir property on the Kansas, Solomon Row & Co. have sunk a sbaft over 260 ft and bave struck fair psy.

Again esst of this George Estabrook is working men on the the University's claim, and is taking out weekly 8 cords of 6 oz. milling ore.

On the next property east Wollcott & Lewis have agsin commenced to sink the shaft on their claim and are working 4 men st stoping, who are tsking out about 6 cords of 5 oz. ore.

Root & Co. are working claim east of Wolcott & Lewis, and removing from the mine large quantities of 5 oz. milling ore.

Idaho.

LOCAL RECORD—IDA ELLMORE.—Owyhee *Avalanche*, May 18: From the appearance of the ore taken from tbe winze, which is down 80 ft. below the 7th level, we aro compelled to helievo, that tbe Ellmore will turn ont vastly more bullion during the coming summer, than was ever taken out in one year before. In the winze referred to, the ore is immensely rich both in gold and silver; with a ledge avcraging from 2 to 3 ft. in width. The shaft is down 40 ft. for the 8th level, sinking hard. The ore house is full to overflowing.

MINNESSOTA.—This mine is being worked with ahont 32 men, taking out daily from 12 to 15 tons of ore. The north drift is in 40, and the south 20 ft. They are slso sinking a winze from 2d to 3d level, which is down about 40 ft. sbowing a good vein of ore.

MAHOGANY.—Taking out 15 to 20 tons per day. The 5th level is showing splendidly. The winze hetween the 4th and 5th levels has exposed a rich vein all the way as far as sunk and raised. The 5th level drift has opened the vein over 100 ft., and the foremsn informs us that he will soon commence sinking both shaft and winze for the 6th level. Two bars of Mahogany hullion were shipped to S. F. on the 28ult., valned st $10,414,30.

SOUTH CHARIOT.—The main or engine shaft is being repaired rapidly.

EMPIRE.—The winze is down nearly 60 ft., and the shaft 35 ft., both being worked with men on 8-hour shifts.

WAR EAGLE.—There is a large amount of ore on the dump.

GOLDEN CHARIOT.—Superintendent Phelby has ceased sinking in the winze and is enlsrging it to make a part of the shaft. The shaft is heing straightened and set back on the ledge, and will be 4x12 ft. in the clear, witb 3 compartments.

SANDS & Co. continue tsking splendid looking ore from the Illinois Central.

THE BLUE JACKET is ahout heing started up.

HAYS & HUMPHREY have started up their arastra, and will keep it running all summer. Trusk's arastra is also running.

Oregon.

SILVER. — Jacksonvillo *Times*: T. Murray showed us a fine specimen of silver ore, taken out of a ledge recently discovered on tho west side of Goose Lake. The ledge is 4 ft. in width and well defined, and tbe assay at 16 ft. gives $65 per ton.

Utah.

S. L. *Tribune*, May 21st: BASE BULLION.—Durant & Cutting shipped last week several car loads of hullion mainly from Flagstaff and Winnemuc mines. The Winnemuc is turning out $1,000 worth of bullion daily.

TINTIC.—A fine body of ore has been struck in the Copperopolis, assaying from $50 to $130 in silver and carrying some 5 ounces of gold to the ton.

THE SIERRA MINE.—In American Fork, has resumed operations for the coming summer. Tho owners are in drifting on the ledge, and from tho start have been taking out $100 orc.

LEWISTON.—There are but 2 Cos. that are extensively at work but several othors are making preparations to commence at an early day.

LITTLE COTTONWOOD.—Tbe Enterprise is down 65 ft, with a vein of good galena ore from 3 to 4 ft wide. Tbe vein is stripped 70 ft and shows this width the whole distance.

The Ghdiator tunnel is complete 400 feet, with indications of ore at hand.

The Great North-Western, is to be worked vigorously from this time forward.

The Christina near tbe Davenport, shows, at the 40 ft, a vein ore one foot in width that assays $200 to tbe ton.

BUTTERFIELD CANON.—Cor. same: "Cummings & Co. have about 30 men employed working on the "Lucky Boy," and have a large body of chloride ore in sight, which assays from $500 to $1,000 per ton. Tbe Gladstone have a tunnel in 120 ft. tbat will tap the ledge at 150 ft., also an incline shaft down 50 ft. with a 6 ft. body of splendid mineral giving an average assay of $200 per ton.

EAST TINTIC.—Cor. same: "The owners of the Ella are husily at work sinking their shaft. The vein is chiefly carbonate and galena. The Susan, second south extension, is down 90 ft.; it has a good vein of csrbonate and galena.

Cross cutting on tbe Bowers is being hurried along.

The St. Laurence is looking well as tbe shaft progresses. The Silver Bell near the Ocean mine is looking promising, it has an ore streak of ahont 4 ft. and assays woll. The 1st southern extension of the Showers mine, has 3 shafts down, one 36 ft. It has a vein of 4 ft., with an ore streak averaging 22 inches, composed of carbonate and galena.

MINING DISCOVERIKS.—A new gold mine has been discovered on tbe Santiam River about 40 miles from Lebanon, Oregon, and rich lead mines have been found in the Santism district, in the Cascado monntains. James Edelman recently sold a gold-hearing quartz ledge sitnated near Glover's Ferry, on the Snake river, Oregon, for $750, and then went off a few miles and found a hetter one.

A body of cinnabsr is reported to have been struck in a claim near Pacheco Pass about 30 miles from Gilroy. The specimens exhihited are rich and the owner states the quantity of ore to be large.

Gold is reported to have been found by L. Mesmer in gravel taken out of the excavation for a cellar on Fort Street, in Los Angeles. The *News* ssys that it is not improbable that there are rich deposits in the immediate neighborhood of the town.

MINING ACCIDENTS.—Wm. Hendry, a miner, working in the Gwin mine, Calaveras Co., was instantly killed last week, by heing struck in the head by the iron bucket, and knocked off the ladder while he was ascending the shaft.

John Williams of the Idaho mine was carried over the dumps with a car last week, and was hsdly hurt about the head and shoulders by the fall.

An Englishman, nsmed Davy, was killed in the Emma mine, U. T., on the 22nd inst., by a mass of rock and earth that fell on him.

THE CITY IRON WORKS.—Lewis & Morrill, proprietors, 28 Fremont street in this city has been recently remodelled throughout and much enlarged.

Attention is paid particularly to architectural and ornamental iron work, under the supervision of Mr. Oscar Lewis who has made this department of business a specialty for the past twelve years. A large amount of agricultural and foundry work is also turned out here, to which the attention of all interested is called. This establishment is now employing about 50 men.

STEAM PUMPS.—The use of steam pumps seems to be extending on this coast. Mr. W. D. Hooker has furnished among other orders, his California made steam pnmps for the following parties: Globe G. & S. M. Co., Alpine Co,; Phœnix mine, Amador Co.; Copper mine Copperopolis; S. F. Sugsr Refinery; City Gardens; Steamer H. Hutchingson; Steamer Crowquill; sixteen in Oakland for irrigsting and others purposes.

San Francisco Stock and Exchange Board.

THURSDAY, MAY 30th.

The sales at the Board for the week ending Wednosday 22d ult, amounted to $3,630,000. The sum of $13,000 was received from the Piocbe mino on the 24th inst. Tbe last weekly report of the Crown Point mine shows a production of 2,180 tons, vslued at $67,800. The Raymond & Ely sent down $31,000 on the 25th inst. The Hale & Norcross mino turned out 580 tons of ore last week, and has 2,400 tons on the dumps. Tho Savage yielded 1,380 tons, assaying $24.80 per ton. The Chollar Potosi mine produced last week 1,000 tons of oro, averaging $40.20 per ton. The number of shares in the Con. Virginia have been raised from 11,600 to 23,600. The receipts of the Piocbe mine for the year ending April 1st, were $232,232 including $182,000 from bullion, and $30,000 from assessments. The disbursements were $227,424. About 1,057 tons averaging $172 per ton were reduced. The following dividends have been paid this month: Belcher M. Co. $312,000; Black Diamond Coal Co. $25,000; Crown Point M. Co. $480,000; Meadow Valley M. Co. $60,000; Raymond & Ely M. Co. $210,000; Yule Gravel M. Co. $5,000.

Stocks have been rather quiet during the week, and buyers were scarcer than they have been for somo timo. On Friday, the 24th ult, the market was firmer than on the previous day, and all the Washoo descriptions exhibited an improvement. On Saturday stocks were comparatively active at irregular prices, and almost all kinds showed some advance over previous days sales. On Monday morning they fell again quite materially, and tbe afternoon session showed a still farther decline. On Tuesday there was a general break in the Board, and everything tumbled. From the prices of the previous day Alpha declined $14; Caledonia, $17; Chollar Potosi, $20; Crown Point, $20; Confidence, $10; Con. Virginia, $7; Exchequer, $11; Gould & Curry, $52; Hale & Norcross, $28; Kentuck, $40; Ophir, $7; O. H. Treasnre, $3; Overmsn, $10; Pioche, $2; Raymond & Ely, $8; Segregated Belcher, $20; Yellow Jacket, $31; Imperial fell $70 from Saturday. On Wednesdsy they recovered slightly from the severe depression of the day before and prices advanced a little. Tbe market this morning was much hetter, and the general advance of yesterday was sustsined.

Comparative Prices—Extremes, Advance and Decline.—S. F. Stock and Ex. Board.

	May 23.	*Highest.*	*Lowest.*	May 30.	*Adv.*	*Dec.*
Alpha	$ 75	90	57½	75	—	—
American Flag	17	17	15	16½	—	½
Belcher	1030	1050	875	900	—	130
Buckeye	4½	5½	4¼	5	½	—
Chollar-Potosi	118½	125	98	100	—	118½
Caledonia	55	69	45	55	—	—
Cons. Virginia	50	50	20	24½	—	2½
Crown Point	135	140	120	133	—	—
Daney	4	4⅞	3¾	3½	—	½
Eureka Con	30	33	28	29¾	—	¼
Eureka	—	—	—	—	—	—
Exchequer	36	42	28	23	—	13
Gould & Curry	222½	270	160	230	7½	—
Golden Chariot	13	15	12	11	—	2
Hale & Norcross	117½	125	87½	96	—	20½
Ida Elmore	19	20	18	—	—	—
Imperial	—	230	110	220	—	—
Kentuck	350	425	—	330	—	20
Mammoth	—	2	1¾	1¾	—	—
Meadow Valley	15½	20	15	15¾	¼	—
Mahogany	17	24	17	—	—	—
Ophir	44	50	33	39	—	5
Orig. Hid. Treas.	14½	16	12	—	—	—
Overman	85	105	70	80	—	5
Pioche	17	17¾	14	15½	—	1½
Raymond & Ely	125	135	118	130	5	—
Savage	220	240	155	225	5	—
Sierra Nevada	20½	25	18½	21	½	—
Succor	6	6¾	5	5½	—	½
Wash. & Creole	5½	6¾	5	5½	—	—
Yellow Jacket	149	165	127	135	—	14
Justice	—	20	12	16	—	—
Seg. Belcher	95	127½	70	77½	—	7½

Latest Prices—Bid and Asked.

	BID.	ASKED.		BID.	ASKED.
Alpha Cons	74	75	Ida Elmore	17⅛	18
Amador	—	—	Imperial	220	225
Belcher	875	900	Kentuck	330	335
Chollar-Potosi	99	100	Meadow Valley	15	15¾
Crown Point	130	135	Ophir	38½	40
Daney	3½	4	Orig. Hid. Treas	13¼	13½
Eureka Cons	28¾	29	Overman	76	77½
Eureka	15	17	Savage	222½	225
Golden Chariot	10	11	Raymond & Ely	130	132
Gould & Curry	230	235	Sierra Nevada	20½	21
Hale & Norcross	94	95	Yellow Jacket	132½	135

Leather Market Report.

[Corrected weekly by Dolliver & Bro., No. 109 Post st.]

SAN FRANCISCO, Thursday, May 30, 1872.

SOLE LEATHER—The demand is good, with an advance in Eastern market, which will probably soon be felt here.

City Tanned Leather, ₱ lb	26@29
Santa Cruz Leather, ₱ lb	26@28
Country Leather, ₱ lb	25@28
Stockton Leather, ₱ lb	26@28

French skins are firmer with an advance in some grades.

Heavy California skins are firm, with an upward tendency.

Jodot, 8 Kil., per doz	$80 00@
Jodot, 11 to 19 Kil., per doz	72 00@ 90 00
Jodot, second choice, 11 to 15 Kil. ₱ doz	60 00@ 76 00
Lemoine, 16 to 18 Kil., ₱ doz	75 00@ 77 50
Levin, 12 and 13 Kil., per doz	68 00@ 70 00
Cornellian, 16 Kil., per doz	70 00@
Cornellian, 12 to 14 Kil., per doz	60 00@ 68 00
Ogerau Calf, ₱ doz	54 00@
Simon, 18 Kil., ₱ doz	65 00 —
Simon, 20 Kil. ₱ doz	68 00 —
Simon, 24 Kil. ₱ doz	72 00 —
Robert Calf, 7 and 8 Kil	35 00@ 40 00
French Kips, ₱ lb	1 10@ 1 30
California Kip, ₱ doz	60 00 to 80 00
French Sheep, all colors, ₱ doz	15 00 —
Eastern Calf for Backs, ₱ lb	1 15@ 1 25
Sheep Roans for Topping, all colors, ₱ doz	9 00@ 13 00
Sheep Roans for Linings, ₱ doz	5 50@ 10 50
California Russett Sheep Linings	1 75@ 5 50
Best Jodot Calf Boot Legs, ₱ pair	5 25 —
Good French Calf Boot Legs, ₱ pair	4 50@ 5 00
French Calf Boot Legs, ₱ pair	4 00 —
Harness Leather, ₱ lb	30@ 37½
Fair Bridle Leather, ₱ doz	48 00@ 72 00
Skirting Leather, ₱ lb	34@ 37½
Welt Leather, ₱ doz	30 00@ 50 00
Buff Leather, ₱ foot	18@ 21
Wax Side Leather, ₱ foot	20@ 22

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

ASSESSMENTS.

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT	DAY DELINQUENT.	DAY OF SALE.
Alleghany Consolidated, Cal. Ap. 20, 25c.	June 3	June 24*
Balto. M. Co., Storey Co., Nev., Ap'l 30, $1.	June 5	June 28
Cascade Blue G. M. Co. Cal. May 15, 20c.	June 18	July 9
Crown Point R. S. M. Co., May 3, $5.	June 20	July 20
Eagle Quicksilver, May 8, $40.	July 11	July 15*
El Dorado M. Co., Cal., May 13, 25c.	June 16	July 10
Francis M. Co., Cal., April 6, $1.	May 14	June 4*
Gen. Lee S. M. Co., W. Plue, Ap'l 27, 10c.	June 11	July 2
Golden Chariot, Idaho T., April 12, $1.50.	May 22	June 18
Hid. Treas. M. Co., W. P., May 11, 10c.	June 17	July 8
Hid. Treas. Cons. M. Co., W. P., May 11, 10c.	June 17	July 8
Ida Elmore M. Co., Idaho, May 24, $3.	June 29	July 27
Imperiatrice Eugenie, Cal., April 26, 25c.	June 2	June 17
Julia G. & S. M. Co., Nev., April 22, $5.	May 25	June 15
Justice M. Co. Storey Co. Nev., $1.	June 24	July 15
Kinsaid Flat, Cal., April 25, $3.	May 27	June 17*
Lemon M. and M. Co., Eureka, Apr 1, $1.	May 7	June 12
Lord Byron G. & S. M. Co., Nev., Apr. 29, 25c.	June 3	June 22
Louise M. Co., Nevada, April 6, 10c.	May 14	June 10
Lyons & Wheeler Co., A. T., April 6, 10c.	May 15	June 3*
Lyon & Wheeler Arizona, May 18, 10c.	June 24	July 15*
Magnolia S. M. Co., Nev., April 22, 25c.	May 25	June 20
Mina Rica M. Co., May 8, 20c.	June 10	July 1*
Mtun. G. & S. M. Co., I.T., May 12, $1.50.	June 22	July 20
Ohio Cons. M. Co. Cal., May 21, 10c.	June 20	July 20
Ophir S. M. Co., Nev., April 17, $5.	May 22	June 13
Pacific Borax Co., Nevada, May 4, 20c.	June 6	June 29
Page & Panaca, Nev. April 12, 50c.	May 20	June 15
Pes Vinos M. Co., Ely Dist., May 14, 20c.	June 20	July 12
Piermont M. & M. Co., April 16, 40c.	May 20	June 19*
Pride of Mt. M. Co. Nev., May 7, 25c.	June 17	July 10
Rising Star S. M. Co, Idaho, Ap'l 27, $1.	June 1	June 29
S. F. M. Co., Utah Ter., April 13, 25c.	May 16	June 8*
Silver Sprout M. Co., Cal., April 29, 50c.	June 1	June 22*
Silver Wave, W. P., Nev. Apr. 10, 50c.	May 14	June 13*
Spring Mt. Tunnel Co., April 11, 15c.	May 20	June 10*
Sumner, Kern Co., April 11, $10.	June 24	June 21
Tallulah M. Co., Nev., April 5, $1.50.	May 7	June 4
Tecumseh M. Co., Cal., April 24, $5.	May 29	June 17*
Union G. M. Co., Cal., May 20, $2.50.	June 22	July 9*
Washington M. Co., May 8, $3.	June 17	June 29*
Wash. & Creole M. Co., Nev., May 13, 5c.	June 20	July 17
Woodland M. Co., Cal., May 21, 12½c.	June 26	July 16*

MEETINGS TO BE HELD.

Adriatic G. & S. M. Co.	Special Meeting, June 8
Alams G. & S. M. Co.	Special Meeting, June 4
Bacon M. & M. Co.	Annual Meeting, June 4
Bacon M. & M. Co.	Special Meeting, June 1
Belcher M. Co.	Special Meetiug, June 25
Confidence S. M. Co.	Special Meeting, June 4
Crown Point M. Co.	Annual Meeting, June 3
Del Rey S. M. Co.	Special Meeting, June 10
Empire M. & M. Co.	Special Meeting, June 8
Empire M. & M. Co.	Special Meeting, June 10
Empire M. Co.	Special Meeting, June 17
Gould G. & S. M. Co.	Special Meeting, June 3
Highland S. M. Co.	Annual Meeting, June 4
Independent G. M. Co.	Annual Meeting, June 14
Independent Coal M. Co.	Annual Meeting, June 17
Imperial S. M. Co.	Special meeting, June 3
Julia M. Co.	Special Meeting, June 17
Kentuck M. Co.	Special Meeting, June 10
Mammoth S. M. Co.	Annual Meeting, June 3
Minn. G. & S. M. Co.	Annual Meeting, June 3
Mount Jefferson M. & M. Co.	Annual Meeting, June 4
Overman S. M. Co.	Special Meeting, June 5
Pocahontas G. M. Co.	Special Meeting, June 18
Providence G. & S. M. Co.	Annual Meeting, June 20
Schell Creek M. Co.	Annual Meeting, June 11
Silver Sprout M. Co.	Special Meeting, June 3*
Silver Sprout M. Co.	Annual Meeting, June 25*
Silver Wave M. Co.	Annual Meeting, June 3
St. Louis M. Co.	Special Meeting, June 6
Tecumseh G. S. and C. C.	Special Meeting, June 12*
Wellington M. Co.	Annual Meeting, June 4
Wheeler M. Co.	Annual Meeting, June 3
William Penu Cons. M. Co.	Special Meeting, June 15
Yankee Boy M. Co.	Annual Meeting, June 6

LATEST DIVIDENDS—(Within Three Months).

Belcher M. Co., $30	Payable May 10
Belcher, $20	Payable April 10
Blake Diamond Coal Co., ½ per cent.	Payable May 20
Crown Point G. & S. M. Co., $40	Payable May 11
Eastport, Coose Bay, Coal M. Co., $5.00.	Payable May 13
Eureka Gold M. Co., $1	Payable March 11
Keystone M. Co., $7.50	Payable April 10.
Meadow Valley M. Co., $1.00	Payable May 15
North Star G. M. Co., $7	Payable April 9
Raymond & Ely M. Co., $7	Payable May 6
Yule Gravel M. Co, 50c	Payable May I

——*Advertised in this journal.

San Francisco Metal Market.

Corrected weekly by Hooker & Co., 117 and 119 Cal. street.

PRICES FOR INVOICES

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

THURSDAY, May 30, 1872

IRON.—			
Scotch Pig Iron, ₱ ton	$70 00	@	— —
White Pig, ₱ ton	52 00	@	— —
Rafined Bar, bad assortment, ₱ lb	— 05½	@	— 06
Refined Bar, good assortment, ₱ lb	— 06	@	— 07
Boiler, No. 1 to 4	— 05	@	— 06
Plate, No. 5 to 9	— 08	@	— 09
Sheet, No. 10 to 13	— 06½	@	— 07
Sheet, No. 14 to 20	— 07	@	— 09
Sheet, No. 24 to 27	— 06	@	— —
Horse Shoes	8 00	@	— —
Nail Rod	11		—
Norway Iron	9		—
Rolled Iron	6		—
Other Irons for Blacksmiths, Miners, etc.	6	@	7
COPPER.—			
Sheathing, ₱ lb	— 24	@	— 28
Sheathing, Yellow	— 24	@	— 26
Sheathing, Old Yellow	— 11	@	— 11½
Composition Nails	— 24		—
Composition Bolts	— 24		—
TIN PLATES.—			
Plates, Charcoal, IX ₱ box	12 00		— —
Plates, I O Charcoal	10 00		10 50
Roofing Plates	11 00		— —
Banca Tin, Slabs, ₱ lb	— —		— 45
STEEL.—English Cast, ₱ lb	— 16		— 17
Drill	16		17
Flat Bar	17		20
Plough Points	3 75		— —
Russia (for mould boards)	12½		—
QUICKSILVER.—₱ lb	— —		— 85
LEAD.—Pig, ₱ lb	— 06		— 06½
Sheet	— 08		— 8½
Pipe	— 9		— 10
Bar	— 08		— 09
ZINC.—Sheets, ₱ lb	— 10		— 10½
BORAX.—Refined	— 25		— 30
Borax, crude	— 5		— —

MINING SALES.—The San Andreas *Citizen* says tbst Messrs. Ferguson and Wallace have sold their "Sheep Ranch" mine, to Messrs. Tullock, Gashwiler and Holladay for $60,000. The *Citizen* thinks that there is $100,000 in sight, and that the purchasers got a good hargin.

The Liberty quartz mine at Graniteville, has heen sold to a San Frsncisco company, and is shortly to be started up.

WATER SUPPLY.—A full supply of water for the mines would it is said sdd a million dollars a month to the present gold yield of California.

Norton's Door and Gate Spring.

"Please shut the door." How often we see this request posted on doors, and yet how little attention is paid to it. It seems as natural for an American to leave a door standing open behind him as it is for him to bolt down his food in a state of semi-mastication. Both of these habits result from the same cause, viz: the American custom of doing every thing with a rush. It takes too much time to wait and close a door, and often having to wait to open a door in order to get out of a room seems a waste of time. Why can't doore be made like the patent lazy farm gate, to open when it sees some one coming and close after the person has passed through? Norton's door and gate spring accomplishes the latter object, and thus one-half of the trouble is obviated.

This door and gate spring is a neat and cheap arrangement that can easily be applied to any door or gate for the purpose of keeping it closed, and we advise our friends who have posted on their doors the request at the head of this article, to pull it down and ap ly one of these springs It accomplishes the object in a very satisfactory manner. Davis & Bliven of this city are the proprietors of the patent right on this coast, to whom all ordere should be addressed.

Niles Station Bridge.

The Board of Supervisors of Alameda county have contracted with the Pacific Bridge Company, to erect a bridge of three spans, of 183½ feet each, over the Alameda Creek, near Niles Station. The superstructure is to he a Smith Truss. with roadway eighteen feet in the clear and built entirely of wood preserved by the Pacific Wood Preserving Company.

The piers are to he of cast iron, filled with concrete and sunk to hed rock, or a solid foundation.

They are constructed on the plan introduced hy the Pacific Bridge Company last year, and seem especially adapted to the rapid current and drift they will have to resist at the mouth of the Alameda Cañon, where they are to be placed.

The Pacific Bridge Company now dress all timber used in the framework of their bridges. They have just shipped a bridge to he erected over Hovias Creek, in San Mateo county, and will soon ship one of 150 feet in length, to span a creek in Sonoma county, hoth of the Smith Truss patent.

The bridge over Alameda Creek is to he completed hy the 11th day of August. The Howe Truss. Burr Truss and Pratt's Truss were all ompeting plans hut the Smith Truss was preferred.

Rapid and Practical Methon of Separating Copper from Silver.—In the preparation of nitrate of silver from silver coin which contains several per cent. of copper, R. Palm employs the following method, dependent on the insolubility of nitrate of silver in concentrated nitric acid:—

The coin is dissolved in nitric acid, and the solution evaporated to the consisteney of oil. and then concentrated nitric acid, free from hydrochloric, is added; the silver salt crystallizes out while the copper remains in solution. The precipitated salt is then washed two or three times with concentrated nitric acid to remove any adhering copper salt, which gives it a bluish shade. On drying. any acid attached to it is evaporated. It is essential that the solution he evaporated only to the consistency of oil, for if evaporated to dryness, the copper salt adheres so firmly to the silver that it can with difficulty he removed. The more concentrated the acid. the more completely the silver will he precipitated, hut an acid with a spec. gr. of 1.25 may he used for completely separating the two metals. Three or four parts of concentrated acid are required for one part of the concentrated metallic solution.

Discovery of a New Species of Whale.—In a letter to Mr John W. Strauchon, Professor George W Davidson informs him that the petrified whale bone taken from tbe artesian well which is heing eunk hy Messrs. Calloway & Co. in this city, has been proved a portion of a whale of a new species hy the savans of Philadelphia Academy of Natural Sciences. The Professor is desirous of obtaiuing additional portions of the skeleton if possible to present the same to the above institution, of which he is a member.—*San Diego Union.*

Recent Geographical Work on the Pacific Coast.

We eelect the following items from the *American Journal of Science* for May:

Report of the Eng. Corps, U. S. Army.

This report was presented to Cougress last Decemher.

Nevada and Arizona.—The explorations nnder Lieut. Wheeler, hegun iu 1869, have heen in progress during the past year.

Alaska.—Captain C. W Raymond has made a reconnoisance of the River Yukon His report, with a map of the river, has been printed separately by Congress.

Fortieth Parallel.—King's survey is still in progress. A clear account of all the work hegun from March, 1867, to Oct., 1871, is given in the report, from which we extract the following as to the methods of work, problems investigated and chief results:

"The foundation of our explorations have heen a continuous system of triangulation, carried from mountain-top to mountain-top, and the whole extent of our work, hy theodolite observations upon stone monuments. Within the primary triangles a large number of secondary triangles are located, and from these, working always inwardly, a thorough system of minor triangles. In connection with this, the altitude of all prominent mountain-peaks and localities upon the plains have been determined.

"In the department of geology, careful and actual sections bave heen made over the whole area; the superposition of the immense variety of irruptive rocks has been, in almost all cases, accurately determined; the dynamical questions, such as the build of mountains, the upheaval of chains, and the formation of mining districts and of mineral-bearing lodes have received careful attention.

"In botany a very large collection has been made, resulting in the discovery of over 100 new species of plants, in a complete knowledge of the distribution of timber and of the leading families of the desert flora.

"In zoölogy the collection has heen equally careful and the results are of interest and value.

"The work embraces a complete scientific examination of a section of country which traverses, from east to west, nearly the entire Cordillera system. The rocks at our eastern terminns are already those of the Atlantic formations and are heing extensively studied hy a number of geologists.

"In mining industry our lahors have been worked up and the volume and accompanying atlas printed. Also, the topographical maps are plotted on a scale of 2 miles to the inch, and have been photographically reduced to a scale of 4 miles to the inch, resulting in three maps, about 30 or 40 inches each. These are now being drawn in *hachure*, preparatory to lithographing.

"The volume of botany is completed [and published]. That of geology is also completed and awaits the printer. To complete the series I propose two more volumes: one of descriptive geology and one embodying general results. The former is now in active preparation and the maps accompanying it are in the hands of the engraver. For the general volume I am unable at present to fix a definite time. When finished the series is designed to embody,

"1. A ground-work topographical map upon which shall appear all the features of the country surveyed.

"2. A series of geological maps, illustrating the formations of rocks, soils, alkaline deposits, and the distribution of arable land.

"3. A general report which, in a synthetical manner, shall describe the history of the formations of that portion of the Cordillera, its original deposition in the primeval ocean, the evolution of continental features and mountains, the minute lithological structure of each family of rocks, and chapters upon the volcanic and glacial ages; and an attempt to explain the present physical conditions, and an account of the considerable climatic change now going on.

"As appendices to this, the 2d, 3d, 4th and 5th volumes will treat of technical geology, zoölogy and mining industry."

River Surveys, more or less in detail. have heen made in various regions; including the Willamette, tbe Umpqua, and portions of the Sacramento.

Yellowstone Geysers.

The most valuable sources of information which have come under our notice are as follows:

1. A picturesque description of the Geyser region, hased upon the observations of the Washburn-Langford party, printed in *Scribers Monthly* in 1871.

An account hy Walter Trumhull of the Washhurn Yellowstone expedition appeared in the *Overland Monthly* for May, 1871.

2. Reconnoissance by Capt. J. W. Barlow, U. S. Corps of Eng., made in 1871; published hy permission in several newspapers of Jan. and Feh., 1872.

3. Railroad reconnoissance of the valley by Gen. W. M. Roberts, Chief Eng. N. P. R. R., made 1871; printed by the railroad company but not yet published.

3d. The reports of Dr. Hayden's visit in 1871, with two maps; also prepared for publication ou a large scale.

Preliminary report of the U. S. Geol. Survey of Montana, and portions of adjacent Territory, heing a fifth Annual Report of Progrese, by F. V. Hayden. U. S. Geologist. Conducted under the authority of the Secretary of the Interior, Washington, 1872. This gives an account of his explorations in the Geyeer regions, with notes on the geology on his route from Utah through Idaho and Montana; it contains, also, reports on the physical features

A FREAK OF NATURE.

and conditions, the geology and the natural history of a considerable part of the Rocky mouutain region.

Route of the Northern Pacific Railroad.

This region was first made known hy the journey of Lewis and Clark, in 1804–5 and 6, was surveyed by Geu. I. I. Stevens in 1853–4 and 5 (report published as vol. XII, pt. 1, U. S. Pacific Railroad Report); and was carefully examined hy Capt J. Mullan (who huilt the military road from Fort Walla Walla to Fort Benton in 1862), whose report was published by the Government in 1863.

1. The N. P. R. R. last year published (?) Gen. Robert's report of the reconnoissance in 1869, of the route. The same engineer was engaged in 1871 in examining the Rocky Mt. Divide between Lewis and Clark's Pass on the north and Deer Lodge Pass on the south, a distance of nearly 100 miles, covering all the passes of the main channel available for the railroad. We snbsequently went dowu to the Yellowstone as mentioned before.

2. At the same time Gen. F. L. Rosser surveyed a route between the Missouri, at Fort Rice, and the Yellowstone.

3 Mr. F. Wilkeson also made last summer a geological examination of the region between Cadott's Pass and Deer Lodge Pass, with reference to the occurrence of coal and iron.

4. Mr. C. A. White has heen across the Grand Plain of the Columhia and through the Grand Coulée.

(These four reports have been presented hut not yet puhlished).

Transportation Routes in Minnesota and Dakota—Colorado Expedition.

A very interesting map of transportation routes in Minnesota and Dakota, including railroad, mail and express routes, has just heen prepared hy Gen. S. R. Hotahids, Chief Quartermaster of the Department of Dakota, and published in a scale of 10 miles to the inch.

Major Powell's Colorado expedition in 1871 passed through the cañons of Green River and of the Colorado to the month of the Paria, at the head of Middle Cañou. On the way the party explored the region west of the rivers named, tracing the large hranches to their sources, and examining the geology of the great mesas and cliffs. Early in the winter a base-line, 47,000 feet long, was measured in a meridian running south from Kanab, and the party is now triangulating among the peaks and cliffs of lateral cañone of the Colorado. Many prehistoric mines, stone implements, etc., have heen found; also a tribe of Utes in the Kaibah Plateau who still make stone implements.

Curious Freak of Nature.

The accompanying drawing represents a Radish curiosity, (size of the sketch,) grown in the garden of T. Hart Hyatt, Oakland, the present season. The two radishes tied themselves together, as shown, without aid. Whether it is a matrimonial knot, or not matrimonial, we cannot say.

The Mines of New Mexico.

From recent accounts from Silver City and other mining regions, the fact, which we have often hefore enunciated is now becoming more and more ohvious. To render New Mexico one of the richest mining regions in the Union, it needs but capital, machinery and enterprise. True, skilled lahor, and protection for life and property are also needed, but all of theee latter will follow capital and machinery. We have no hesitation in eaying that for the surplus capital which now lies idle in the States awaiting an opportunity of profitahle investment there is no hetter field than the mines of New Mexico. Its wealth in minerals cannot be overestimated, nor is its wealth confined to minerals. With a climate unsurpassed on the American Continent and a eoil whose richnese is proverhial, the agriculturist, the stock-raieer, aud the vinter—for whose business its climate is especially adapted, are invited by an undeveloped oountry and a lavish profusion of nature's richest hlessings to come here and establish homes for themselves and their posterity and in so doing reap the harvest of prosperity.

The people in our mines are thrifty, enterprising and hopeful for reinforcement; hut they need the capital to their friends elsewhere, conjointly with their willing lahor, to give the nation the benefit of the wealth within sight and to give an unnsual profit to all engaged in its developments.

The passage of the Denver and Rio Grande aud also the Texas and Pacific railroad bills, will give assurance, that hut few years can pass hefore capital and immigration will pour iuto the country. Meantime, though the need of capital is sorely felt, and if those having a eurplns of it at their command would give the merits and advautages of onr mining localities a fair trial, we are sure the examination would lead to inveetment and the investment to a rich and certain profit. Of the future of our mineral sections we neither have, nor reasonahly could have any douhts. Still we are anxious that our claims should be known and that eastern capital now lying idle and nnproductive may have an opportunity to increase itself as well as aid the enterprising frontiersmen who are now struggling so bravely, and against such odds, to spread civilization, commerce and enterprise over this rich, but much neglected portion of the Union.—*Santa Fe Post.*

Japan.—The recent great fire in Yedo, Japan, destroyed all the houses within an area of four miles long by three wide, and contrary to the usual custom there, where large fires occur frequently, the city will he huilt up again in a more substantial and civilized manner. A new survey is to he made, the streets widened and the huildings to be of brick. There is little doubt but that the Japanese will see the evident superiority of our steam fire engines over their inefficient system and will order a number of them from this country. Their progress is very rapid and they manifest an earnest desire to become familiar with all the the implements of modern civilization, which they substantially prove by their large orders from the United States.

Useful Information.

Carbolic Acid and Its Applications.

One can hardly pick up a paper now-adays without finding some reference to carbolic acid, a word which, until quite recently, it was difficult to get printed without having the *l* changed to an *n*. The valuable uses of this agent are making it very generally employed, and for the benfit of our readers we give (from the *Industrial Monthly*) some remarks concerning its character and applications.

The beautiful anilino colors, many favorite essences and perfumes, and the best disinfectant of modern times, carbolic acid, (called also phenol, phenyl alcohol, phenic acid and coal tar creosote,) are all prepared from coal tar.

Pure carbolic acid is a white crystalline substance having a powerful smoky odor. When exposed to the air it absorbs water and becomes liquid. It is soluble in water, alcohol, ether and glycerins, its combination with the last being one of the most valuable preparations of its class. A strong solution of carbolic acid attacks the skin of the lips, and even produces a disagreeable feeling where the skin is much thicker, so that great caution should be used in employing it as a wash.

It is as a disinfectant, however, that carbolic acid has proved most valuable, its power in this direction being undoubtedly due to its property of coagulating albumens. That it has the power to prevent contagion, was proved very clearly by Mr. Crookes, who found it a most complete destroyer of the infection of cattle plague. A Commission of the French Academy of Science reported that hyponitrous acid was the most efficacious of all disinfectants used in their experiments, but that carbolic acid was nearly as good, while it is far more easily applied and far less dangerous and expensive. While chlorine and the hypochlorites entirely failed to deodorize the gases from the bodies at the Paris Morgus during the heat of summer, carbolic acid proved perfectly efficacious. According to M. Devsrgie, water containing only the 1-1000th part by weight of carbolic acid completely disinfected the deadhouse in the hottest weather, even when it contains six or seven bodies.

There are various methods of applying carbolic acid, all founded upon its property of vaporizing in combination with water at ordinary temperatures. Thus, it may be mixed with water and sprinkled over the floor and walls of dwellings or stables. As, however, the solution produces disagreeable stains, and it is difficult to remove the odor afterwards, it is better to sprinkle the liquid over sawdust or sand contained in shallow pans which are placed in the apartments to be disinfected, or the liquid may be sprinkled over waste cloth hung up in the rooms. For washing animals or even the human body, carbolic-acid soap is an excellent form in which to use the disinfectant, and it has even been applied in the preparation of wrapping paper used for the preservation of meat.

The odor of carbolic acid is very powerful, and, to some persons, exceedingly disagreeable. It may even be questioned, whether it is altogether healthy, since we know that in a concentrated condition it proves rapidly destructive to life. Some years ago, an attempt was made to substitute carbolic acid for carbonic oxids in the Gamgee process. No difficulty was found in slaughtering the animals, by exposing them to air slightly impregnated with carbolic acid. A bird, a dog and a sheep, were successively killed, and then an ox was tried. He became a little obstrsperous, but finally succumbed. The question now arises, to what extent may air be impregnated with carbolic-acid vapor, without being rendered unhealthy? In regard to this point, we know of no reliable experimental investigations. That in certain common cases, it is powerfully destructive of animal life, is well known, and consequently we find it extensively used for the remains of certain annoying parasites, which infect man and other animals. For the removal of fleas and other pests from dogs, cats, sheep, etc., a strong wash of carbolic-acid soap is the best agent yet discovered.

What Shall A Workman Study?—"In Lectures in a Workshop" in the *Industrial Monthly*, T. P. P. says: If there is any doubt about what study or studies should be followed with a view to self culture, we can remove it by a simple rule given in these words, namely: *Study your business.* By this the daily bread is to be earned; and it is highly probable that the knowledge of the trade engaged in exceeds the information on all subjects outside of it. Many men are continually attempting too much, and worry because they cannot swallow whole volumes of literature and science in a few months; they are apt to slight their daily occupation as an unavoidable means of maintainance and concentrate their efforts upon something quite foreign to their trade. Such men have mistaken their calling, and are wasting their time so far as self-improvement goes.

An Acoustic Experiment.—Let a wide glass tube, open at both ends, be taken, and in this a piece of fine wire gauze be pushed up some little distance. If the gauze be now heated to red hotness over an ordinary Bunsen burner, and then removed, it will shortly emit a shrill note, lasting from five to ten seconds. The experiment will be new to some of our readers, and has the merit of always going off.

To Prepare Skeleton Leaves.

Mr. J. F. Robinson describes in *Hardwicke's Science Gossip* a simple method of preparing skeleton leaves, which seems preferable to the old and tedious method of maceration, and which he recommends to all young botanists, especially to his fair friends, who take up the science of botany more as an intelligent amusement than for severe study. First dissolve four ounces of common washing soda in a quart of boiling water, then add two ounces of slaked quicklime, and boil for about fifteen minutes. Allow the solution to cool; afterwards pour off all the clear liquor into a clean saucepan. When this liquor is at its boiling heat place the leaves carefully in the pan, and boil the whole together for an hour, adding from time to time enough water to make up for the loss by evaporation. The epidermis and parenchyma of some leaves will more readily separate than others. A good test is to try the leaves after they have been gently boiling for an hour, and if the cellular matter does not easily rub off betwixt the finger and thumb beneath cold water, boil them again for a short time. When the fleshy matter is found to be sufficiently softened, rub them separately but very gently beneath cold water until the perfect skeleton is exposed.

The skeletons, at first, are of a dirty white color; to make them of a pure white, and therefore more beautiful, all that is necessary is to bleach them in a weak solution of chloride of lime—a large teaspoonful of chlorids of lime to a quart of water; if a few drops of vinegar is added to the solution it is all the better, for then the free chlorine liberated. Do no allow them to remain too long in the bleaching liquor, or they will become too brittle, and cannot afterwards be handled without injury. About fifteen minutes will be sufficient to make them white and clean looking. Dry the specimens in white blotting paper, beneath a gentle pressure. Simple leaves are the best for young beginners to experiment on; the vine, poplar, beech and ivy leaves make excellent skeletons. Care must be exercised in the selection of leaves, as well as the period of the year and the state of the atmosphere when the specimens are collected; otherwise, failure will be the result. The best months to gather the specimens are July and August. Never collect specimens in damp weather, and none but perfectly matured leaves ought to be selected.

Stretching Tracing Paper.—The thin transparent tracing paper, used by architects and draughtsmen, can be stretched or be mounted so as to give a fine even surface, on which water-coloring and shading can be done as easily as upon mounted paper. Cut a piece of drawing-paper the size of the drawing-board; gum the upper surface, edge of the board, about ½ inch in width; spread the tracing-paper carefully over the drawing, and smooth down on the gummed edge; then turn the sheet back, and gum the remaining three edges of the board; bring over the tracing paper and smooth down the edges; do not pull or twist the sheet, so as to get it tight or severely strained, but get the edges well held down by the gum. After the gum has dried, a clean sponge, well saturated with water, may be passed over the entire surface, except on the gummed edges. The tracing-paper expands and blisters all over, but in a few minutes the dampness evaporates and a beautiful surface is presented, similar to a transparent slate. The tracing can now be colored or shaded as on drawing-paper, and any blots or errors can easily be washed out.—*Ex.*

Effect of Food on the Taste of Fish.—Since the introduction of coal oil refineries along the the Schuylkill and Delaware, the original fine flavor of the shad caught in these rivers has been materially injured, partaking of the rather unpalatable taste of kerosene. Seth Green, who is one of the best authorities on the fresh fish question in this country says "The flesh of fish will taste of kerosene if caught in any stream in which the refuse of kerosene oil refineries is allowed to run."

India Rubber Liquid Blacking.—Take of ivory black, sixty pounds; molasses, forty-five pounds; gum arabic, dissolved in a sufficient quantity of hot water, one pound; India rubber, dissolved by the aid of heat in nine pounds of rape seed oil, eighteen ounces; mix them well together. This blacking may be applied by means of a small sponge, attached to a piece of twisted wire, like the well-known Japa blacking.—*Scientific American.*

Caution.—Wherever iron pipes are employed for conveying any heated medium, such as smoke, hot air, steam, or hot water, they should not be allowed to pass through woodwork unless protected by an earthen crock. The iron rust may be reoxided by heat, and upon reoxidizing it often becomes red hot. Many fires have occurred from this cause.

Coal Mines.—The *Mercurio*, a paper published in Chile, reports important discoveries of coal along the gulf of Arauco, particularly on both banks of the Carampangue River, near its mouth, where they intend working the mines. The coal is of passable quality and said to be found in abundance.

In making the railroad grade across the island near Rock Island, it is said geological evidences were found indicating that the Mississippi once covered it with a depth of fifty feet of water.

Good Health.

Physiological Effects of Coffee.

An interesting communication was recently made at a meeting of the Academy of Sciences in Paris in regard to the value of coffee as an article of food. Attention was called to a statement of Mr. Gasparin, in 1850, that the miners of Charleroi preserved their health and great vigor of muscular force, by the use of less than half of the nutriment indicated as necessary by theory and daily observation. Using food containing less nitrogen and carbon than the daily ration of the monks of La Trappe, whose countenances are pale, and who exercise scarcely one-fifth as much as an ordinary workman, these Belgian miners were more industrious and energetic in their labors. The secret of the difference was stated by Mr. Gasparin to consist in the use every day by these miners of a pint of an infusion of about an ounce of coffee, prepared in two quarts of water, which served the purpose of counteracting the injurious effect of an insufficient supply of food.

Reference was also made to an experiment in 1860, by Mr. Jousand, in which, by the use of a decoction of about an ounce and a half of powdered coffee, a young man was kept, with no other food whatever in good health and strength for seven days, during which time he took more active muscular exercise than usual, without any special inconvenience.

The particular deduction from these experiments appears to be that coffee has an important action in preventing denutrition and emaciation. An illustration of this is seen, according to the author, in the effect upon the urea. In one experiment, about half a grain of caffein was consumed daily, and the amount of urea was diminished 28 per cent.; while an infusion of about two ounces of roast coffee diminished it by 20 per cent. This is asserted to be the result by very careful experiments of a physiologist upon himself, proving that caffein and roast coffee diminish the oxidation of the system, and temper the process of denutrition. The excessive frequency and intensity of the beating of the heart was also found to be reduced in several instances. It is probable, according to the author, that a similar action is exerted by some other substances—the Paraguay tea, especially, which, it is well known, enables the natives of the Andes to subsist for a long time on an incredibly small amount of food.—*Harper's Monthly.*

Patent Gas Company.—The *Money Market Review*, of London, April 20th, contains a notice of a new invention which promises to open a new era in gas manufacture, and of which an eminent gas engineer says:

"This process must sooner or later be adopted by all existing companies." The inventor claims as its chief advantages, as compared with the gas supplied by existing companies, that it has but six grains maximum of sulphur impurities per 100 cubic feet, and gives 11,500 cubic feet of 20 candle gas per ton of coal, in lieu of 9,500 cubic feet of 14 candle, as given by the ordinary process. In other words an illuminating power of 46,000 standard sperm candles instead of 26,000, being a net gain of light equivalent to 72½ per cent. The cost of production by the patent process being sixteen pence per 1,000 cubic feet as compared with twenty-one pence, the cost of the ordinary process.

A Mouse Afflicted With Small-Pox.—The New York *Standard* of May 6th, is responsible for the following:—On Friday evening a lady entered the drug store of Dr. Edward Lindridge, on Hudson avenue, near Sands street, Brooklyn, and placed a live mouse on the counter. The little animal had a very sore head, and the doctor was asked whether he knew what the matter was. He was also informed that it had been brought from the tenement house, 156 Hudson avenue, near York street, where there have been several cases of small-pox. After examining the mouse he found that it was covered with sores. He sprinkled some disinfecting powder over it and in a short time it died. It was then dissected, and a clear case of small-pox in its worst form was revealed. The remains were inclosed in a glass jar, and are to be sent to the hospital for further examination, as it is believed to be the first case of the kind ever heard of.

Editors Press:—Some time since I read in your columns, of a cure for "dandruff" which consisted simply in wetting the hair with water in which sulphur had been steeped. Being troubled with dandruff, and thinking the experiment at least harmless, I tried it, and it succeeded perfectly—there is now no dandruff on the scalp. The water has acquired a slightly acid taste, but I have not the time to ascertain exactly what change has taken place. The fact, however, may be useful to some of your readers.—E. H. A.

Tomato Custard.—This is said to be a beneficial diet for consumptives. It is made by straining finely stewed tomatoes through a course seive, and adding two pints of milk and one pint of tomatoes, for four eggs and one teaspoonful of sugar. Bake in small cups quickly.

Care of the Eyes.

There comes a time when normal eyes find their powers grown limited, and require more light, or assistance from glasses, when looking at small or near objects. When this period arrives, it is an error to persist in endeavors to do as formerly with the eyes; but much use must be avoided, except in a clear light, or with the required auxiliaries. It is also a mistake to suppose that glasses should not be worn while it is possible to avoid doing so. On the contrary, they serve to prevent straining of the eyes, and preserve rather than injure vision.

Certain defects of refractive power are due to malformation of the eye, either existing from birth or acquired afterward, and are not to be removed by remedies or manipulations. It is a mischievous error to suppose that the form of an elastic globe, filled with fluid or semi-fluid substances, can be changed except for a moment, by pressing upon it with the fingers, as has been recommended by charlatans. All the theories that the eye can have its form favorably modified by rubbing it always in one direction, or by any other manipulation, have no foundation in facts. But while persistant squeezing, according to these methods, can never do any permanent good, it involves great risks. It may lead to congestion and hemorrage within the eyes; or give rise to destructive inflamation, or formation of cataract, by dislocating the crystalline lens; or cause almost immediate loss of sight, by the separation of the retina from its neighboring parts; or increase the giving way of the back part of the globe, which is already often begun in near-sighted eyes.

The same warnings will apply with equal force against the use of eye-cups fitted with rubber bulbs, to alter the form of the eyeball, as is asserted, by suction. Valueless and dangerous as they are, persons are often persuaded to purchase and try them—sometimes to their sorrow.—*Atlantic Monthly.*

A Novel Theory.—A German physician has lately started the theory that the fearful disease known as small-pox originates from an excess of albuminous matter in the blood, and that this is to be prevented by the administration of common salt. The habits of children in indulging too freely in sweetmeats be considers one great cause of this undue development of albumen, and coffee and tea if highly sugared, tend also to excite it in adults. An organic acid, such as lemon juice, he considers the best means of freeing the blood, when clogged with too much albumen, and he alleges that by taking these simple remedies in the way of precaution, he has, for upwards of twelve years past, frequented or taken up his abode in the most pestilential small-pox hospitals of Europe and South America with entire impunity.

A Victim of Hair Dye.—Thomas Minshall, a young man residing in Chester, Pa., was terribly poisoned a week or two since by a species of hair dye in common use among barbers everywhere. While coloring his mustache the barber suffered a drop to fall upon his lower lip, which was slightly chapped. In a short time after the part began to swell, became inflamed to an enormous size, and his face presented a shocking appearance. Convulsion after convulsion followed, and for some days his life was in great jeopardy. Within the last day or two, however, the swelling has somewhat subsided and he is in a fair way to recover.—*Yreka Journal.*

Wet Clothes.—Few persons understand fully the reason why wet clothes exert such a chilling influence. It is simply this: Water, when it evaporates, carries off an enormous amount of heat, in what is called the latent form. One pound of water in vapor contains as much heat as nine or ten pounds of liquid water, and all this heat must, of course, be taken from the body. If our clothes are moistened with three pounds of water, that is, if, by wetting, they are rendered three pounds heavier, these three pounds will, in drying, carry off as much heat as would raise three gallons of ice-cold water to the boiling point. No wonder that damp clothes chill us.

Soup for Invalids.—To a pint of warm water add three tablespoonfuls of cod liver oil, shake them until they are thoroughly incorporated. Take a clove of garlic, that has been steeped for some twenty-four hours in senna tea, and shred it into the liquid. Season with rhubarb and magnesia. Some add forcemeat balls of the same size—and of the same materials—as anti-bilious pills. Brown with a salamander, and serve up.

Scarlatina.—Mr. W. M. Searcy suggests the frequent examination of the tonsils of all persons living in a house where scarlatina is present, as the redness and enlargement of those organs are premonitory symptoms of the disease. Nitrate of silver in solution—one dram to one ounce distilled water—is a good local application, and if the case be severe, aperient medicine is used in conjunction therewith.

To Remove Warts.—Apply to the wart with the end of a knitting needle a little fuming nitric acid, to be had of the apothecaries. Repeat the application once or twice, and in two or three days the excrescence will come off without leaving any mark.

Scientific Press.

W. B. EWER.....SENIOR EDITOR.

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ILLUSTRATIONS AND REPORTS OF MINING ENTERPRISES WANTED.—Drawings or photographs of mining works that are of general interest to our readers are solicited for publication in this journal. Official reports of Companies, and description of mines of importance, or of special interest, are also desired. Sketches of any new method and discoveries will be very acceptable.

San Francisco:

Saturday Morning, June 1, 1872

Gold and Legal Tender Rates.

SAN FRANCISCO, Wednesday, May 29, 1872.—Legal Tenders buying, 89; selling, 90. Gold in New York to-day, 114.

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THE CENERBURG MINE.—The *Stars and Stripes*, in speaking of this mine which produced the fine specimens we mentioned in a recent issue as on exhibition in a jeweler's window, on Montgomery street, says: "This marvelously rich streak is in a stringer of quartz three to six inches wide, which, as it descends, is pitching toward the main channel at an angle which favors the presumption that a junction will be formed at a depth of less than 100 ft. The main ledge is over 4 ft. thick, and is, through its entire developed extent, composed of high grade milling rock. A mill is shortly to be erected." The *Stars and Stripes* speaks favorably of the mine, and we understand that the specimens at J. M. Seaman's, in this city, will be disposed of on the 1st inst., either as a whole or to parties desiring one or more for their cabinets.

EXPERIMENTAL LECTURE.—Prof. E. S. Carr will lecture before the Oakland Farming Club on Friday evening, May 31st, on "Water," its various conditions and modifications, and its assimilation in the growth of vegetation. Several interesting experiments will be given. After a short lecture, the subject of irrigating trees will be discussed by members of the club.

A SMELTING furnace at Salt Lake uses one thousand bushels of Truckee coal per day. The Salt Lake demand amounts to over 3,000 bushels per day.

SIX hundred and eighty bars of base bullion, from the Cerro Gordo mines, were received in Los Angeles on the 23d inst.

THE new furnaces of the Valley quicksilver mines, at Pope Valley, will be put in operation about the first prox.

Mining as an Investment.

[Concluded from our last issue.]

Risks in Mining.

There is some force in the remark that mining is more risky than any other business, but in justice it should be conceded that this risk is attached to everything else. There is no more speculation in it than in other pursuits. As an investment it may not only be trusted in for dividends but for high rates of interest, provided, always, that it is pursued like other business callings, for legitimate production; since mere scheming in stock transactions divests it of its purely commercial character, and frightens persons from embarking in it whose money would otherwise be available. There is, nevertheless, as much certainty of return, and more certainty of a large increase than anything else, and it may be looked to for large, regular and never-failing returns. A more practical application of science to mining should be made, and a diffusion of more general and correct knowledge among miners as to the best method of opening mines, working ores, etc. Good mining engineers are, however, not to be picked up every day, but even then it is not necessary to send a lawyer, clerk, carpenter, broker or anybody that is convenient to superintend a mine and suppose that he is competent to do it. It requires peculiar qualifications to manage mining property successfully, but what proportion of losses is due to recklessness, extravagance, deception or fraud, it is impossible to tell. An honest, attentive man of scientific attainments, and, if possible, local knowledge, is a treasure. The estimates, however, may be sometimes incorrect, for the lode may be deeper, or turn out poorer, or water may come in, or a "fault" be discovered; but even then the risks are no greater than they would be in building a railroad, tunneling a mountain, creating extensive irrigating works or building a canal. People invest in such enterprises and count a loss a business loss; but if a mine is not one of unbounded wealth, the business is characterized as too uncertain for legitimate investment. If there is more hazard, there is more chance of success. People have made fortunes in commercial pursuits—manufacturing, farming, etc.—but storms and fires come, and crops fail, and in the last instance it is even more disastrous than any mining venture could be, for not only a few, but many, are injured by the same catastrophe.

The lode fails less frequently than the crops, especially here in California, where drouths occur periodically; inundations do not happen so often as shipwreck, and the storm that sweeps over the lands and destroys building and crops, passes harmlessly over the miner; every cattle man, farmer and merchant and manufacturer is in more danger of losing his capital, without having the same chance of so glorious a result, or such sure ground to work upon. The farmer often spends as much in harvesting his crop as he afterwards gets for it, without taking his labor into consideration; and manufacturers frequently sell their goods even below cost price, but nobody would think of giving up business on these accounts. Why then should they decry mining because failures sometimes occur.

Certain Precautions Must be Taken,

However, to insure success. In selecting a claim there should be proof of actual existence, location and clearness of title. Mining is necessarily a slow proceeding. Starting off at the commencement of works at a new mine and accompanying mill, it will seldom occur that the latter will do much for some months, during which time funds are necessary. An approximate estimate should be laid before holders of stock not only of the whole cost, but the probable time the work will require for completion, and the amounts required at stated periods in the meantime; power of engine to be ordered, size and cost of buildings according to plans furnished, amount of stores to be ordered, or powder, candles, tools, etc., should all be discussed and legislated for at a general meeting of the stockholders. An estimate should also be furnished of the probable receipts which may occur in the interval which will occur prior to the next periodical assemblage, and if any unusual outlay is made let it be made at the risk of the Superintendent, except when arising from some imminent necessity, over and above what is directed at the meeting. In some cases holders are to blame for resulting adverse circumstances from their own carelessness in these particulars. The making of contracts for engines or supplies, with all matters pertaining to general management, may be safely left to the trustees, and the executive management remain with the periodically appointed officials. The general meetings of stockholders should be held at least once in three months, and the trustees then called upon to give a full and detailed account of their stewardship; and, above all, the Superintendent or trustees should give some account of proposed work during the following quarter, and no work or contract permitted unless the stockholders have perfect confidence in the Superintendent, or it is approved by them at the time. If, however, they only think of the value of the stock and not of the mine, and take no personal interest in the administration of affairs, no matter how much it is to be regretted on moral grounds, it is too much to expect sympathy for misfortunes attributed to their own negligence.

It can rarely happen that serious mischief can be done in three months either from improper expenditures, sinking, drifting or delaying either, for such a period. A diagram of the mine should be on hand for convenience or reference. As a usual thing all these matters are first designed by the Superintendent and carried into effect without the interference of the general body, although they are expected to foot the bills. Of course such a system implies the appointment of an honest and properly qualified Superintendent, but to expect practical advice on mining and metallurgical treatment from one only recently called from the counter, the desk, the stage or the ship, would be absurd; yet from such sources have they often been appointed, and as long as dividends came no questions were asked, no complaints made; although it may have been apparent from the manner in which the amounts were realized that the mines were being ruined. All outside expenditures should be withheld until the mine is sufficiently developed to ascertain its working value. Low grade ores can only be worked by careful avoidance of all unnecessary expense and under the best financial management. Monthly dividends are not so good in the long run as quarterly since it is often judicious for the Superintendent to put men at work for short periods in unproductive works for the general benefit of the mine, which can scarcely be done if dividends are expected monthly.

The Quartz Interest

Is of vital importance to this coast, and should be fostered accordingly, for wherever we find a successfully operated and paying mine we are sure to find activity and life in all branches of business. The miner's labor enriches the country and prepares the way for the farmer, mechanic, merchant and artizan. "Why do they always want to sell out?" may be asked. Because nearly every miner who owns and works a claim knows, or thinks he knows, where to find another, an advantage the capitalist does not possess. We must look closely to the mining interests of our State, particularly, and San Francisco should afford ample facilities for treating our ores and put an end to shipments eastward. If mining was abandoned entirely the commercial world would feel it severely, since money would soon become so scarce.

Metallurgical Knowledge

Should be more wide spread and more care taken in our operations, for we regard the wastage of the precious metals indifferently, when if a moderate degree of care, skill and ingenuity were employed, a great saving could be effected. It appears almost incomprehensible that an energetic and far-seeing people should permit the extraordinary waste that has been going on so long; but, unfortunately, the chief desire is to work the largest amount of ore in the shortest time, rather than to get a large quantity from it. The mining interests of the coast are the chief source of its prosperity, and a significant fact in proof of this assertion is that we were never so prosperous as when we mined most. Lode mining is to-day the most important industry we have, and recent developments prove that far from being only a temporary one, the present generation is, so to speak, merely sinking the shafts for future ones to start their drifts from.

Swamp Land Reclamation.

The Board of Swamp Land Commissioners was in session at Sacramento on the 24th inst., and was to continue in session until the important business presented before them was properly inaugurated.

President C. F. Reed, A. S. Bender and E. H. Staut, were present. G. W. Morgan was elected Secretary of the Board. Hon. S. W. Sanderson was chosen Legal Adviser of the Board. Swamp levee districts desirous of acquiring advantages under the Harvey Act, may now freely apply. Several districts are prepared to apply for the issue of bonds for reclamation purposes, and within ten days their desire will be fulfilled. It is supposed that the probable settlement of the *Alabama* claims will have a sensible effect on the operations of resident agents of English capitalists, who propose to invest in projects for the reclamation of swamp lands.

THE receipts of silver bullion at Salt Lake City, from Pioche, reach about $50,000 per day.

Clay Street and Russian Hill Railroad.

The proposition to run a railroad up Clay street so as to surmount Russian Hill, will, naturally attract considerable attention from the seeming difficulty in effecting the object; but when the plan to be adopted is known, these difficulties disappear, and the feasibility of the project becomes apparent. We called this week at Room 1, No. 621 Clay street, the office of the owners of the franchise, in order to fully understand the means to be employed in getting the cars up the steep grade of Clay street hill. The cars are to start at the corner of Clay and Kearny streets, and run to Jones street on a double track, and are to be drawn up the ascent by means of an endless steel wire rope three inches in circumference, which runs constantly in a tube-shaped channel placed underground between each track. The wire rope will run on rollers which support it below and at the upper crossings of the street, other rollers are to be placed to keep it down in proper position.

On the whole length of Clay street from Kearney up, in the middle of each track is to be a slit or opening seven-eights of an inch wide at the top of the tube, in which the shank of a peculiar and ingenious "grip" travels. The patent grip consists of an L-shaped frame which is attached to the car so as to extend down through the slot into the groove in which the propelling rope travels. The grip is attached to the lower end of a slide, which moves up and down in the frame so that it can be raised or lowered as desired, and means are provided by which it can be detached from the rope at will from the platform of the car.

There are to be four tenders, each having one of these grips attached; the tenders are constructed so as to be connected to the ordinary light street cars, a spring being placed between them to take off any shock which might occur in starting. It is expected that these cars will run about every ten minutes, or oftener if desired, and the trip from Kearny street to Jones street will be made in six minutes. The whole distance is two thousand eight hundred feet, and the elevation attained three hundred and seven feet. From that point horses are attached to the cars, and the road runs to the western portion of Russian Hill, the present terminus being Larkin and Chestnut streets.

Motive Power.

There will be a twenty-five horse-power stationary engine at the corner of Jones and Clay streets, which actuates the rope by means of an eight-foot grip pulley placed horizontally. An eight-foot pulley is also to be placed at the intersection of Clay and Kearny streets. The rope being placed around these pulleys and moving through the tube between the rollers, it is readily understood that one rope will run up hill, and the other down between the proper track, drawing the cars with them. The difficulty heretofore has been to keep the rope underground at the street crossings, and to enable the cars to ascend with the variations in angles of grade. This is accomplished by an exceedingly simple and perfectly safe gripping attachment heretofore referred to, which is entirely under control of the conductor, so that he can stop or start on any portion of the line of track. When the car reaches the top of the hill, the tender or truck carrying the gripping attachment can be removed and the horses hooked on without delay, the passengers continuing on the same car to their destination. The gauge of the track is to be the same as our other street railroads.

Cost.

The cost of the road on Clay street between Kearny and Jones streets will be about $75,000 or $80,000, and while it is believed that it will ultimately pay its way,

the projectors do not expect returns on that amount of invested capital. The benefit to property holders and residents on the hill will, however, be great, since on account of the steepness of the ascent the locality is difficult of access, although healthy and commanding a fine view. The owners of the franchise are Messrs. Hallidie, Davis and Britton, and as soon as the necessary subscriptons for fitting up the road are forthcoming, the work of construction will begin. Those who are interested in this project, which will probably do away with the use of horses on steep grades, would do well to examine the model and plans of the projectors.

The Foye System of Binding Buildings.

We copy from the *N. Y. Sun* the following in reference to a late California invention for which letters patent of the United States were procured through the Scientific Press Patent Agency:—

The Board of Engineers for fortifications in New York, to which the War Department had referred an important patent recently taken out by Mr. W. H. Foye of San Francisco, has just reported. The invention not only secures life and property in earthquake countries, but also enables our architects to economize space in overcrowded New York. The invention briefly described is the binding of ordinary brick walls with vertical and horizontal iron bars, making the structure an indissoluble unit, for example, as a wheel is bound to its tires. The engineers' report is elaborate; its salient points are as follows:—

"In dwellings, warehouses, the shell and frame of churches, factories, and arsenals, the walls are of a slight thickness and (comparatively) great hight; isolated they would be of insufficient stability to resist even the force of the wind. Such structures owe their stability, not alone to the sufficiency of each part, but to their union as a whole. Any measure which will aid in binding the whole into a unit will be a benefit. Mr. Foye's system, besides adding to the ordinary stability of a building, gives greater security against shocks of earthquakes, and the falling walls of burning buildings in case of fire or other disturbing agencies."

The Board concurs in the report of Gen. Alexander to the Chairman of Committee on Public Buildings, Board of Supervisors, San Francisco, in which that gentleman says:—

"I think the principles upon which the invention is based are sound—it is particularly applicable to heavy stone structures—if skillfully applied will be found equally useful in ordinary brick buildings. The tying together of the foundation is very important, for whatever the character of the building, damage from disturbing causes will be less as the foundation approaches a unit. The vertical rods bind the top of the building to the foundation and afford to the top the resistance due the weight of the entire structure, and when combined with horizontal iron strong enough to keep the foundation from spreading will greatly aid in resisting subsidence, and giving that rigidity so necessary for the security of buildings. I am clear in my judgment that the value of such a building (if such iron were used according to the principles of the Foye patent,) would be enhanced more than the extra cost of the iron. The Foye system renders buildings more secure before and after a fire."

The Foye system of binding a building will doubtless be generally adopted within the fire limits of all large cities when its value is more fully known, but like all other improvements it will have to contend against the prejudices and theories of the ignorant in the profession in which it is classed. We have not space to give a minute description of all its merits, but will give some of its leading points.

The combination of the horizontal and vertical iron rods introduced into the walls binding the whole building into an entirety affords to each and every part the power of resistance due the weight of the whole structure. In case of fire (where a building is not wholly fire-proof the entire wood work might be consumed without serious injury to the walls, consequently when the wood work is replaced the building will be the same as before the fire. Firemen will feel a greater sense of security to fight fire in a brick building when it is known the wall cannot fall and crush them.

Within a few years past the valuable lives of eighteen of our citizens have been sacrificed outright by the falling of walls, and how many died from injuries received, after lingering for days, we have no means of knowing; but probably as many more.

In large cities where ground brings a high price and it is desirable to economize space, there is no system of building which will give the same satisfactory results as this; for it is easily demonstrated that a twelve-inch wall is stronger every way, and will sustain more weight upon its floors, if constructed on this system, than a sixteen-inch wall without it. The cost of labor and material saved will more than pay for the iron. Eight inches of floor room is saved to the owner, which is clear gain, and his building will rent for just that much more all the time, and probably insurance could be effected at lower rates on such a building. The gain in ground-room increases in favor of this system, when thicker walls are built.

Should the foundations of a building prove insecure the walls could not settle, provided a solid bearing remained at intervals, for the masonry must crush before such an occurrence; and being bound as a wheel by its tire, or a mill-stone by its bands, it is capable of resisting a much greater strain than ordinary masonry.

It is particularly adapted to factories where there is a constant vibration; caused by running machinery, and we venture to assert that if this system of iron binding had been incorporated in the walls of the different factories in the East, which have fallen and killed so many, within the past few years, we should be spared the pain of such occurrences, and that constant dread and feeling of insecurity of those living in brick buildings in consequence of earthquakes which sometimes occur in California, would no longer be felt. A building could be constructed of artificial stone (the Ransom or Frear) with great rapidity, and then moved off its foundation (if required) without injury to the building.

No engineer, architect, builder or practical man who pretends to a knowledge of the principles of construction, has examined this system without endorsing it.

We should think the people of Chicago might well appreciate this plan of binding in the rebuilding of that city. The right to use it should be owned by the city, and its use compelled by the fire Commissioners, in the construction of all brick buildings within the fire limits.

Mexican Gold.—The exportation of gold in bullion is now permitted by the Mexicans. A decree was recently passed which allows its exportation from ten of the principal States and from the Federal District. This policy will doubtless aid the development of mining property in Mexico and attract capital from outside its borders.

Winnemucca experienced an earthquake on the 23d inst. The reduction works at that place, which are being built by a French company, will be ready for work by the 1st of July. They claim to have a new process by which rebellious ores may be worked cheaply and profitably. A number of sales of mining property have been recently made at the above mentioned place.

Miners Wanted.—The North Bloomfield Gravel M. Co., are advertising for 35 or 40 miners. They are wanted, not only by this mine, but all over the country, and some of the idle men in our city could well be spared both with benefit to themselves and the community.

A dispatch from Eureka, Nev., states that tunnel locations under the new Congressional Mining Law are all the rage. The Eureka Consolidated smelting works are producing 20 tons of bullion per day, and the Richmond 10 tons. Several new furnaces are projected.

Patent for Mining Ground.—The Julia Gold and Silver Mining Company have obtained their patent to their ground, and the question of title is now settled. The protests of the Cobllar and Bullion Mining Companies were rejected by the Commissioner of the Land Office.

Crown Point.—The yield of the Crown Point mine last week fell off from the previous one nearly 1,000 tons, caused by trouble with water from the Yellow Jacket. The yield was 2,180 tons, valued at $67,800.

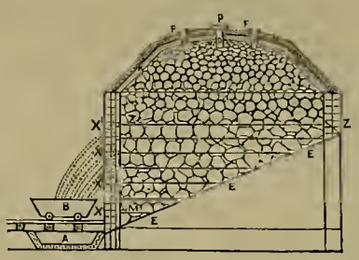
H. J. Booth, senior proprietor of the Union Iron Works, returned this week from a visit to the Eastern States, and the employés of the establishment gave him a serenade on the night of his arrival.

Ninety flasks of quicksilver were brought from the Redington mine last week.

Extraction of Sulphur from Its Ore in Sicily and Spain.

We give below an interesting description, with illustrations, of the method now employed in Sicily and Spain for extracting sulphur from its ores. The furnace by which the operation is performed is known as a Calcarone Furnace. The process is simple in theory, but requires considerable practical experience in its manipulation. The article was written by Mr. Henry Sewell, of Salt Lake City, the author of the letter which we published in a recent issue on the "Eberhardt, South Aurora, and Utah Silver Mining Company's Mines," and published originally in the New York *Engineering and Mining Journal:*

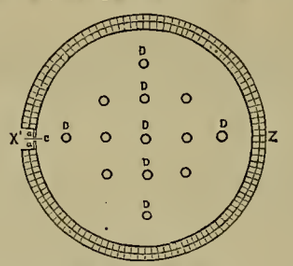
The dimensions of a calcarone differ much, according to the percentage of the ores; that is, the poorer the ore, the larger must be the furnace. When I commenced to use them in Spain, I found that furnaces about fifteen feet in diameter were the most successfully managed by workmen



Calcarene Furnace—Transverse Section.

not versed in the process; but I found also, that for economy, and a greater production in the smelting, a larger diameter, say 33 feet, gave the best results, and this is the size of the furnace in the accompanying plan.

The hight at *X*, on the front or tapping door, varies from 6 to 8, and even 12 feet (though seldom the latter). At *X X X* also, in the ground and vertical plan, an aperture reaching from the bottom to the top of the furnace exists, this is used for loading; but after that operation has been concluded, the aperture is closed with a



VERTICAL SECTION.

cast of plaster of Paris (or pieces put together), the thickness being only two inches. This thin door is built up new every time, and destroyed for discharging. It is used as a pyrometer, the heat easily piercing it, and indicates to the smelter how far the sulphur has *sweated* down.

In reality, this cannot be called a *smelting* operation, as no slag is formed, the heat being only sufficient to make the sulphur perspire out of the stone, leaving it in a spongy state. The ore is placed, in large boulders, just as it comes out of the mines, from the bottom to the middle of the furnace, which has a declivity of about 15 or 20 degrees, such being necessary at the end of the operation, in order that the last remnants of melted sulphur shall run towards the tapping door at point *M*. In loading the furnace, all the smaller-sized ore is reserved for filling the furnace near the top, where it is piled into the shape of a cone, as at *F F*, and chimneys are left at points *D D D*, about 2 feet deep. These are filled with brushwood, and in this way the ore is made to ignite. These hollows are left while piling the ore, and building the cone. The object of placing the small ore at the top, is simply to prevent any of the earth and sifted stone from falling through the large crevices that would be left, if large boulders were placed at the top.

The earth and sifted stone or gravel play an important part in the manipulation. At *K K* we have, immediately in contact with the small ore, a stratum of about 6 inches of small sifted gravel, about the size of a nut, and on this again, at *N N*, we have a coating of earth; this is to make the interior of the furnace as impermeable as possible to the oxidizing action of the air, and this coating is increased or decreased, according to the amount of heat required, which in turn depends on the strength of the winds, and their direction.

The brushwood ignited, the ore commences to burn, and the chimneys are kept open for about twenty hours, at the end of which period the ore has ignited all over the surface of the furnace, and to the depth of say, 15 or 20 inches. The chimneys are then all closed as follows: bricks are placed over them, as at point *P*; and sheuld the burning of the ore be too rapid, earth is then thrown over the bricks; but these chimneys are opened toward the middle of the operation, to increase the heat, and closed again, according to circumstances, to decrease it.

After forty-eight hours the melted sulphur begins to trickle down through the interstices of the stone, and congeals, forming as it were a conglomerate with the ore; the heat also travels downwards, and so we have remelting and congealing consecutively, till the sulphur arrives at the bottom of the furnace—forming a massive conglomerate of sulphur and ore; for it fills the interstices up to the point where the first tap-hole is drilled, through the thin door of plaster at point *X X X*. The lines across the furnace denote the lines or levels of tapping, and this commences naturally at *Z Z*, and so downwards, as the congealed sulphur is remelted with the descending heat. Every twenty-four hours a fresh tapping takes place, the former holes are plastered up, and a new hole drilled lower down, and so on till we get to the lowest point or bottom of the furnace. At the end of the operation, that is, during the last three days, nearly all the chimneys are left open, so that the air shall descend to the lower part of the furnace, and aid the combustion of the ore. The jet of sulphur is received into wooden moulds, as at point *B*. These are soaked in water to prevent the sulphur sticking to the wood, and are shaped wheel-barrow fashion, in order that the block of sulphur may easily fall out without breaking.

During the carrying away of a mould that has been filled, and the bringing of an empty one to be filled, the jet runs into a reservoir made for the purpose at *A*. One of the principal reasons for placing large blocks of ore, from the middle of the furnace downwards, is to leave sufficient interstices for receiving the sulphur, otherwise the first tap-hole would be too high, and near the ignited ore, thus setting fire to the stream of sulphur.

Two of the principal things to be guarded against, are overheating the furnace, and, on the other hand, carrying the process so slowly by the complete closing of the chimneys, that the operation would take two months instead of four weeks from the commencement. In the former case, instead of the sulphur congealing between the interstices, it would all be in a melted state from the top tap-hole to the bottom, thus not only consuming an unnecessary amount of sulphur in keeping up the heat of the furnace, but likewise giving, by overheating, a bad chocolate brown color to the sulphur. This quality would hardly be saleable, even for sulphuric acid. Any number of furnaces, say ten, after having been loaded, can be attended by two men, one in the day-time the other at night. As soon as the operation is over, which takes about a month, both apertures are opened to allow a current of air to pass through the furnace. Otherwise, it would not cool for a month; but by this precaution, a furnace can be discharged in a few days.

The new patent now being tried, is a large brick furnace of the same shape, hermetically closed, and arched over, and the sulphur is sweated out of the ore, by a constant jet of steam from a boiler.

Medical College of the Pacific.—This College constitutes a Medical Department of University College, under whose auspices was conducted the late successful course of lectures. The regular course of lectures in the Medical Department, of five months' duration, will be inaugurated next Monday evening, at 8 o'clock, by an introductory lecture by Prof. Clinton Cushing, in the College Building, 114 Stockton street, near Geary. All interested are cordially invited to attend.

Norton's Door and Gate Spring.—Bliven & Co. are manufacturers and proprietors of this invention instead of Davis & Bliven as mentioned in another column.

Domestic Economy.

Kindling Coal Fires.

We give below, from the *Journal of Heath* some hints with regard to kindling coal fires in addition to those given on page 27 of the present volume:—

Before coal kindles it must be heated through and through, made hot enough to blister the fingers in an instant, although still black. It is easy to see that a small bit of coal will get thus heated sooner than a larger one; hence the smaller the coal, the sooner it will ignite.

Coal must be kindled with wood. The wood will give out a certain amount of heat, and no more; and as a given amount of heat is necessary to kindle the coal, the more wood, and the less coal, and the smaller the pieces, the sooner and more certain will the fire be lighted.

In the face of these facts, persons are frequently seen in the rail-cars, when the fire in the stove is low, to put on a large amount of coal, the result being that the more coal put on, the more the fire will not burn, because the small amount of heat is distributed over a large amount of coal, all of which is heated some, but none of it heated enough for ignition. The more a coal fire is stirred, if a little low, the more certain it is to go out.

The best way to replenish a coal fire is to put on a small amount of coal while it is burning well; and after this is thoroughly kindled, and has been red for a short time, add a little more coal. In this way a fire may be kept burning a whole day in a grate without using the poker once; and good housekeepers know that every time a poker is used, the ashes fly in every direction, and valuable time is expended in brushing them up. If the poker must be used, the time to do it is when fresh coal has been thoroughly kindled, for then there is no danger of its going out.

If a coal fire is burning too much, either cover it with some of the ashes which have fallen through the grate—this makes the mass more compact, and diminishes the draught—or if it is desirable to put the fire out altogether, as when going to bed, press the coal down from the top with a shovel or blunt-edged poker.

It has been the custom to use the largest sized coal for the furnaces; this requires a great waste of wood in kindling, besides, much time is lost in firing up in the morning, the very time when most heat is wanted, and wanted quickly. It will take less coal, and give incomparably more comfort, to feed a furnace with coal, the largest piece of which is not larger than a hen's egg, only taking care to put on a little coal every hour. Observation and close calculating economy has shown this to all our river boats, tugs, and steamers.

The Best Way to Keep Potatoes.

Potatoes should always be kept in the dark. Intelligent rural housekeepers need not be told this; but many others, living in towns and cities, should know that potatoes exposed to the light for a day only, have their flavor injured; and the longer they are exposed the worse they are. Never use a greenish potato, as such tubers are unfit for human food. When Irish potatoes are removed from the cellar, they should always be spread out thin on the floor, in a cool building. If the apartment is not dark they should be covered with boards, to exclude the light. It is a good practice, also, to cover them with clean straw or sawdust. The injury done to potatoes by the light, after they are carried from a dark cellar, is the chief reason why there is such a universal complaint of poor potatoes in the spring and during the forepart of summer. Every sort of vegetable that grows in the dark—beneath the surface of the ground—should be stored in a dark apartment; while those vegetables and fruits which mature in the light, will ripen more satisfactorily, and develop a more luscious flavor, if they are stored in a light room.

Melton Veal.—This is a standard dish at the Melton Races in England, and is composed of alternate slices of veal and ham. Butter a good sized bowl and slice as thin as possible six hard-boiled eggs, then line the bowl with the slices. Place in the bottom a layer of raw veal steak in thin slices, and sprinkle over it a small quantity of salt, pepper and grated lemon-peel; proceed in the same way with thin slices of raw ham, but leave out the salt. Fill up the bowl in this manner. Cover it with a thick paste of flour and water, so stiff as to be rolled out. Tie a double cotton cloth all over the top and boil three hours, putting it into boiling water at the first, and keeping the water just below the level of the bowl. When cooked, take off the cloth and the paste, and let the veal stand until the following day; then turn it out on to a platter, and cut very thin after it comes to the table; garnish with sliced lemon and parsley. It is "a dainty dish" to set before a king. It is also delicious as a side dish for dinner, and makes a good breakfast.

Whitening Flannel.—Immerse the flannel for an hour in a dilute solution of acid sulphate of soda, and then stir in a dilute of hydrochloric acid in the proportion of one part of acid to fifty of water. The vessel is then to be covered over and allowed to remain for a quarter of an hour, when the articles are to be removed and thoroughly washed.

Dutch Cheese.

A correspondent of the *Rural New Yorker* wants to know how "Dutch Curds are made," to which it replies: We suppose this inquiry is concerning the making of what is known as cottage cheese, in some sections called Dutch cheese or curds. It is the curd of sour milk drained from the whey, pressed into balls or moulded in small fancy shapes, and eaten when fresh, or soon after it is made. Some people are very fond of Dutch cheese or curds, and the process of manufacture is so simple and so well known, that we supposed every "good housewife" was well posted in regard to its making.

The milk is allowed to sour and become loppering or thick, when it is gently heated, which facilitates the separation of the whey. The curds are then gathered up, salted or otherwise to suit the taste, and pressed in small moulds, or formed with the hand into suitable shape, when it is ready for the table, and may be used immediately. In cool weather, when milk does not readily thicken, the sour milk may be put in a suitable vessel set in hot water over the range. The milk is then stirred for a few minutes, when the whey will begin to separate, and it is removed and another batch may be treated in the same manner.

In summer some use large cans, having a spiggot near the bottom; the sour milk is placed in these cans, and allowed to stand in the sun to thicken. The heat of the sun will be sufficient to separate the whey, which may then be drawn off through the spiggot. The curds are then removed to a sink having a slatted bottom, over which a strainer cloth is placed. The curds thrown upon this strainer cloth are soon drained of the whey, when it is pressed into balls with the hand, or moulded into forms.

Sometimes this kind of cheese is potted and left to decompose, and when it has acquired a strong, villainous smell, it is regarded as most delicious by those who have acquired a taste for eating it in this state. In some markets cottage or Dutch cheese finds a ready sale, and quite a profit is made by certain butter-makers, in turning their sour milk into this product.

Washington Pastry.—A sojourner in Washington sends the following: I am particularly fond of lemon pie and ice-cream for dessert. At —— hotel I went on peaceably for a couple of weeks, but always eating lemon pie under a silent protest, for I was a stranger, and did not like to make objections. Finally, I called a waiter and said:

"John, I have nothing to say about the ice-cream, but what kind of a pie is this?"

"What kind of a pie did you order, sah?"

"I ordered lemon pie, but this appears to be dried apple."

"Dat's a lemon pie, sah. You know dey has a way of mexin dried apples in the lemon pies here, sah, to dat extent it requires a man of ability to 'stinguish 'em apart, sah. De lemons is scase, you know, and dey has to 'conomize 'em so as to make one lemon do for sixteen pies."

Fresh-caught Fish.—There is a white curdy matter very plainly seen between the flakes of fresh-boiled fish, which imparts much flavor to the fish. The excellence of the salmon broiled over a fire, or cooked on skewers, is doubtless due to the presence of a large quantity of this curdy substance, the fish being cooked as soon as caught. For this matter, which is defined as "a film of albumen produced by the coagulation of the serous juices intervening between the muscular layers," evaporates rapidly after the fish is dead; therefore fish are eaten in perfection only directly after they are caught.

Tomatoes in Iron Pots.—There are a thousand and one things I would like to know, (and probably shall, in time, unless I have to learn how to vote), but this I *do* know, that tomatoes must not be cooked in an *iron pot*. Some beneficient housekeeper, following in the footsteps of the illustrious "serapple" maker, gives a recipe in last week's *Rural* for a cheap soup, in which she directs the ingredients to be put in an iron pot. I sometimes, at good tables, taste tomatoes which have been made bitter by this process. If the intention is to medicate them, the result will satisfy the design.—*Rural New Yorker*.

Live within your means is a good principle to keep in sight in all matters of Domestic Economy. If your income is five dollars a day, spend but four. If it is one dollar, spend eighty cents. If it is but ten cents, spend nine. If it is three potatoes, save half a potato for seed. Thus you will gradually acquire something, while, if you spend and consume as you go, you will never get ahead one inch in life, but every sunset will look on you poorer than at sunrise, because you will have used unprofitably one day more of your strength and your allotted term of life.

Icing Pastry.—When nearly baked enough take the pastry out of the oven, and hold over it till the sugar is melted, a hot iron shovel. The above method is preferred for pastry to be eaten hot; for cold, beat up the whites of two eggs well, wash over the top of the pies with a brush, and sift over this a good coating of sugar; cause it to adhere to the egg and pie crust; trundle over it a clean brush dipped in water, till the sugar is all moistened. Bake again for about ten minutes.

Johnnycake.—Beat one egg, add one cup of sour milk, one cup of sweet milk, one teaspoonful of soda, from one to three tablespoonfuls of molasses, salt, and stir quite soft.

To Purify Dairy Utensils.

Stand on end, in a convenient place for use, an open-ended vessel of suitable dimensions for the size of the dairy, say from half a barrel to a hogshead. In this slake some good quicklime, enough to make a thin whitewash when filled full of water, and cover to keep out the dust and dirt. The lime will settle, leaving a saturated solution of lime over it, as clear as spring water.

After using the milk pans, etc., wash them as other utensils are washed and rinsed, then dip them in the adjoining cask of clear water, giving them a quick turn, so that every part becomes immersed therein; set them to drain and dry, and the purification is complete without any scalding process, from the new pan to the old worn-out one.

The lime in the clear water instantly neutralizes the acidity of the milk yet remaining in the cracks or seams, etc., of the milk vessels, to destroy which the process of scalding has been performed. In the case of a very small dairy, or one cow, the clear water may, if preferred, be dipped out for the time being and poured gently back again, the lime purifying the water and keeping it good all summer.

Selected Receipts.

To Preserve Strawberries.—To two pounds of fine, large strawberries, add two pounds of powdered sugar, and put them in a preserving kettle, over a slow fire, till the sugar is melted; then boil them for half an hour as fast as possible; have ready a number of small jars, and put the fruit in boiling hot. Cover the jars immediately, and keep them through the summer in a cold, dry cellar. The jars must be heated before the hot fruit is poured in, otherwise they will break.

To Pack Away Dresses.—Carefully fold in very dark blue paper, as highly glazed as possible. This will preserve the color of them, but they must also be kept in a dry place, or be occasionally unfolded and hung for a few hours in a dry room, and the paper be dried, too, otherwise they are sure to get spotted with mould.

Cut Flowers.—The first thing to be considered in arranging cut flowers is the vase. If it is scarlet, blue or many-colored, it must necessarily conflict with some hue in your bouquet. Choose rather pure white, green or transparent glass, which allows the delicate stems to be seen. Brown Swiss-wood, silver, bronze or yellow straw conflict with nothing. The vase must be subordinate to what it holds. A bowl for roses. Tall-spreading vases for gladiolus, fern, white lilies, and the like. Cups for violets and tiny wood flowers. Baskets for vines and gay garden blossoms. A flower-lover will in time collect shapes and sizes to suit each group. Colors should be blended together with neutral tints, of which there are an abundance—whites, grays, purples, tender greens—and which harmonize the pink, crimsons, and brilliant red into soft unison. The water should be warm for a winter vase—cool, but not iced, for a summer one. A little salt or a bit of charcoal should be added in hot weather, to obviate vegetable decay, and the vase filled anew each morning. With these precautions your flowers, if set beside an open window at night, will keep their freshness for many hours even in July, and reward by their beautiful presence the kind hand which arranged and tended them.

Arsenic in Colored Carpetings.—Hallwachs has found that not only green but also the red-colored carpetings frequently contain arsenic. He particularly asserts that the brilliant dark red colors now so greatly in demand, contains enormous quantities of this poisonous substance. The goods burned with the blue flame of arsenic, and gave its characteristic garlic odor. Enough of the color could be rubbed off with the finger to give a distinct precipitate of arsenic with the usual reagent, and in solution in hydrochloric acid covered some copper pieces with the greyish coating characteristic of the substance.

Potatoes, which are a dearer food than meat for the supply of flesh, are far cheaper as a source of heat to the body, so with this view we associate them in our meals. Cheese gives us cheap flesh but dear fuel, so we take it with bread, which supplies the latter economically. The making of palatable mixtures of various kinds of food forms the art of cookery. It is a maxim as old as Hippocrates, that "whatever pleases the palate nourishes," and it is only when taste becomes depraved by indulgence that the pleasure of eating becomes contemptible.

A western paper gives the following recipe for keeping potatoes, and asserts that it will preserve them for years: Dust over the floor of the bin with lime; put in about six or seven inches deep of potatoes, and dust with lime as before. Put in six or seven inches of potatoes, and lime again, and repeat the operation till all are stowed away. One bushel of lime will do for forty bushels of potatoes, though more will not hurt them, the lime rather improving the flavor than otherwise. The lime may be used for fertilizing after this use of it.

Bed Bugs.—Take as much common salt as a quart of cold water will dissolve, and wash the bedstead thoroughly. After a few trials there will be no occasion to repeat the process.

Machinery for the Condor Mine.

The mill machinery of the Condor mine, (discovered by Mr. J. D. Boyd, in the Ely Mining District, Lincoln county,) is worthy of the inspection of those skilled in such matters, on account of its superior character. The engine, boiler and roller pans are at the Pacific Iron Works, and will be shipped in a few days. The cylinder of the engine is 14 inches in diameter, and 30-inch stroke. The crushing of the ore as it comes from the mine is to be done by one of the large size Brodie crushers, made at the Fulton Foundry, which reduces it to an average size of one-half inch at the rate of forty tons per day with five-horse power. The distinctive principle of this crusher consists in giving two motions to the working jaw instead of one, as in the crushers of ordinary construction, thereby doing more work and better preparing of the stuff for the disintegrating action for the next step. This crusher weighs 9,000 pounds, and is made in pieces, as is the engine, for ease of handling, being put together with keys. From the Brodie crusher the ore passes without handling to a pair of rolls twenty-seven inches in diameter, and weighing 8,000 pounds, made at the Pacific Foundry, and is further reduced to variable sizes from very fine stuff to three-sixtenths of an inch, at the rate of forty tons per day at an expense of five-horse power.

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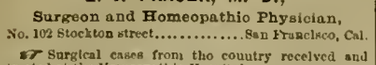
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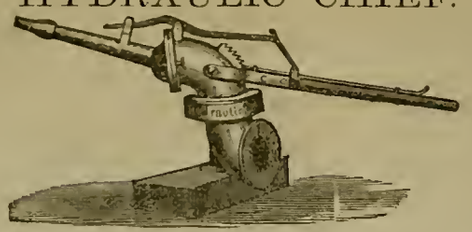
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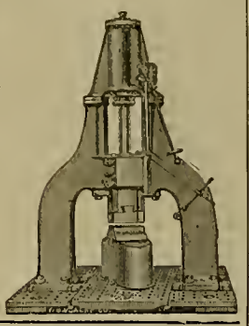

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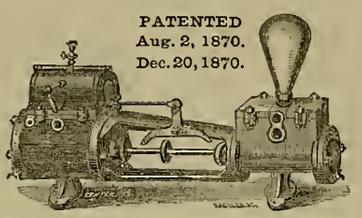
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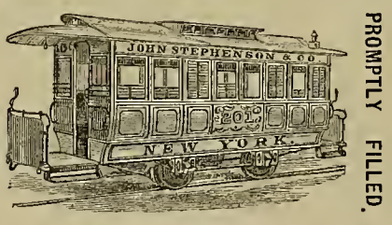

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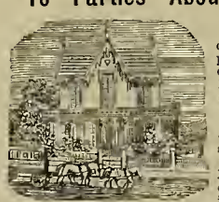
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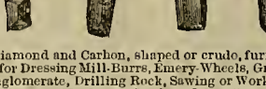
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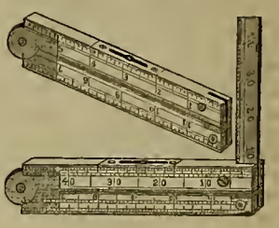
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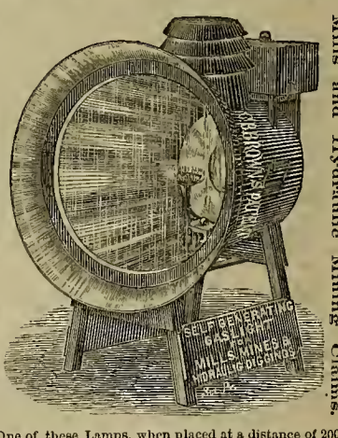

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Trade-Mark—Teas.—Castle Brothers, San Francisco, Cal.

Gasket-Packing.—George W. Coffee, San Francisco, Cal.; assiguor to himself and John W. Tucker, same place.

Apparatus for Ageing Wines and Liquors.—Adolphe Luquet and Prosper Huerne, San Francisco, Cal.

Bee Hive.—Peter Ole Petersen, Oakland, Cal.

Ore-Washer.—William T. Rickard, Monitor, Cal.

Magnetic Indicator for Teaching, Etc.—Jacob Unna, San Francisco, Cal.; assignor to A. Roman & Co., same place.

Candlestick.—Joseph Williams, Sau Mateo, Cal.

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Notices of Recent Patents.

Among the patents recently obtained through Dewey & Co.'s Scientific Press American and Foreigh Patent Agency, the following are worthy of mention:

Passenger Fare Box.—Carlton Newman, San Francisco, Cal., assignor to himself and Geo. P. Kimball and R. L. Ogden. This is an improvement in boxes for collecting fares on street cars and other vehicles carrying passengers. It consists firstly, in a novel arrangement of the first or receiving chamber, into which the money or fare is deposited for iuspection; Secondly, in an improved arrangement of the lamp and reflector, so as to give the best possible light; Thirdly, in the employment of a perforated metal front for the upper chamber through which the fare can be inserted if desired. This front is arranged so that it may be lifted vertically in the frame of the box by a lever or other suitable device, so as to drop the fare into the next compartment; and lastly in the employment of an intermediate chamber of a novel and useful construction, into which the fare passes from the inspectiou chamber before entering the drawer or lower compartment.

This is an ingeniously constructed box which is burglar-proof, and for simplicity and couvemience excels anything of the kind heretofore nsed in the Eastern States. It is now in use on some of the Howard street cars, in this city, as well as on the Oakland and Fruit Vale, San Jose and other lines, where it is said to give good satisfaction.

Improvement in Waterproofing or Preserving Fabrics.—Sidney P. Cook, San Francisco, Cal. This invention relates to an improved process or composition for treating fabrics for the purpose of rendering them water-tight and proof against the effects of dampness, while it also preserves the fibre and qualities of the goods. It is more particularly applicable for treating canvas or other closely woven fabrics which are intended for the manufacture of hydraulic hose, such as are employed in connection with steam and other fire engines and like purposes. When used for this purpose it not only closes np the pores and interstices of the fabric with an indissiluble substance, but renders the employment of rubber coating for the hose of no particular use, shields the fabric from injury and makes it tough and unyielding.

Stamp and Hammering Machine.—Geo. D. Crocker, Virginia City, Nevada. This invention is classed among stamping and hammering machines, euch as are used for hammering metal, drugs, rock and other materials or substances, either for the purpose of forging or crushing them. The machine is a combination of the ordinary stamp and stem, such as are ueed in quartz mills for crushiug ores, with a lever arm for operating them in the manner of operating an ordinary tilt or trip-hammer. The improvement consists in an attachment or joint for connecting the lever arm with the stamp-stem, by which sufficient freedom of motion is permitted to accommodate the movements of both, while the blow of the hammer or stamp will not affect it.

Machine for Clarifying, Mixing and Bleaching Lard.—Oscar J. Backus, San Francisco, Cal This invention is a machine for treating lard, iu order to improve its commercial value by clarifying, bleaching and mixing it in one process, so as to render it perfectly white and pure and homogenous throughout the whole mass. It consists of oppositely inclined plane surfaces combined in one machine, and arranged one above the other. At the lower side of each inclined surface is placed a strainer, or perforated channel, which receives the lard and delivers it upon the next lower inclined surface in a finely divided state, so that the air can act upon every particle and bleach it.

The Text of Interesting Decisions in Patent Cases.

Date of Invention—Priority of Invention—Reduction to Practice—Prior Publication.

A patentee whose patent is assailed upon the ground of want of novelty, may show by sketches and drawings the date of his inceptive invention; and if he has exercised reasonable diligence in "perfecting and adapting" it and in applying for his patent, its protection will be carried back to such date.

In a race of diligence between rival inventors, the one who first perfects an iuvention and embodies it in a distinct form is entitled to priority.

He is entitled to priority of right to a patent who first reduces his invention to a fixed, postive form, adapted to practical use.

Reasonable diligence in "perfecting and adapting" an invention is essential to the efficacy of a claim against the patent of an independent thongh subsequent inventor.

Illustrative drawings of conceived ideas do not constitute an invention, and unless they are followed up by a seasonable observance of the requirements of the patent laws they can have no effect upon a subsequently-granted patent to another.

Where A, in 1860, illustrated his idea of an invention by a pencil sketch, which was laid aside and subsequently lost, and did nothing further with the invention for five years, while B, an independent inventor, took out a patent for the invention in 1862: *Held*, that A had not "perfected and adapted" the inventionin 1860, and that by reason of his long-continued remissness he lost any inchorate right he might have had to priority.

Where a printed publication is relied upon to defeat a patent it must be proved that it was put in circulation or offered to the public before the patentee's invention, and this must be proved independently of the imprint on the title page.

Whether an illustration by drawing, unaccompanied with verbal description as would defeat a patent, within the intent of the clause of the statute relating thereto, may well be denied on the authority of *Seymour vs. Osborne*, 11 Wall., 516.

U. S. Circuit Court, Eastern District of Pennsylvania. S. J. Reeves *vs.* the Keystone Bridge Company *et al.* In Equity, before McKennan, Circuit Judge.—Decision rendered April 1, 1872.

Bank Blasting at Dutch Flat.

Editors Press:—The result of an experimental bank-blast with giaut powder No. 2, at this place, last week, cannot, I thiuk, fail to interest you, and through you, the miners of this Coast. Bandman, Nielsen & Co., agents for this powder, fecling assured it was just the thing for pulverizing obstinate hydranlic banks, lihcrally proposed to furnish the writer with powder gratis, for a blast on any scale that, in his judgmcnt, would settle the problem of its fitness for hauk work.

Accordiugly, the "Deep Shaft claims," at this place, owned by the "Dutch Flat Water Co.," were selected for the trial. These claims have been worked with hlack powder for a numher of years, with varying results; are made np of blne and red cement-gravel, ahounding in houlders with average hight of hank about one hnndred feet. A black powder blast was already on the tapis in these claims, tunnels and chambers having been completed, and four hundred kegs of black powder brought on the ground for the purpose of charging when, by agreement, the black powder was withdrawn, and twenty-five hundred pounds of giant powder No. 2 substituted, placed in the same chambers designed for the black powder without any change in their constructiou whatever. The charge was then "tamped tight," aud exploded by a friction battery nuder the management of E. L. McClure. Fifteen turns forward and a half turn backward of the battery crank, and the Deep Shaft bank, for the distance of one hundred feet hack of the powder line, arose about fifteen feet in air, then settled back in undulating waves like the waves of the ocean, grinding and pulverizing the ohstinate mass to ashes. The adjacent hills were lined with spectators who pronounced it the most successful shot ever fired in Placer County. The entire business portion of Dutch Flat was violently shaken by the explosiou, and the scenes of women and children fleeing forth from their homes in the immediate vicinity of the blast, reminded the looker-on of families fleeing from the wrath of Vesuvius.

By actnal survey of the blasted ground, by E. C. Uren, County Surveyor, it is clearly demonstrated that the blast lifted and pulverized one hundred and seventy-two thousand cuhic yards of earth, or, in mining parlance, "knocked over two hundred feet sqnare of the Deep Shaft claims into an ash heap." Certainly, this splendid result is worthy of heing chronicled, and must possess great interest for my hrother miners at large. It also claims importance from heing the first hank hlast of No. 2 giant powder exploded on this Coast.

Allow me to publically congratulate Messrs. Bandman, Nielsen & Co., and throngh them the Giant Powder Company, on the grand resnlt of their initial shot, and to predict the rapid nse of their powder in bank hlasting throughout the mines. Let me add that the placing of the powder and tampiug of drifts and chambers were under the supervision of O. W. White, traveling agent of the Giant Powder Co., to whose skillful and indefatigable personal exertions much of the credit of snccess is due. H. C. Kelsey.

Dutch Flat, May 30, 1872.

New Incorporations.

The following have filed certificates with the County Clerk, San Francisco:

Phelps Cons. G. & S. M. Co.—May 23. Location: Devil's Gate Dist., Lyon County, Nev. Capital stock, $3,500,000, in 35,000 shares. Trustees—J. L. Schmidt, L. R. Goodman, Theodore Phelps, J. P. Jones, Wm. McLaughlin.

Lander Cons. M. Co.—May 24. Location. Lander County, Nev. Capital stock, $5,000,000, in 50,000 shares. Trustees—C. B. Land, D. J. Staples, C. H. Bumrell, Paul Moroney, S. B. Boswell and Richard Chenery.

Lany Eastern Tunnel & M. Co.—May 24: Location: Salt Lake county, Utah Territory. Capital stock, $1,000,000, in 40,000 shares. Trustees—Charles J. Collins, Henry C. Kibbe, Nelson A. Handy, W. S. Wayman, George Emery, John Esten and Charles S. Healy.

Brandon M. Co.—May 25. Location: El Dorado county. Capital stock, $1,200,000, in 24,000 shares. Trustees—John F. Pope, A. D. Carpenter, A. Peck, Z. B. Brandon and Isaac Tabor.

Southern Goln Hill M. Co.—Filed an amended certicate May 25. Location, Storey Co., Nevada. Capital stock, $2,400,000 in 24-000 shares. Trustees—Robt. Harrison, James Anderson and B. B. Minor.

South Justice M. Co.—May 27. Location: Gold Hill M. District, Storey couuty, Nevada. Capital stock, $2,500,000, in 25,000 shares. Trustees—George D. Roberts, S. W. Lee, H. H. Flagg, A. E. Head and Henry Baker.

Kearsarge M. and M. Co.—May 27. Location: Inyo county. Capital stock, $2,500,000, iu $50,000 ebares. Trustees—Edward Martin, Jos. Frank, C. H. Von Gorder, M. Rosenbaum and Peter Donahue.

Table Mountain Blue Gravel Co.—May 27. Location: State of California. Capital stock, $3,000,000, in 30,000 shares. Trustees—J. W. Roberts, J. W. Gashwiler, W. B. Bourne, B. Marks and Joel F. Lightner.

La Paz Tunnel S. M. Co.—May 29. Location: Ely District, Nevada. Capital stock, $3,000,000, in 30,000 shares. Trustees—McHiller, Chas. Hosmer, Henry Baker and J. B. Richmond.

Segregaten Calenonia M. Co.—May 29. Location: Storey county Nevada. Capital stock, $1,000,000, in 10,000 sharcs. Trustees—Lafayette Maynard, John H. Baird, Alex. Forbes, Wm. H. Bremer aud Thomas Stewart.

Lewiston G. and S. M. Co.—May 29. Location: Devil's Gate M. District, Lyon county, Nevada. Capital stock, $2,500,000, iu 25,000 shares. Trustees—J. P. Jones, J. L. Schmitt, L. K. Goodman, Theo. Phelps and Wm. McLaughlin.

Pacific Tunnel M. Co.—May 29. Location: Ely M. District, Nevada. Capital stock, $3,-000,000, in 30,000 shares. Trustees—Charles A. Washburn, J. Babcock, W. S. Whitney, C. P. Hall and S. A. Raymond.

Meetings and Elections.

The Bowers M. Co. have elected the following Trustees: Chas. Jones (Presidcnt), Richard Ivers, C. B. Land, A. Finchaker and L. B. Franke. W. H. Watsou was elected Secretary.

The Louisa M. Co. have elected as Trustees, J. A. Pritchard (President), Watson Wobb, A. D. Hatch, H. Baker and S. A. Raymond. W. H. Watson was elected Secretary.

The Silver Hill, M. Co. have elected as Trustees, A. K. P. Harmon, Jas. C. Flood, C. B. Land, Joseph Holland and W. S. Hobart. W. E. Dean was elected Secretary.

The Belcher M. Co. met on the 24th instant for the purpose of taking into consideratiou a proposition to increase the capital stock. There were 10,280 shares represented, the total number being 10,400. It was found that there was an error in the advertisement calliug the meeting, by naming Monday, May 24, instead of Friday, May 24. The date was right but the day of the week was, of course, wrong. To obviate any legal complications which might arise, it was resolved to readvertise the meetiug for June 25, when action will be taken on the question.

The Trusteee elected at the annual meeting of the North San Francisco Homestead and Railroad Association were Hugh Whittell, F. S. Spring, James T. Boyd, N. B. Stone and J. G. Klumpe.

The Daney M. Co. have elected Geo. R. Spinney, Secretary, and the office has been removed to 320 California street.

Yield of Comstock Mines.

The Virginia *Enterprise* gives the following quarterly statement, showing the yield of the mines along the Comstock for the qnarter ending March 31. It shows quite a small number of mines worthy of mention as paying institutions:

ABSTRACT STATEMENT FROM THE QUARTERLY ASSESSMENT ROLL OF THE PROCEEDS OF THE MINES OF STOREY COUNTY FOR THE QUARTER ENDING MARCH 31, 1872.

Name of Owners.	No. of Tons Extracted.	Value per Ton.	Gross Yield in Value.	Actual Cost of Extracting.	Actual Cost of Reduction or Sale.	Total Cost.	Amount Deducted as Product by Law.	Net Yield or Value on which Tax is Levied.	Total Amount of Tax.
Rabbit	20,693	$80 00	$1,671,440 00	$413,760 00	$207,880 00	$621,640 00	60 per ct.	$428,540 00	$6,429 10
Crown Point	18,121	80 00	1,449,680 00	362,420 00	181,210 00	543,630 00	" "	298,050 00	4,470 75
Chollar-Potosi	6,517	32 00	208,544 00	65,170 00	26,068 00	91,238 00	" "	117,306 00	1,759 59
Empire	3,585	16 00	57,360 00	21,510 00	7,170 00	28,680 00	" "	28,680 00	430 20
Hale & Norcross	16,241	16 00	259,856 00	97,446 00	32,482 00	129,928 00	" "	129,928 00	1,948 92
Kentuck	8,186	16 00	130,976 00	49,116 00	16,372 00	65,488 00	" "	65,488 00	982 32
Midas (Bow Cook & Gayer)	1,683	16 00	26,928 00	10,098 00	3,366 00	13,464 00	" "	13,464 00	201 96
Savage	11,112	16 00	177,792 00	66,672 00	22,224 00	88,896 00	" "	88,896 00	1,333 44
Union	14,047	16 00	224,752 00	84,282 00	28,094 00	112,376 00	" "	112,376 00	1,685 64
Yellow Jacket	22,272	16 00	356,352 00	133,632 00	44,544 00	178,176 00	" "	178,176 00	2,672 64
Belcher	20,693	$80 00	$1,671,440 00	$413,760 00	$207,880 00	$621,640 00	60 per ct.	$428,540 00	$6,429 10
Crown Point	18,121	80 00	1,449,680 00	362,420 00	181,210 00	543,630 00	" "	298,050 00	4,470 75
Chollar-Potosi	6,517	32 00	208,544 00	65,170 00	26,068 00	91,238 00	" "	117,306 00	1,759 59
Empire	3,585	16 00	57,360 00	21,510 00	7,170 00	28,680 00	" "	28,680 00	430 20
Hale & Norcross	16,241	16 00	259,856 00	97,446 00	32,482 00	129,928 00	" "	129,928 00	1,948 92
Kentuck	8,186	16 00	130,976 00	49,116 00	16,372 00	65,488 00	" "	65,488 00	982 32
Midas (Bow Cook & Gayer)	1,683	16 00	26,928 00	10,098 00	3,366 00	13,464 00	" "	13,464 00	201 96
Savage	11,112	16 00	177,792 00	66,672 00	22,224 00	88,896 00	" "	88,896 00	1,333 44
Union	14,047	16 00	224,752 00	84,282 00	28,094 00	112,376 00	" "	112,376 00	1,685 64
Yellow Jacket	22,272	16 00	356,352 00	133,632 00	44,544 00	178,176 00	" "	178,176 00	2,672 64
Sierra Nevada	12,764	16 00	204,224 00	76,584 00	25,528 00	102,112 00	" "	102,112 00	1,531 68
Occidental	1,500	16 00	24,000 00	9,000 00	3,000 00	12,000 00	" "	12,000 00	180 00
Ophir	2,076	16 00	33,216 00	12,456 00	4,152 00	16,608 00	" "	16,608 00	249 12
Overman	2,563	16 00	41,008 00	15,378 00	5,126 00	20,504 00	" "	20,504 00	307 56
Gould & Curry	2,563	16 00	41,008 00	15,378 00	5,126 00	20,504 00	" "	20,504 00	307 56
Mexican	2,563	16 00	41,008 00	15,378 00	5,126 00	20,504 00	" "	20,504 00	307 56
Justice	2,563	16 00	41,008 00	15,378 00	5,126 00	20,504 00	" "	20,504 00	307 56
Kentuck	2,563	16 00	41,008 00	15,378 00	5,126 00	20,504 00	" "	20,504 00	307 56
Imperial	2,563	16 00	41,008 00	15,378 00	5,126 00	20,504 00	" "	20,504 00	307 56
Total	234,000		$7,500,000 00	$2,250,000 00	$1,000,000 00	$3,250,000 00		$4,250,000 00	$63,750 00

H. Bahlen & Bro., formerly of Havilah, Kern county, will please communicate with this office.

THE NEW U. S. MINING LAWS.

The new Laws of 1872, governing the location and purchase of Placer and Quartz Mines, and Agricultural Lands in Mining Districts, of the U. S., printed in circular sheet, for sale at this office. Single copies 10 cts. Usual discount to the trade.

Monitor, Alpine County, Cal., May 27, 1872.

Messrs. Dewey & Co., San Francisco—Gentlemen:—Your favor of 24th inst. is at hand with Patent for Ore Washer and Amalgamator. Please accept my best thanks for the very prompt and business-like manner in which you have conducted this matter.

Yours truly, W. T. Pickard.

Important to Miners.

FREY'S IMPROVEMENT ON

Evans' Under Current and Sluices,

For Saving Fine Gold and Floating Quicksilver.

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Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the Scientific Press we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

Alleghany Consolidated Gold Mining Company—Location of works, Alleghany, Sierra County, Cal.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 25th day of April, 1872, an assessment of twenty cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at his office, 31 New Merchants' Exchange, California street. Any stock on which said assessment shall remain unpaid on the third day of June, 1872, shall be deemed delinquent, and will be duly advertised for sale, at public auction, and unless payment shall be made before, will be sold on Monday, the 24th day of June, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. M. BEFFINGTON, Secretary.

Office, No. 37 (third floor), New Merchants' Exchange, California street, San Francisco) ma4-1t

Eagle Quicksilver Mining Company---Location of works, Santa Barbara County, California.

Notice is hereby given that at a meeting of the Board of Trustees of said company, held on the 8th day of May, 1872, an assessment of $40 per share was levied upon the mines of said company, payable immediately in gold coin of the United States, to the Secretary at his office, room 5, No. 302 Montgomery street, San Francisco, California.

Any shares upon which said assessment shall remain unpaid, on Thursday, July 11th, 1872, shall be deemed delinquent, and will be duly advertised on Saturday, July 13th, 1872, for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 15th day of July, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. J. WATSON, Secretary.

Office—Room 5, No. 302 Montgomery street, San Francisco California. ma11.

Lyons & Wheeler Mining Company—Location of works, Mayaard Mining District, Mohave County, Arizona Territory.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 18th day of May, 1872, an assessment of Ten Cents per share was levied upon the capital stock of said Company, payable immediately, in United States coin, to the Secretary, at the office of the company, Room 3, No. 419 California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on Monday, the 24th day of June, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 15th day of July, 1872, to pay the delinquent assessment, together with the costs of advertising and expenses of sale. By order of the Board of Trustees.

T. W. COLBURN, Secretary.

Office, Room 3, No. 419 California street, San Francisco, California my25-td

Mina Rica Mining Company—Location of works, Auburn District, Placer county, State of California.

Notice is hereby given, that at a meeting of the Trustees of said company, held on the 8th day of May, 1872, an assessment of 20 cents per share was levied upon the capital stock of said company, payable immediately in United States gold and silver coin to the Secretary of the company, at the office of the company, No. 320 California street, room No. 5, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Monday, the 10th day of June, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday the first day of July, 1872, to pay the delinquent assessment, together with cost of advertising and expenses of the sale. GEO. R. SPINNEY, Secretary.

ma11-4t No. 320 California St., San Francisco, Cal.

Piermont Milling and Mining Company—Location of works, Piermont Mining District, White Pine County, Nevada.

NOTICE.—There are delinquent upon the following described stock, on account of assessment (No. 3) levied on the 16th day of April, 1872, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Briggs, Charles A.	15	583⅓	$233.33
Briggs, Charles A.	47	111	44.40
Perkins, J E, Trustee.	21	1000	400.00
Perkins, J E, Trustee.	23	1000	400.00
Perkins, J E, Trustee.	41	381	152.40

And in accordance with law, and an order of the Board of Trustees, made on the 16th day of April, 1872, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the company, on the 13th day of June, 1872, at the hour of 2 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale. J. W. CLARK, Secretary

Office, 418 California street, San Francisco, Cal. m25

Silver Wave Mining Company----Location of works, White Pine Mining District, White Pine county, Nevada.

NOTICE:—There are delinquent upon the following described stock, on account of Assessment, No. 8, levied on the 10th day of April, A. D. 1872, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificates.	No. Shares.	Amt't.
Barton, W H, Trustee.	352	200	$100 00
Barton, W H, Trustee.	376	10	5 00
Barton, W H, Trustee.	490	50	25 00
Breed, H L, Trustee.	394	20	10 00
Cope, Geo W, Trustee.	508	100	50 00
Crocker, J H, Trustee.	492	100	50 00
Crocker, J H, Trustee.	493	50	25 00
Holmes, H J,	511	447	223 50
Loveland, L F, Trustee.	217	50	25 00
Pomeroy, E B,	474	200	100 00
Richardson, E A, Trustee.	429	100	50 00
Richardson, E A, Trustee.	430	100	50 00
Richardson, E A, Trustee.	471	100	50 00
Richardson, E A, Trustee.	450	150	75 00
Richardson E A, Trustee.	486	80	40 00
Richardson, E A, Trustee.	496	50	25 00
White, Jas T,	399	12	6 00
Woods, F H, Trustee.	375	22	11 00
Woods, F H, Trustee.	434	10	5 00

And in accordance with law, and an order of the Board of Trustees, made on the 10th day of April, 1872, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of said Company, on Thursday, the 13th day of June, A. D. 1872, at the hour of 2 o'clock P. M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

J. W. CLARK, Secretary.

Office, 418 California St., Room 102, San Francisco, California. ma18-4t.

Silver Sprout Mining Company—Location of works and mine, Kearsarge District, Inyo County, State of California.

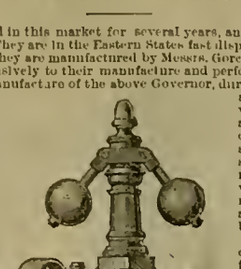
Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 25th day of April, 1872, an assessment of fifty cents per share was levied upon the capital stock of said Company, payable immediately in United States gold coin, to the Secretary, at the office of the Company, Room No. 1, second floor, 318 California st., S. F.. Any stock upon which said assessment shall remain unpaid on the first day of June, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the 22d day of June, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. B. WINGARD, Secretary.

Office, Room No. 1, second floor, No. 318 California street, San Francisco, Cal.

THE GARDNER AUTOMATIC SAFETY-STOP GOVERNOR.

These Governors have now been sold in this market for several years, and wherever once introduced and made known, are invariably sought after. They are in the Eastern States fast displacing all other Steam Governors, and are regarded as *the perfect regulator*. They are manufactured by Messrs. Gorehur & Robertson, practical engineers, who have given many years time exclusively to their manufacture and perfection. The manufacturers say: After an experience of eleven years in the manufacture of the above Governor, during which time several important improvements have been made and two additional patents obtained, we feel justified in recommending it to all parties using Steam power, and warranting it to be the most perfect regulator in the market.



The Gardner Governor is so well known that we think it unnecessary to enter into a detailed explanation of the principles involved, or details in its construction, merely giving the leading objects realized by this important invention. The Governor combines with the greatest simplicity of construction, accurate regulation of speed, POSITIVE INSURANCE AGAINST ALL ACCIDENTS LIABLE TO OCCUR FROM SLIPPING OR PARTING THE GOVERNOR OR DRIVING BELTS, and a convenient arrangement for ADJUSTING THE SPEED OF THE ENGINE WHILE IN MOTION, without change of pullies.

The construction of the Governor is extremely simple, having no springs, inside joints, swivels, or parts liable to disarrangement, all the several parts are duplicates of each other in the same series; the most skillful workmen are employed, the best material used and the machinery employed especially Cal. Jewelry Co., Pioneer Woolen Factory, D. A. McDonald & Co., and others in San Francisco; Ophir Co., Lady Bryan, and Sacramento and Meredith Mills, John McCone, Virginia, Nev.; Globe Iron Works, Stockton; A. F. Churr, Albany, Oregon, and many others.

We adapted to their manufacture. The valve is most PERFECTLY BALANCED, and the Governor is built with a view of securing the quickest and most sensitive action possibly attainable in a steam regulator. Thus with accurate machinery, and skilled labor, and devoting our WHOLE ATTENTION to the manufacture of THIS ONE ARTICLE, we are able to produce a perfect and reliable Governor at a low price.

We do not publish any letters of recommendations, but can give references to upwards of 5,000 PARTIES THROUGHOUT THE UNITED STATES, who are using the Gardner Governor.

We would especially invite the attention of Steam Engine Builders to this Governor, feeling assured that they can purchase for less than they can make an inferior article, and thereby increase the value and sales of their Engines.

We respectfully refer to the following parties using the GARDNER GOVERNOR, and can speak understandingly of its merits: Oakland Cotton Mills, the Selby Lead and Silver Smelting Works, L. & E. Emsnuel, Vulcan Iron Works, Fulton Foundry, Levison Bros., Pioneer Woolen Factory, D. A. McDonald & Co., and others in San Francisco; Ophir Co., Lady Bryan, and Sacramento and Meredith Mills, John McCone, Virginia, Nev.; Globe Iron Works, Stockton; A. F. Churr, Albany, Oregon, and many others.

☞ WE WARRANT these Governors to give perfect regulation of speed under all circumstances; and if there is one within one thousand miles of San Francisco, that is not giving perfect satisfaction, it may be returned to us at our expense, and we will exchange it for any other Governor in the country, or refund its price.

☞ When ordering please state whether THROTTLE-VALVE is wanted or not; and whether BLOCK or FINISHED Governor is desired. ***THE RATE OF SPEED FOR GOVERNOR IS FULLY STAMPED ON THE REVOLVING HEAD OF EVERY GOVERNOR. Send for circular and price list to

TREADWELL & CO.,

Agents for Pacific States, San Francisco.

☞ At Treadwell & Co.'s (late BERRY & PLACE'S) Machinery and Supply Depot may be found in stock the above Governors, together with all sizes of HOADLEY'S PORTABLE ENGINES, BLAKE'S STEAM PUMPS, STURTEVANT BLOWERS, PORTABLE DRILLS, TAPS AND DIES, DREYFUS'S CYLINDER LUBRICATORS, Etc. Also a heavy stock of HARDWARE AND MINING TOOLS, LEATHER BELTING, LINEN HOSE, BOILER FELT (saves 25 per cent. of fuel), SELF OILERS, LACE LEATHER, STEAM PACKING (all kinds), BELT STUDS, Etc., Etc., embracing every description of Engineers' and Machinists' supplies and Millmen's findings. 7v24-tf

MILL STONES.

Portable Mills, Eureka Smut Machines, Bran Dusters, Dufour & Co.'s Celebrated Dutch Anchor Bolting Cloths, and General Mill Furnishing.

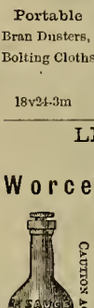
TRAVIS & WAGNER,

18v24-3m 41 First street, San Francisco.

LEA & PERRINS'

CELEBRATED

Worcestershire Sauce.



Declared by Connoisseurs to be the only good SAUCE. The success of this most delicious and unrivalled Condiment having caused certain dealers to apply the name of "Worcestershiro Sauce" to their own inferior compounds, the public is hereby informed that the only way to secure the genuine is to ASK FOR LEA & PERRINS' SAUCE, and see that their names are upon the wrapper, labels, stopper and bottle.

Some of the foreign markets having been supplied with a spurious Worcestershire sauce, upon the wrapper and labels of which the names of Lea and Perrins have been forged, L. and P. give notice that they have furnished their correspondents with power of attorney to take instant proceedings against manufacturers and vendors of such, or any other imitations by which their right may be infringed.

Ask for LEA & PERRINS' Sauce, and see name on wrapper, label, bottle and stopper

Wholesale and for export by the Proprietors, Worcester; Crosse & Blackwell, London, &c., &c., and by Grocers and Oilmen universally. 15v24-eow-tf

BUSINESS EDUCATION — HEALD'S — GOOD INSTRUCTION
BRYANT & STRATTON
BUSINESS COLLEGE
OPEN TO ALL — 24 POST ST. SAN FRANCISCO — SEND FOR CIRCULARS

IS THE LEADING COMMERCIAL SCHOOL OF THE Pacific. It educates thoroughly for business. Its course of instruction is valuable to persons of both sexes and of any age. Academic Department for those not prepared for business course. Open day and evening throughout the year. Students can commence at any time. Full particulars may be had at the College Office, 24 Post street, or by sending for HEALD'S COLLEGE JOURNAL.

Address E. P. HEALD,
President Business College, San Francisco.
3v3-eowbp

Dupont's Gunpowder, Safety Fuse,

—AND—

WINCHESTER REPEATING ARMS.

DUPONT'S Superior Mining Powder (saltpetre), F. FF-FFF.

DUPONT'S Blasting Powder, in air-tight corrugated Iron Kegs, C-F-FF-FFF.

DUPONT'S Celebrated Rrand, Diamond Grain, Nos. I 2, 3 and 4, in 1 lb. and ½ lb. canisters.

DUPONT'S Unrivalled Brands, Eagle Duck and Eagle Rifle, Nos. 1, 2, 3, in half kegs, qr. kegs, 5 lb. tins, and in 1 lb. and ½ lb. canisters.

DUPONT'S Standard Rifle, Fg-FFg-FFFg, in kegs, half kegs and qr. kegs, and in 1 lb., ½ lb., and ¼ lb. canisters.

DUPONT'S Superior Rifle, A. F. & Co., F-FF-FFF, in kegs, half kegs, qr. kegs, and in 1 lb., ½ lb. and ¼ lb. canisters.

DUPONT'S Cannon, Musket, Meal and Fuse Powder.

EAGLE SAFETY FUSE (manufactured near Santa Cruz, Cal., by the L. S. & P. Co.) Constantly on hand full supplies of their Celebrated Brands, Waterproof and Submarine, Triple Taped, Double Taped, Single Taped and Hemp Fuse. Fuse made especially to explode the Giant Powder and Hercules Powder Caps.

The above named Fuse are warranted equal to any made in the world.

WINCHESTER REPEATING ARMS (Henry's Improved) and FIXED AMMUNITION.

A large and complete stock of these celebrated arms constantly on hand, to wit:

Repeating Sporting Rifles—Oiled Stocks.

Repeating Sporting Rifles—Varnished Stocks.

Gold, Silver and Nickle-plated Rifles—beautifully Engraved.

Repeating Carbines—Oiled Stocks.

Repeating Carbines—Gold, Silver and Nickel-Plated and Engraved.

Muskets—Angular or Sword Bayonets.

Full stock constantly on hand of all the different parts of the Winchester Arms.

Cartridges in cases (Brand H), manufactured by th W. R. A. Co. expressly for their arms.

A full and complete stock of the above named merchandise always on hand and for sale by

JOHN SKINKER, Sole Agent,
5v24-6m-1amr 108 Battery street, S. F.

The California Powder Works

No. 314 CALIFORNIA STREET,

SAN FRANCISCO.

Manufacturers and have constantly on hand

SPORTING,

MINING,

And BLASTING

POWDER,

Of SUPERIOR QUALITY, FRESH FROM THE MILLS. It being constantly received and transported into the interior, is delivered to the consumer within a few days of the time of its manufacture, and is in every way superior to any other Powder in Market.

We have been awarded successively

Three Gold Medals

By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others.

We also call attention to our

HERCULES POWDER,

Which combines all the force of other strong explosive now in use, and the lifting force of the BEST BLASTING POWDER, thus making it vastly superior to any other pompound now in use.

A circular containing a full description of this Powder can be obtained on application to our Office.

16v20-3m JOHN F. LOHSE, Secretary.

PURCHASERS please say advertised in SCIENTIFIC PRESS.

San Francisco Tunnel and Mining Company.—Location of Works, Little Cottonwood Mining District, Utah Territory.

NOTICE.—There are delinquent upon the following described stock, on account of assessment (No. 11) levied on the 13th day of April, 1872, the several amounts set opposite the names of the respective shareholders as follows:

Names	No. Certificate.	No. Shares.	Amount.
Brommer Diederick	48	3000	$750 00
Moroney, Paul	5	3000	750 00
Retieker, Chas.	8	3000	750 00
Seaman, LaFayette	7	3000	750 00
Selby, T. H.	4	3000	750 00

And in accordance with law and a supplementary order of the Board of Trustees, made on the 30th day of April, 1872, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the office of said company, on the 10th day of June, 1872, at the hour of 2 o'clock P. M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

J. W. CLARK, Secretery.

Office, 418 California street, San Francisco.

Stockholders Notice---Office of the Tecumseh Gold, Silver and Copper Mining Company. San Francisco, May 6th, 1872.

In accordance with a Resolution adopted at a meeting of the Trustees of the Tecumseh Gold, Silver and Copper Mining Company, held this day, a special meeting of the stockholders of said Company is hereby called, the same to be held at E. Magrisch's Hall, S. W. cor. of Kearny and Clay Sts., opposi o the Plaza, San Francisco, Cal., on Wednesday, the 12th day of June A. D. 1872, at 2 o'clock P. M., to take into consideration and decide upon the proposition to increase the capital stock of said Company from one hundred fifty-three thousand and five hundred dollars, divided into six hundred and fourteen shares of two hundred fifty dollars each, the present capital of the Company, to three millions of dollars, to be divided into thirty thousand shares of one hundred dollars each.

J. TH. HELMKEN,
J. F.G. EGGERS,
JACOB HAHN,
F. SCHUMACHER. } Trustees.

Stockholders Meeting.—Office of the Silver Sprout Mining Company, No. 318 California street, San Francisco. May 23, 1872.

NOTICE is hereby given that the annual meeting of the stockholders in the above named company will be held at their office, No. 318 California street, (Room No. 1, second floor,) San Francisco, on Tuesday, the 25th day of June, 1872, at the hour of 1 o'clock P. M.

my25-4t T. B. WINGARD, Secretary.

Union Gold Mining Company.---Location of works, Howland Flat, Sierra county, State of California.

NOTICE.—There are delinquent upon the following described Stock, on account of assessment (No. 5) levied on the 11th day of April, 1872, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. shares.	Amount.
Mahoney, Denis.	46	100	$100.00
Mahoney, Denis.	47	50	50.00
Mahoney, Denis.	62	75	75.00
Mahoney, Denis.	63	100	100.00
Austin, A. C.	65	15	15.00
Hale, William F.	129	60	60.00

And in accordance with law, and an order of the Board of Trustees, made on the 11th day of April, 1872, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the office of the Company, Room No. 22, Merchants' Exchange Building, California street, San Francisco, California, on Monday the 3d day of June, 1872, at the hour of 1 o'clock, P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

ALFRED K. DURBROW Secretary.

Office—Room No. 22, Merchants' Exchange Building, California street, San Francisco, California. my18-3t

Washington Mining Company---Location of works and mines, Mariposa County, State of Cal.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 8th day of May, 1872, an assessment of $3 per share was levied up the capital stock of said company, payable immediately in United States gold and silver coin, to the Secretary at the office of the company, No. 318 California street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the 11th day of June, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the 29th day of June, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. B. WINGARD, Secretary.

Office—Room No. 1, second floor of No. 318 California street, San Francisco. ma.11-4

Woodland Gold Mining Company—Location of works, West Point Mining District, Calaveras County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 21st day of May, 1872, an assessment of 12½ cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, Room 64, Merchants' Exchange, California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the 25th day of June, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 16th day of July, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

F. MADGE, Secretary.

Office, No. 61 Merchants' Exchange, California street, San Francisco, California. may25-td

Blowers, Steam Pumps, Hair Felt.

Mining Tools

PORTABLE ENGINES, TURBINE WATER WHEELS, Wood and Iron Labor-Saving Machinery, Hardware, Belting, Lacing, Packing, and a general stock of Engineers', Miners', Farmers' and Mechanics' Tools and Mill Supplies.

TREADWELL & CO.,

At the Old Stand, } Cor. Market and Fremont Sts., SAN FRANCISCO.

12v24-eow

THE FREAR STONE COMPANY

OF CALIFORNIA.

Office, 638 Market Street.

OFFICERS:

JAMES GAMBLE, President, | L. A. BOOTH, Treasurer.

EXECUTIVE COMMITTEE.

N. W. SPAULDING, GEORGE O. POTTER, N. P. PERINE.

This Company will contract to furnish or put up the heaviest, strongest and most elaborate and elegant Fire-proof Stone Fronts, of any design, and every style of Plain and Ornamental Door and Window Caps, Keystones, Sills, Water Tables, Coping Ashlars, Plain and Ornamental Stone Work of every description. Fire-proof Buildings and Bank Vaults, Cemetery Work, Curbing Stones, Fountains, etc., all at prices far below native cut stone, and equal, in all respects, as to strength and durability.

Architects and Builders, before letting their contracts for Stone Work, are requested to call at the office of this Company, and examine certificates, specimens and photographs of buildings already constructed of Frear Stone in Chicago and other Eastern cities.

For further information apply to N. P. PERINE, 638 Market street. [19v24-3m

Machinists and Foundries.

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO

IRA P. RANKIN, A. P. BRAYTON,
GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS

Mining Machinery of Every Description,

And all other classes of work generally done at first-class sstablishments, manufactured by us at the lowsst prices, and of the hast quality.

☞ Particular attention paid to Jobbing Work and Repairs.

N. B.—Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR.

18v20-3m GODDARD & CO.

FULTON
Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURAAS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pamp, Brodie's Improved Crasher, Mining Pamps, Amalgamators, and all klads of Machinery.

E. corner of Tehama and Frement streets, above Howstreet, San Francisco. 3-qy

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GEORGE T. PRACY,
MACHINE WORKS,

109 and 111 Mission Street,

SAN FRANCISCO.

Thess Works have lately been increased, by additional Tools, and we are now able to turn out any kind of work, equal to and cheaper than any establishment in the State; that is to say:—

STEAM ENGINES,
Flour and Saw Mills,
QUARTZ MACHINERY
Printing Presses,

AND MAOHINERY MADE OF EVERY DESORIPTION.

Improved Safety Store Hoists,

Fitted with Cutting's Patent Cams, unequaled for safety, convenience and cheapuess. This Hoist can be built for about half the price of any other in use. To be seen at HAWLEY & CO.'S.

ALSO, MANUFACTUBER AND SOLE AGENT FOR

Pracy's Celebrated Governor.

TURNING LATHES, Etc., constantly on hand.

4v23tf

UNION IRON WORKS,
Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR
WILCOX'S PATENT WATER LIFTERS,
Vanbar's Patent Self-Adjusting Steam Piston
PACKING, for new and old Cylinders.
And all kinds of Mining Machinery.
Front Street, between N and O streets,
SACRAMENTO CITY

PACIFIC
Rolling Mill Company,

SAN FRANCISCO, CAL.

Established for the Manufacture of
RAILROAD AND OTHER IRON
—AND—
Every Variety of Shafting,
Embracing ALL SIZES f
Steamboat Shafts, Cranks, Pistons and Connecting Rods, Car and Locomotive Axles and Frames
—ALSO—
HAMMERED IRON
Of every description and size.

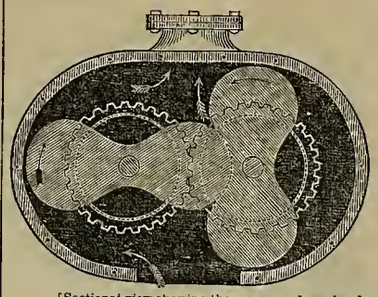
☞ Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will celve prompt attention
☞ The highest price paid for Scrap Iron 9v143m

ROOT'S PATENT FORCE BLAST ROTARY BLOWER,

MANUFACTURED AT THE

GLOBE IRON WORKS,

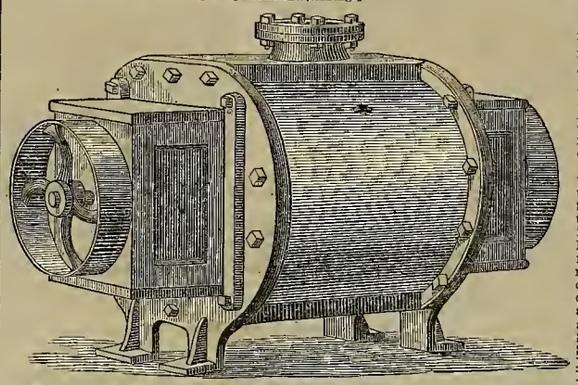
Stockton, Cal.



[Sectional view showing the pistons and gearing.]

Awarded the First Premium at the Paris Exposition.—Patented November 1, 1864; July 24, 1866; and October 9, 1866.

Adapted for Smelting, Foundry, Mining and Steamships. Requires 50 Per Cent. less power than any Blower now in use.

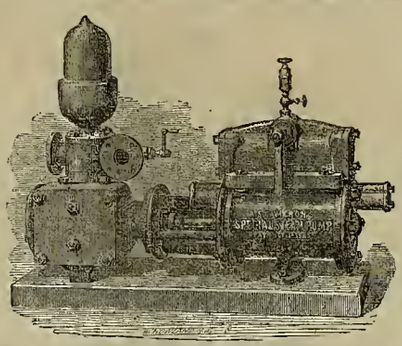


One of these Blowers may be seen at W. T. Garratt & Co.'s Brass Foundry, San Francisco; Gould & Curry and Savage S. M. Co.'s, Nevada; and at C. P. R. R. Co.'s Works, Sacramento; and other places on this coast.

CAUTION. — Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article. Quartz, Saw and Grist Mill, Iron, Stationary and Steamboat Engines, Horse-Power and Pumps, of all Sizes.

For Circulars and further information, Address
4v24tf GLOBE IRON WORKS, STOCKTON, CAL.

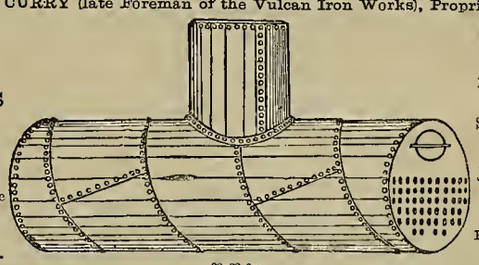
CAMERON'S
STEAM PUMPS.
PIOKERING'S
Engine Regulators.
GIFFARD'S
INJECTORS.
BARTOL'S
STEAM TRAP.
Surface Condensers.
DAVID STODDART,
114 BEALE STREET, S. F.



San Francisco Boiler Works, 123 and 125 Beale Street, San Francisco.

F. I. CURRY (late Foreman of the Vulcan Iron Works), Proprietor.

High and Low Pressure
BOILERS
of all descriptions.
SOLE
Manufacturers of the
CELEBRATED
SPIRAL BOILER.



Sheet Iron Work of every DESCRIPTION done at the Shortest Notice.
All kinds of
JOBBING
and
Repairing
Promptly Attended to.

22v22-3m

THE RISDON
Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1868.
CAPITAL.....$1,000,000.

LOCATION OF WORKS:
Corner of Beale and Howard Streets,
SAN FRANCISCO.

Manufacturers of Steam Engines, Quartz and Flour Mill Machinery, Steam Boilers (Marine, Locomotive and Stationary), Marine Engines (High and Low Pressure). All kinds of light and heavy Castings at lowest prices. Cams and Tappets, with chilled faces, guaranteed 40 per cent. more durable than ordinary iron.

Directors:

Wm. Alvord,	C. J. Brenham,	C. E. McLane,
Wm. Norris,	Wm. H. Taylor,	Lloyd Tevis,
	James D. Walker.	

WM. H. TAYLOR.....President.
C. E. McLANE.....Vice President.
JOSEPH MOORE.....Superintendent.
LEWIS R. MEAD.....Secretary.

24v17-qy

OCCIDENTAL FOUNDRY,

137 and 139 First st., near the Gas Works, San Francisco.

STEIGER & BOLAND,

IRON FOUNDERS.

IRON CASTINGS of all descriptions at short notice.

NOTICE.—Particular attention paid to the making of Superior Shoes and Dies. 3v24-3m

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Miners' Foundry and Machine Works,

CO-OPERATIVE,

First Street, bet. Howard and Folsom, SAN FRANCISCO.

Machinery and Castings of all kinds.

COPARTNERSHIP NOTICE.

We have this day admitted Mr. William R. Eckart as a member of our firm, the business of which will he hereafter conducted under the firm name of Prescott, Scheidel & Co. PRESCOTT & SCHEIDEL.

Marysville, Jan. 8, 1872.

MARYSVILLE FOUNDRY.

Referring to the above, we respectfully solicit the patronage which has for the past twenty years been enjoyed by our predecessors, pledging our best attention to the wants of all who may so favor us.

Quartz and Amalgamating Machinery,
SAW AND GRIST MILLS,
STEAM ENGINES,
HYDRAULIC MACHINES,
HOUSE FRONTS, ETC.

Repairs upon all kinds of machinery promptly made and at moderate charges. Having unrivalled facilities, we are prepared to make to order, at short notice, everything required in our line.

Specimens of our work may be seen in all the mining regions on this coast.

5v24-3m PRESCOTT, SCHEIDEL & CO.

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,

SAN FRANCISCO.

ALL KINDS of Brass, Composition, Zinc, and Babbitt Metal castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch

☞ PRICES MODERATE. ☜

J. H. WEED V. KINGWELL.

H. J. BOOTH & CO.,
UNION IRON WORKS,

(The Oldest and most Extensive Foundry on the Pacific Coast).

Cor. First and Mission Sts.,

SAN FRANCISCO.

Marine, Locomotive and Stationary Engines Quartz Crushing and Amalgamating Machines, Mill Irons and Brass and Iron Castings, of every description, made to order.

Steamboat Repairing, Boiler Making, Turning and Finishing,

EXECUTED WITH DISPATCH.

Beet Sugar Machinery complete in every part—mads a specialty.

OIL MACHINERY.

A complete set of Machinery of our own design and patent for extracting oil from Castor Bean, dispensing with Hair Cloth. Also Machinery for Flax Seed Oil, Mustard Seed Oil, and Sun Flower Seed Oil.

MARBLE MACHINERY

For sawing Marble of any thickness or size.

Irrigating Pumps. Steam Pumps.

Plans, Estimates, and Advice promptly supplied.

H. J. BOOTH. GEO. W. PRESCOTT. IRVING M. SCOTT
4v24-1yslamr

SAN FRANCISCO
SCREW BOLT WORKS,

PHELPS BROTHERS, Proprietors,

MANUFACTURERS OF ALL KINDS OF

Machine Bolts, Bridge Bolts, and Ship or Band Bolts,

13 and 15 Drumm Street, San Francisco. 4v24ly

THOMPSON BROTHERS,
EUREKA FOUNDRY,

129 and 131 Beale street, between Mission and Howard, San Francisco.

LIGHT AND HEAVY CASTINGS,

of every description, manufactured 24v16qr

FERRACUTE MACHINE WORKS,

Bridgeton, N. J.

PRESSES, DIES and all FRUIT CANNERS TOOLS a specialty.

Improved 3-lb. Can Press for $65; Rotary Solder Cutter, $15, etc. 13v24-13t

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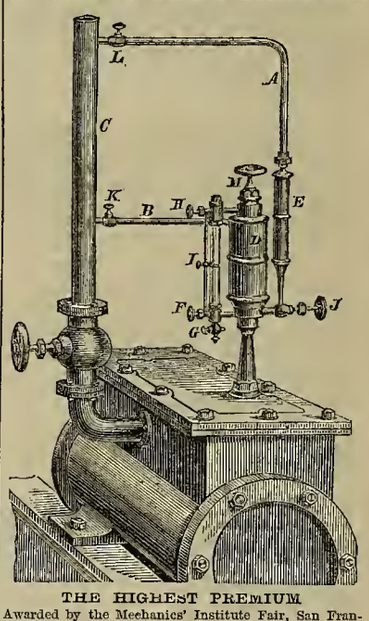
Machinery.

N. Seibert's Eureka Lubricators.



THE HIGHEST PREMIUM

Awarded by the Mechanics' Institute Fair, San Francisco, and State Fair, Sacramento, 1871.

These Lubricators are acknowledged by all engineers to be superior to any they have ever used; feed constantly by pressure of condensed water supplied by pipe A, regulated under the oil by valve J, and forced out through check valve and pipe B into the steam pipe C; it t en hecomes greasy steam, passes to all the valves and cylinder at every stroke of the engine; glass tube I indicates amount used per hour. Packing on rod- and stems lasts longer, and the rings on the piston will not corrode. One pint of oil will last from three to six days, according to speed and size of engine; I, sliding gauge; K, valve to shut off when engine stopps; H, F, valves to shut off in case of frost; steam does not enter the cup; it is always cool; warranted to give satisfaction. Patented February 14, 1871. Manufactured by California Brass Works, 125 First street, S. F. 24v23tf

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Notice is hereby given, that the copartnership heretofore existing between A. J. Severance, Charles W. Randall and J. Gus. Burt, under the firm name of "Severance, Holt & Co.," is this day dissolved by mutual consent. A. J. Severance, having purchased all the interest of his late partners, will continue the business of manufacturing and selling Diamond Drills, as before, under the style of A. J. Severance & Co.

Dated San Francisco, Nov. 24, 1871.
Office, 315 California street. A. J. SEVERANCE,
CHAS. H. RANDALL.
22-v23-tf J. GUS. BURT.

Varney's Patent Amalgamator.

These Machines Stand Unrivaled.

For rapidity pulverizing and amalgamating ores, they have no equal. No effort has been, or will be spared, to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows.

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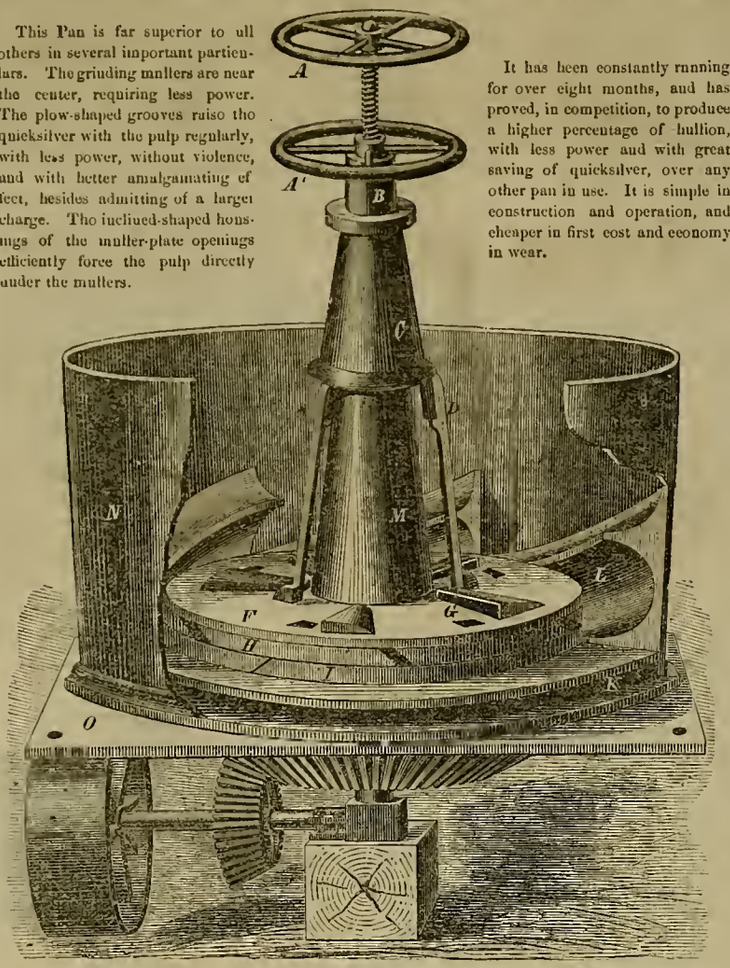

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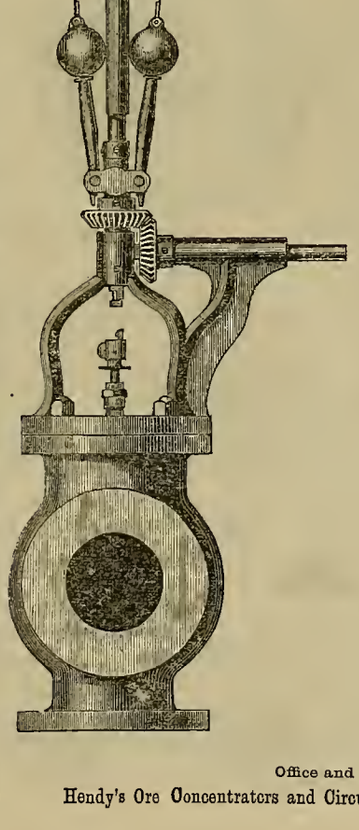

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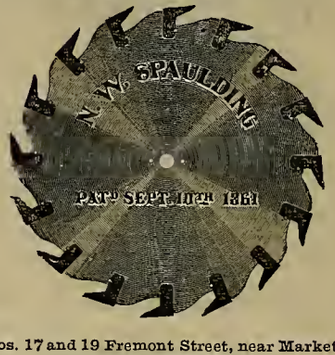

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6.30 P M. Overland Emigrant Train, Through Freigbt and Accommodation.

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SAN FRANCISCO, SATURDAY, JUNE 8, 1872.

VOLUME XXIV. Number 23.

"Hydraulic Joints."

[Written for the PRESS by H. WRIGHT PHILLIPS.]

Extensive as the present application of hydraulic power is, there is no reason why it should not be much more so if two causes of retardation were removed. The first of these is, that the extreme adaptability of hydraulic pressure to many operations requiring but little power, is as yet not understood. For instance, in very many cases a steady and perfectly smooth motion, such as can be regulated to any speed, and also so arranged that the power cannot rise above a certain point, would be invaluable for small manufacturing purposes. Now if, as is generally the case, a screw, cam, or other ordinary mechanical means be used, the graduation of speed, though simple enough in its first design, offers a difficulty in general when the machine is in motion. Further, should any obstruction occur, the power at once begins to accumulate, till in many cases the force becomes so great as to cause the destruction of some parts of the running gear.

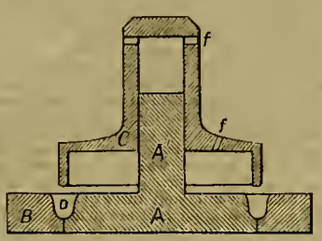
The practically perfect non-elasticity of water gives just the advantages required, a motion of complete uniformity can be obtained, which, without stopping the machinery, can be regulated to any desired extent from nothing to the most rapid velocity originally estimated in the designing of the machine. Should the resistance be increased by any obstruction, the machine will simply stop, instead of destroying any part of itself, or the attachments, supposing always that ordinary care and knowledge are exercised in proportioning the work, pressure, and size of the machine to its attachments and the ultimate power to the ultimate resistance.

But it may be objected that hydraulic power is only applicable where very great resistance has to be dealt with, and that it is not at all applicable where very small degrees of power are required. Again it may be said that there is so much trouble with the joints as to render other appliances preferable. With the question of hydraulic joints—why they are so much trouble, how they ought to be made, and what amount of indurance may be expected from them, when properly constructed, I propose to deal in a simple and practical manner, leaving the other question open for a future communication.

To all intents and purposes the joints, more particularly the working ones, are the vitals in arrangement of hydraulic mechanism. No matter how perfect other parts of the machine may be, if the joints are defective continued annoyance will assuredly ensue. How to make a thoroughly effective hydraulic joint is a secret possessed by but few. No matter how well the leathers are made, or of what quality of material; no matter how carefully they may be inserted or how correctly the recesses for them may be constructed, if they are called upon to encounter ought but a highly polished surface, against which to work, they cannot last long.

It must be borne in mind that if an unpolished surface is conducive, in the case of a metallic packing moving in contact with it, to rapid wear, it is, in the case of leather, nothing short of positive destruction. To leather, under high pressure, the very pores of the metal become so many pits, into which the leather is forced, only to be torn away in small fragments. It might seem small and unnecessary to urge this truth, were it not that I have

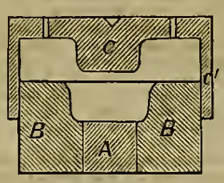
Fig. I.



known but too many cases where most costly results have followed from the use of unpolished surfaces.

Over and beyond these causes there is still another, which is, we ought almost to say, universal, so seldom is care taken to avoid it, or rather, in fact, so deliberately

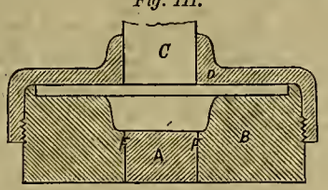
Fig. II.



is it, as it were, cultivated. I refer to the rapid destruction of leathers, by reason of the destructive mode of adjustment, formed only with a view of first cost, in such a way as to positively insure the actual cutting of the leather.

In making hydraulic joints three types of leather are used, which are usually designated as cup, cap and hat leathers,

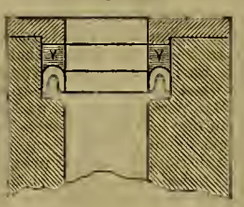
Fig. III.



respectively. The cup leather is the most commonly used, and is of a form so well known as not to need any description here. The cap leather is not unlike a bat deprived of its rim and with a hole in its crown; and the hat leather resembles a hat minus all the crown. Of course in each case the grain of the leather, that is the outer side, must form the working surface of the hydraulic packing. It will then work to a smooth, evenly polished surface, if proper care be taken in finishing the metal in contact with it. French chalk mixed with a little of the best unsalted tallow, forms an excellent lubricating paste for the leathers.

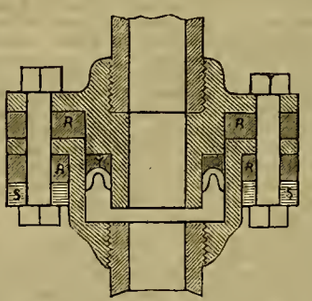
In preparing hydraulic leathers of various kinds, the following mode of procedure will be found completely successful: The leather selected must be of the best tannage, *i. e.*, oak bark tanned leather. The suitable parts of the leather are the hard parts of the butt, for large leathers, and the best shoulders for the small ones. On no account should any of the belly leather be used. With a sharp knife the whole of the fleshing or soft inner portions

Fig. IV.



must be completely removed; great care being taken to cut the leather to an even surface. The slightest cut below the surface will spoil the part so cut, as the leather when at work will then fail, and that soon. Having so prepared the inner surface of the leather, the outer grain must be turned uppermost, and very carefully examined for any cuts or flaws, no matter

Fig. V.



how minute; with a pair of dividers the circles describing washers of the sizes suited to produce the required leathers must next be drawn. For cup and hat leathers an inner circle will be requisite to mark the place to be cut out at the centre.

When cut leathers are required with any holes in the crown, the leg of the dividers must not puncture the leather; use a loose piece of leather to take a center from, or a circular tin plate and "scribe" round it. After cutting the washers, overhaul them and see whether the thickness is exactly equal all over each. If it be not so, then the leathers will be drawn unequally in the die. The best way to make the washers is to cut them square; fasten by the corner to wood, faced true in a lathe, and then turn them, first to a proper even thickness; secondly, cutting them to the right circular size. Of course the grain side must go towards the face plate and the fastenings only pierce the waste corners.

After the washers are thus prepared, they are to be steeped in soft water till soft and flexible. When they are thoroughly softened they are ready for the dies, which I will describe:—First, a really good pair of dies ought to be made for making cup leather. The best material for dies is good hard gun metal, as cast iron is affected by the tannic acid, and so becomes troublesome, so that the dies move in and out of each other with considerable friction. Besides the iron is apt to tear the leather, since it becomes, as it were adhesive or grating on the surface, and the leather does not slide easily with the recess of the dies.

The sketch herewith shows in fig. 1 a pair of dies of the latest and most improved design for making cut leathers. The figure also includes the proper means of forcing home the die when the leather is adjusted. *A* is the center piece of the die, having a projecting spindle, *A'*, which acts as a guide to center the leather; the moulding ring, *B*, is the outer die, fitting accurately around *A*; the recess, *D*, is formed half in each die. When this construction is not observed there is difficulty in removing the leathers, and they are frequently injured. When very large numbers of leathers have to be made it is worth while to provide special means for removal from the dies. The best means to accomplish this consists of two rings of metal, a little deeper than the dies. One ring should just pass freely around the die, *A*, the other through the die, *B*, the edges of these dies must be smooth and rounded, the rings merely resting on the form. When the dies are separated, the leather is very quickly removed from either dies by means of these rings. Should the leather, as is the usual case, be upon the die, *A*, this die is merely dropped into the ring belonging to it. If the die, *B*, should carry the leather it is forced over the proper ring. If these rings are not provided, some blunt instrument must be used.

The bell, *C*, fitting upon the guide, *A*, is in every way superior to the ring generally used for forcing the leather into the dies. The small holes at *f f*, are outlets for the air. This arrangement for forcing home the dies is the same as in any hand punch, and needs no description. The best arrangement for forcing home the bell is by hydraulic power itself. When a press is at hand the leathers are best prepared by placing the dies between the pattern, and then allowing merely a slight opening of the valve to produce just leakage into the cylinder, by means of which a slow motion is produced.

After being forced home, the leather must be allowed thoroughly to set, when it becomes firm, the pressure may be removed and the bell withdrawn; next with a sharp knife pare off the leather level. If you have no lathe, finish the leather in the dies and carefully trim them. It you have

[Continued on page 357].

CORRESPONDENCE.

Geology and Mining.

EDS. PRESS:—Geology is generally understood as a science; but, in reality, under that name may be included a whole group of sciences, and the one to which my experience permits me to refer is mineral veins or deposits from which are derived all the metals of commerce. There are very many metals rarely met with, being found only in small quautities and at remote intervals; others, the most essentisl, are almost universally deposited in such an abundance and under so slight a covering as to bring them readily within reach of the miner's art, and to them we owe our present high state of perfection in the useful arts; and to their extended application the world may safely attribute the progress and wealth of civilized nations. There is no class of men which has such an advantage for a thorough knowledge of mineral veins or deposits as the miner; yet, on account of his being daily conversant with the ever-varying phenomena of the crust of the globe, he is negligent on many valuable points, which he thinks are not worthy of notice because he sees them every day. If a thorough geologist or mineralogist was conversant with facts which are often familiar to the mind of an intelligent miner, they would write volumes concerning them. In order to acquire such knowledge, one must be guided by an extended experience, and must exercise a sound and disciplined judgment, which is requisite at every stage of development, and which should be marked by assiduous and systematic observations.

Under studious and careful observation man is surprised to find Nature so plain and similiar all over the face of the globe. As an example of which allow me to cite the discovery of the "gold fields" of Australia, which might have long remained hidden but for the research of the late Sir Roderic Murchison, in the Ural mountains. From his investigation with regard to that locality he was led by inductive reasoning to believe that gold would be found iu similar rock, specimens of which had been sent him from Anstralia. Research fully verified his prediction.

In the States of Carolina, Georgia and California; in Australia, Russia, New Zealand and even Wales, in Great Brittain, the auriferous rocks bear a close similitude to each other.

Gold is no longer confined to one country as was thought of yore, bnt is widely diffused, and in various conditions, traces are continually found in iron pyrites of the more ancient rocks, also associated with many different minerals. I have seen in Utah and elsewhere iron pyrites rich with gold. This we should not have known had we not called to our aid the chemist. Thus by calling other branches of science to our sssistance we can bring forth positive conclusions instead of vague suppositions as in time past.

We all know that trees from the tropics will not grow in the frigid zone; so also we know by experience that minerals must have their own peculiar characteristics.

T. S.

San Diego Mines.

EDITORS PRESS:—That the importance of the San Diego mines is, and has been uuderated, is a present conviction of your correspondent, especially after a personal inspection of the principal workings. There are no further developmeuts in the

Stonewall

Than when visited before, (some sixteen months since) they having sufficient ore to stope out above the fifty foot level to keep the mill in operation for some time; but as soon as they get their new engine and pump in operation, sinking can be resumed. Their vein matter is all decomposed, so that they must work the whole, (sixteen fect iu width). At the bottom of the shaft the solid quartz was struck, so that when the lower level is opened the rock can be sorted if the whole does not pay.

The Owens

Is no doubt a good mine, and is now being opened systematically, the lower level being driven at two hundred feet in depth. If all the mines in the district were as well managed as the Owens, "times" would be different.

The California, an extension of the Owens, will resume work in a few day; the do-nothing and pay-nothing portiou of the company heing ousted. In the

Banner District

Everything appears lovely. Gunn has bought into the Antelope, and will no doubt bring order out of confusion, which has heretofore predominated in this company. For the depth obtained this has payed the hest of any mine in the vicinity. The Madden, on the same vein, is being steadily worked. "Little Mack," your occasional correspondent, is driving the drill vigoronsly in this mine, and we hope he will be successful, as he deserves. The

Baily Brothers

Have done a great amount of work on their mine, having opened it for a thousand feet along the lode, finding pay ore all that distance. This is the most conveniently sitnated mine for economical working in either district. A tunnel along the ledge from the foot of the mountain, run to the distance of 500 feet, wonld have 400 feet of pay ore overhead to stope out. Their water power—sixty feet fall—is sufficient to ruu a ten stamp mill, and ore can be delivered at the mill at seventy-five cents per ton. So that a very low grade of ore can be worked, if necessary.

The mine of the district is, however, the

Golden Chariot.

A four-foot vein of solid, all-paying qnartz. There is between two and three hundred tons of rock on the dump that will go $200 per ton; an average of twenty tons lately worked in a steam stamp mill, returned $118 per ton, saving, probably, not more than one half of the gold. There are tons of specimens iu their dump-pile, that are equal in richness to that in your office, from this mine. The mine is bonded in San Francisco for $75,000, hut why the boys wish to sell where there is more than that amount in sight, I am at a loss to know.

F. M. S.

Julian City, San Diego Co., May 14, '72.

Deep Mines.

It is a well-established fact that the value and permanency of mines depends largely on their depth. In many districts where the general formation or country rock is limestone, ore channels, or surface deposits, seem to form the rule. This district, however, is an exception. A lsrge numher of ledges have heen sunk on from 100 to 300 feet, and in no single instance has the ore "petered out;" on the contrary, all mines seem to improve in size and richness as depth is attained. This we consider a very gratifying showing in connection with the futnre prosperity of the distrtct. Unlike most mineral-bearing sections located in limestone we have here well-defined veins with walls so perfect it is almost wholly impossible to mistake them. It is not isolated cases of this kiud that we refer to, but the same rule obtains almost universally throughout the district. While it is true that some of the best defined ledges are comparatively small, it is also certain that they widen as explorations are extended deep down into the howels of the earth. The water strike, noted in yesterday's *Sentinel*, at a depth of one hundred and sixty feet, is likewise strong proof that true fissure veins exist in this section. The varied character of the ores of the district, heing from all appearances about equally divided hetween milling and smeltiug, must always give employment to an extraordinary large army of laborers in the several channels and avocations connected with successful mining on a comprehensive scale. Viewing the mining situation understandingly and impartially, we have no reason to doubt that there is a long and prosperous future in store for Eureka. No matter if we are for the present eclipsed by the overshadowiug importance of the Comstock, the time will come, and that speedily, when this district will be recognized as the backbone of Eastern Nevada. When that time arrives, as it must sooner or later, Eureka will be the most populous town between Salt Lake and San Francisco.—*Eureka (Nev.) Sentinel.*

THE Northern Pacific R. R. have given notice that they will entirely abandon all claim to title of lands in Washington Territory which any settler has the least claim to.

Coos Bay Coal Measures.

The cosl fields of the Pacific Coast have always been objects of much inquiry and interest. To them are looked for the future manufacturing schemes for the development of our local resources. Coal, iron and agriculture are materisl resources that, when found in abundance availably, will constitute the fouudation of an empire in commerce and self-snstaining population. As yet our coal interests, though much talked of and to some extent the object in points for careful enterprise, are yet undeveloped. Individual efforts have been constantly battling with the obstacles always incident upon the growth of a new country. Coal is known to exist in many different places, but means for transportation and economical systems for extracting the minersl have been generally very difficult, thereby increasiug the cost in the market, and deterring many from entering into the work of mimng.

Among the most prominent coal fields are those situated about Coos Bay, in Coos county, Oregon. Uulike the mineral extracted in some other places, the article there found is free from the impurities which generally have prevented the use of California coals for domestic purposes. It is, therefore, a matter of some importance to know that increased energy is being infused into the mines already there existing, and new enterprises are being organized for the supply of the market.

Coos Bay is situated in a heavily timbered district, about the mouth of the stream which bears the same name. Ou all sides the country rises into hills of moderate altitude, on the washed and broken sides of which coal was found many years ago to be cropping out. The quality being tested was found to be good.

In 1853 the Newport mine was located near the upper end of Coal Bank Slough. The work was commenced systematically, but for want of capital the development was slowly and safely conducted. At present the miue, which is owned by Flanigan & Mann, is confined to an area of 3,000 acres, under two-thirds of which the coal beds are known to exist. The stratification is inclined at a slight augle from a horizontal position, and is worked out through a tunnel 3,000 feet in length. A narrow gauge railroad, the first on which a locomotive was placed in Oregon, conveys the coal over the 38-inch track one mile and three-quarters to the landing, where appliances are so arranged that the work of loadiug schoouers or steamers is facilitated in the best manner. At prcsent the production is about seventy-five tons per day. This, however, varies greatly on account of the delays and difficulties in the way of obtaining schooners or steamers to load the coal for the San Francisco market.

The Eastport Coos Bay Coal Mining Company have their mine located on a tract of land containing 1,640 acres, nearer the mouth of the same slough. About two-thirds of this tract contain the coal-beds, including the out-croppings of the same that underlie the Newport tract. This mine is likewise worked by means of a tunnel. The upper portion above the main level has been worked out. Now the coal is drawn up into galleries from inclines, which necessitates the use of a steam engine. The distsnce from the wharf to the mouth of the mine is about three-quarters of a mile, over which a tramway is laid for the movement of the coal.

It has been estimated that the thickuess of the workable seams is four feet six inches, and that the loss from wastage being assumed to be twenty-five per cent., the average yield per acre of deposit is 5,000 tons of coal. The present production of this miue is said to be 2,000 tons per month.

Beside these two mines none others are yet iu active operation. Coal is fonnd to be cropping out iu various other localities distant from each other and on all sides of the Bay, which fact indicates that the entire basin contains more or less the same stratified deposit. The peculiarities of the seams are nouesbly the same in all points.

In general the deposit consists of three seams, enclosed iu sandstone, dipping toward the southwest at an angle of from five to fifteen degrees. The two priucipal and lowest seams are iu the average two feet three inches thick. The upper seam of coal, besides being of inferior quality, is only one foot thick, and is not removed by the miners, but is allowed to remain and support the roof, which is firm and easily sustained.

The coal produced is of a fine black lustrous color, with brilliant couchoidal fracture, free from irou pyrites and sulphur, not liable to spontaueous combustion, aud burns without the disagreeable odor so frequently accompanyiug coals of this nature. When burned, the residuum is almost wholly white ashes. The amount that can be obtained from the mines now working, or to be worked in future, must depend solely on the facilities provided for mining and transportation. That a very large supply for the future is still to be developed is a fact well enough established.

The Hardy Coal Mine

Is the name given to one comparatively recently opened and now almost ready for supplying the market. The Company is represented by San Francisco bnsiness men, who have expended about $30,000 in improvements, besides the first-cost of the land. They have purchased 1,700 acres on the north side of the bay, eight miles uortheast of the entrance. This tract lies between Hayne's and Jordan's Sloughs, and fronts upon the bay. A good depth of water is found all along the westeru border. Fourteen feet at low tide, being the same depth as that on the bar, is found 400 fset from the shore, directly opposite the mine. The land rises gradnally from the bay to a hight ranging from 200 to 500 feet, and is densely timbered with fir and cedar. The coal is found in a regular bed, four to five feet in thickness on all sides of the tract, the outcroppings being found on the easterly slope for a distance of two miles. On the northwest corner, near the bay, the coal has been uncovered for the purpose of testing the average capacity of the mine. The improvements already nearly completed are situated in the southwest frout near the confluence of Jordan's Slough with the bay. The wharf is about half finished and is being prepared for a double track. Leaviug the wharf, the track extends with a slightly ascending grade to the mouth of the tunnel, which penetrates the hill aud reaches the coal bed. The tunnel is 1,000 feet long, 10 feet wide and 6½ feet high and is provided with double tracks. It now remains to open ont the chambers to the right and left and extract the coal from the portion of the bed which is inclined above the tunnel. The quantity lyiug north and east of the end of the tunnel, and which may all be extracted without machinery for either raising or freeing the mine of water, is estimated at not less than 1,200,000 tons, and the whole amonnt of coal on the tract at three times that amount. A boarding-house, buuk-ers, blacksmith shops and other improvements comprise the work already completed. It is expected soon to have the miue in active operation.

There has been some talk of organizing a line of propellers specially constructed for this coal trade. If done, the enterprise will greatly facilitate the working aud thorough development of these mines and will greatly tend to regulate the price of coal in this market.

Other places are well known as good points for opening mines, while there are many which at present are not available for want of ready means for transportation.—*Alta.*

The Ava Watts District.

The Ava Watts District lies between Bitter and Kingston Springs, on the Salt Lske road, and is situated at a distance of two hundred miles to the northeast of this city, and about thirty-five miles from the boundary line of the Stste. Although new and undeveloped, the first location having heen made in November last, the ledges that have already been discovered and partly prospected, justify the opiniou entertained that its ores are as rich as any other district ou the coast. The ores of the district are chiefly of a high grade character, and consist of copper and silver. The leads are wide and well defined, ranging from seven to thirty feet. Sixteen or eighteen locations only have been made. The Summit mine is represeuted as being a very valuable piece of property. The vein is thirty-two feet wide, and contains high grade ore, which will yield $300 to the ton in silver, while mnch of it will run as high as $2,800 per ton. There are now from three to four hundred tons of rock on the ground ready for milhng. The San Francisco mine, in whi h Capt. Moss is interested, is not as rich. The average of assays made hy Parker Handy, in New York, gave a result of $320 per ton. The San Francisco lode has been prospected to a depth of fifty feet, and continues of a uniform width and richness. One shipment of ore of a ton and a half has already beeu dispatched to San Francisco for reduction, and another lot of four tons and a half is now *en route* to this city from the mines. The district is represented as being well supplied with water, aud fuel is abundaut. A good wagon road connects it with this city—the Salt Lake road, which leads to within six miles and a half of the district, the turn-off being at a point twenty-five miles on the other side of Bitter Springs. The aborigines—a tribe of Piutes—are peaceable aud numerically weak, not exceeding one-huudred in number.—*Los Angeles News.*

CURIOSITY.—A male calf has heen dropped on Mr. Wheaton's ranch, Tule river, which would psss for a bear on account of its shape and the way it travels. It has the split hoofs of the genus calf, but its knees are turned the wrong way, and it nses all the leg below the knee as a foot. Its body is thick and short like a bear's, and for three weeks it could not reach up to the maternal fountain, but had to be lifted up. It is six weeks old and only fourteen inches high. It ambles like a bear, and when in motion, lifts and rolls its hack, just like one of the bruin family. Bears are plenty thereabouts, and the old cow probably got hadly frightened at one. *Delta.*

A LETTER from Montevideo states that while Professor Agassiz and several of his party were collecting geological specimens and putting pieces of rock in their pockets, they were arrested and pnt in the guard house, but were soon released. Imagine the Professor's intense disgust at being arrested for pursuing his researches in aid of of the cause of science.

SCIENTIFIC PROGRESS.

Extinguishing the Electric Light by the Approach of a Magnet.

Prof. E. J. Houston of the Central High School, Phila., calls attention, in the *Journal of the Franklin Institute* to an interesting fact which he thinks may have hitherto escaped observation. Having occasion to set up a large battery for experimental illustration of the properties of the light of the voltaic arch, he employed a battery of eighty half gallon cells. When first set up the arch between the carbon electrodes measured fully two inches, while the flame frequently reached an equal distance above the upper carbon.

The phenomenon to which he calls attention is stated as follows:—

Wishing to show the well known experiment of the rotation of the light by a magnet, he approached a compound bar-magnet to the light, holding it with one end pointing directly to the arch, in a horizontal plane equidistant between the carbon electrodes. When the nearest end of the magnet was within about four inches of the electrodes, the light was instantly extinguished.

Thinking that the extinguishing of the light was produced by some cause other than the approach of the magnet, the experiment was repeatedly tried in a number of ways, until it was clearly shown that the cause could not be attributed to accident, but to the approach of the magnet.

Though he has failed to find any published notice of this phenomenon, he thinks it probable that it may already have been observed, as the conditions of the experiment would be almost exactly reproduced whenever the rotation of the light of the voltaic arch by the magnet was tried. Still it may be conceived that though the necessary conditions for success in this experiment have often been *nearly* reproduced; they have seldom, if ever, been exactly reproduced, for it was noticed that in no case was the light extinguished, unless the length of the arch was nearly as great as the tension of the electricity admitted; that is unless the electrodes were separated by nearly their maximum distance, consistent with the passage of the current. Were this condition not observed in all cases, the approach of the magnet produced no other effect than the rotation of the light, until it assumed a position in a vertical plane 90° from a similar plane passing through the magnetic axis of the bar. Then, again, another necessary condition is that both the tension and the quantity of the current be of a strength greater than that of the current on which the experiment of rotation is generally tried. He has experimented with flames when these latter conditions were absent, and although the rotation was observed, the extinguishing of the light was in no instance produced.

The compound bar magnet employed is formed of three bars, held together by brass screws. It is one foot long, one inch broad and three-quarters of an inch thick, and is not at all remarkable for the strength of its magnetism.

As to the cause of the phenomenon, he thinks it may be attributed to the tendency of the flame to rotate on the approach of the magnet. This might cause an extinguishing of the light in two ways; either by the irregularities on the surfaces of the carbon electrodes offering greater resistance to the passage of the current from some points than from others, or by the current being unable to pass through the greater distance of the arched path, which is always assumed by the light on the approach of a magnet.

Another assumption, which, though perhaps not as simple as those already mentioned, at least as probable, is that on the approach of the magnet, there is a slight increase in the non-conducting power of the medium between the electrodes, produced by their polarization, and which, though always acting, can only manifest itself in a striking manner when the distance between the electrodes is near a maximum, and the tension of the current is exerted to the utmost in passing through the non-conducting medium.

The assumption of the polarization of the medium between the electrodes, and its consequently diminished power of conducting the current, seems to be somewhat sustained by the fact, that a powerful electro-magnet, in the form of a horse shoe, when approached, did not extinguish the light, although it produced rotation of the current, for we may conceive that the two poles, acting simultaneously on the medium, would neutralize each others effects.

He noticed, on several occasions, that the south pole of the magnet would not extinguish the light until it was approached one inch nearer than the north pole, namely, to within three inches of the electrodes. This, however, may have been accidental.

Temperature of Lavas.—According to the investigations of Dr. Fuchs, of Heidleberg, it would appear from a study of the chemical processes which take place in lavas at the moment of eruption, and by the observation of the broken crystals in the lava, that the melted masses some time before the eruption must have had a higher temperature than at the moment of eruption

Ball Lightning.

At a meeting of the Am. Polytechnic at New York, March 20th, it was remarked that Mr. C. F. Varley has recently given to the Royal Society of London an account of new experiments made with a Holtz electric machine, having brass balls at the poles about an inch in diameter. A strip of wood about three inches in length, was bent around the negative pole, so as to project on each side of it towards the positive pole. On rotating the machine, two bright spots are seen on the positive pole. If the positive pole be made to rotate on its axis at the same time, the luminous spots do not rotate with it; but when the negative pole, with its filament of wood, is rotated, the spots on the positive pole rotate also. On interposing a non-conductor, like plate-glass, between the poles, the luminous spots disappear. On removing the wood from the negative pole, there was sometimes a glow over a large portion of the surface of the positive ball. If, in this state, two or three small pieces of sealing-wax, or even a drop of water, be placed on the negative pole, corresponding non-luminous spots will appear on the positive pole, and these spots will rotate when the negative pole is rotated.

It is evident that lines of force pass through the intervening air from the negative pole to the positive, a distance of about eight inches. This experiment, Mr. Varley believes, may explain the cause of "ball lightning." If a cloud be negatively electrified sufficiently strong to produce a flash from the earth, a point on such cloud would correspond to the projection of wood on the negative pole of the electric machine; and such point moving along the surface of the cloud would cause a responsitive action near the surface of the earth, and a luminous spot would appear, which has been described as "ball lightning" by those who have witnessed this rare phenomenon.

In relation to the above, Dr. Bradley said:—"I think I have seen ball lightning. I saw it go into a mill, and it was all in flames in an instant. It seems to be totally unaccountable."

Dr. Van Der Weyde also said that he had once seen a ball of lightning, and that this was the first explanation of the phenomena which he had ever met with, having any appearance of truth.

The Asteroids.—The recent announcement by Dr. R. Luther, of Europe, of the discovery of another asteroid (the 118th) in connection with the reported disappearance of a fixed star, reminds us of the fact that quite a number of the smaller asteroids have taken themselves out of telescopic ken, and it is still uncertain whether they are coming back. In view of these disappearances, Professor Peters, of Hamilton College is opposed to putting any more on the list until observation has made it certain that they have "come to stay." Our older readers will remember that in their school days there were only four asteroids known to the text-books—Ceres, Pallas, Juno and Vesta, discovered respectively in 1801, 1802, 1804 and 1807. It was not till 1845 that a fifth was added to the list by Hencke, of Dresden. The number had slowly increased to 29, when American science took a hand in the person of Professor Fergusson, of Washington, who added Euphrosine in 1854. Of the total 118, 61 have been discovered since 1859. Those first seen and named in this country number, we believe, 28. The best years for asteroids have been 1857, 1861 and 1868. In the first, 8 were added to the list; in the second 10; and, in '68, the unprecedented number of 12.

Disappearance of a Star.—A gentleman of this city announces the fact, through the *Alta*, that the star Mu Leonis, of the third magnitude has recently disappeared. This star was one of the cluster which forms the sickle, and was the third in the blade, reckoning from the handle. His attention was called to the star some two weeks since, when it was shining with its usual brilliancy, visible to the naked eye. He first observed its disappearance on the 26th ult., but thought it possible that some peculiar condition of the atmosphere rendered it invisible. However, upon making a close scrutiny he found that the star had actually disappeared. At nine o'clock in the evening the sickle may now be seen in San Francisco, at which time it will be found situated a little north of west, and at a distance from the zenith of about 40°

Much interest will be felt to learn whether this reported disappearance is confirmed by Eastern observers, and also to hear what phenomena with regard to the same may have been observed with the larger and more powerful instruments in use at other localities.

Origin of Coal.—According to Prof. Wurtz, the formation of coal depends entirely upon the action of the iron which was dissolved in the waters of the coal period. The combinations of iron with which coal is always accompanied are pyrites, iron spar, and hydrated oxide. These were doubtless derived from the strata interjected between the coal beds. In this case the oxygenated water appeared to act upon the metallic sulphurets which were contained in the crystalline slates, from the destruction of which these coal strata were derived. Coal, consequently, is the normal result of the eremacausis of organic substances in waters which contain sulphate of iron and free carbonic acid. An immense pressure upon the mass, while in a plastic condition, was also, without doubt, an additional element of importance.

MECHANICAL PROGRESS.

Crystallization in Wrought Iron.—Much discussion and much diverse opinion has been observed on the assumption that wrought iron, under certain conditions, as for instance under long continued vibration changes its molecular arrangement from fibrous to crystalline. An exchange sums up the different authorities on this subject as follows:

Mr. Robert Stephenson was unable to satisfy himself from a large experience that any such molecular change in fibrous iron took place, and referred to the beam of a Cornish engine, which, working eight or ten strokes a minute for more than twenty years, under a strain of 50 lbs. per inch, and the connecting-rod of a locomotive, vibrating eight times a second for several years of regular work, making more than 200,000,000 times, yet remained uninjured; and he considers these facts good grounds for doubting that iron changes its state in axles.

Many engineers have doubted that any axle which, when broken, proved to be crystalline had ever been fibrous in its character. Others maintain that the change does not take place unless the iron is strained beyond its limit of elasticity. One of the most striking examples of the change is shown in the chain slings used for carrying the bars during the process of hammering at a forge, and also to the porter bars attached to the blooms while under the hammer, both of which are know to become very brittle after a few months.

Mr. Thorneycroft (England) considered that the internal structure of iron undergoes no change unless there be a change of form; that simple vibration will not destroy the fiber, whereas bending, if long continued, would change the most fibrous iron to crystalline.

Mr. Roebling states that the most fibrous bar may be broken so as to show a granular and somewhat crystalline fracture, and this without undergoing any molecular change in the texture. "Take," he says, "a fibrous bar, 10 feet long, nip it in the center all around with a cold chisel, then poise the bar upon the short edge of a large anvil and a short piece of iron placed eight or nine inches from the edge on the face of the anvil, and strike a few heavy blows upon the nip so that each blow will cause the bar to rebound and to vibrate intensely, and the result will be a granular and somewhat crystalline fracture. Now take up the two halves and nip them all round again, about one or two inches from the fractured ends, and break them off by easy blows over the *round* edge of the anvil, and the fiber will appear again.

This experiment proves that a break caused by sudden jars and intense vibration may *show* a granular and even crystalline fracture, *without having changed the molecular arrangement of the iron.* All fibers are composed of mineral crystals drawn out and elongated or flattened, and the fracture may be produced so as to exhibit in the same bar, and within the same inch of bar, either more fiber or more crystal. But a course crystalline bar will under no circumstances exhibit fiber, nor will a well-worked out fiber exhibit coarse crystals.

Mr. Roebling concludes that a molecular change, or so-called granulation or crystallization, in consequence of vibration or tension, or both combined, has in no instance been satisfactorily proved or demonstrated by experiments; but that vibration and tension combined will greatly affect the strength of iron *without* changing its fibrous texture, and that this loss of strength bears a due proportion to the extent and duration of the vibration and tension.

Weather Waste of Coal.

The loss suffered by the exposure of coal to the weather is much greater than most people suppose. Dr. Varrentrapp has made this subject a matter of careful investigation, and the results of his analyses show in some cases a total loss in weight of a specimen, from this cause, amounting to 38.08 per cent., while its deterioration in quality for purposes of fuel or gas-making reached a still higher figure.

This change consists in a slow combustion, in which the volatile constituents—which are most valuable combustible elements—are gradually eliminated, while the relative proportions of carbon, ash and sulphur are comparatively augmented. It might be expected, now that the nature of this change is indicated, that anthracite (which has already gone through a very similar process in becoming what it is, by the loss of its bituminous matter) should suffer least of all coals from this action, and the result of anlysis shows this to be the case. The density and compactness of this variety, aside from its chemical character, protect it in no inconsiderable degree. The cannel coals rank next in their power to resist deterioration from this source; while the bituminous varieties are the most susceptible.

The experiments of Dr. Varrentrapp are of such direct and practical importance that all who are engaged in the mining, transportation, storage or consumption of coal can study them with profit. It appears, from accurate tests of a number of samples before and after exposure, that all the valuable properties of the coal had deteriorated.

The coking quality of the weathered coal diminishes with its gas-yielding quality, the author informing us that a sample of coal yielding, when freshly mined, a firm coherent coke, after eleven days' exposure, yielded a coke of no coherence, and in all the samples tested the rule was absolute that the longer the coal had been exposed the greater was the inferiority in the quality of the coke it produced.

The gas-yielding quality decreased in one instance 45 per cent., and the heating power 47 per cent.; while the same sample under cover lost in the same time but 24 per cent. for gas purposes, and 12 per cent. for fuel. These experiments go far to explain the almost universal inferiority of the slack or waste coals in heating power when prepared for burning, even though some combustible material like pitch or tar is used in their cementation. It indicates too, the imperative necessity of keeping coals amply protected from the deteriorating action of the air and moisture by keeping them constantly dry and under cover.—*Journal Franklin Institute.*

Vitrified Marble.

A substance, known under this appellation has recently been brought out in England which promises to find its way into very large and varied use. The material itself results from the admixture, and melting together in a furnace, of equal parts of certain vitreous, and silicious substances in about equal proportions, to which are added at a suitable stage and in the requisite quantities, such coloring materials as will produce the desired effects, either as a plain body-color equally diffused throughout the mass, or in veins of one or more colors with or without ground. When in a semi-fluid state, while yet hot, small or large masses of this plastic matter are cut off and pressed into iron or steel moulds carefully formed to the desired shape. In this manner decorative objects of any size, shape, or appearance can be produced with the utmost facility and rapidity of execution.

The manner in which natural materials of all kinds can be imitatively reproduced is extraordinary; ordinary marbles, veined and other, porphyry and malachite, jade, lapis lazuli, etc., thus prepared closely resemble the genuine objects themselves, and have the advantage of being in forms that it could only be obtained out of the originals with great labor, waste, and cost. They can also be obtained and applied in bulk and solid masses, as for vases, paperweights, inkstands, table tops, etc., or in minuter portions, such as patenæ and tesseræ, or emorphous pièces for mosaic work in every variety, suitable for pavements, etc. For the latter purpose the vitrified paving possesses an important advantage over marble and encaustic tiles, in relation to the surface, which is rougher, and more safe and pleasant to tread upon, giving good foothold and equable wear, while lending itself to every pattern, regular or the reverse.

When to the above advantages are added the essential qualification of economy, whether from the point of view of first cost or of maintenance and repairs, it is thought that this material must eventually command a wide field of practical application and use, supply a great want, and establish for itself a high and permanent position among the appliances of building and construction.

Boiler Explosions.—It appears from carefully compiled data that a large share of accidents which occur from boiler explosions are due mainly to bad construction of the boilers. The facts presented in American experience are also confirmed by the records of explosions which have taken place in Great Britain. Thus, of 297 explosions which occurred within a given time in that country, 120 were due to malconstruction of the boilers, 88 to defective condition of the boilers, 44 to the failure of the seams or rivets at the bottom of externally-fired boilers, 38 to overheating of the plates, 5 to excessive pressure of steam caused by interference with the safety-valve, and 2 to causes not distinctly made out. For every blow-up due to the neglect of the attendant, there were six chargeable to the carelessness or ignorance of the boiler-maker or boiler-owner.

It is thus quite evident that the causes which lead to most of these disasters are neither accidental nor mysterious, but are of the simplest character and easily preventible by common knowledge and common care, and it is about time that measures should be taken to enforce such precautions as are necessary to secure the public from the dangers which now continually threaten them in this connection.

Coal Cutting Machinery.—There is now every prospect that the getting of coal by machinery will be more generally adopted in the British mines, than has hitherto been the case. At present it has only been adopted at a few places, but a new machine, patented by Messrs. Gillott & Copley, has recently been tested near Barnsley, in the presence of a number of mining engineers from various parts of the kingdom, and with the most satisfactory results. In 136 minutes a bank of coal, 58 yards long and four feet eight inches thick, was cut to a depth of three feet one inch. The quantity of coal so cut would be about 80 tons in the time stated. It brings down the coal in vast blocks, effecting a great saving by making little or no slack, as wedges and gunpowder make from 25 to 40 per cent. The owners of the Oaks Colliery are so satisfied with the machine that they have given orders for four of them.

Carburetted Air in the Iron Manufacture.—It is stated in the *Journal of the Franklin Institute*, that in certain smelting establishments in Europe, the experiment is being tried, and with success, of using air carburreted by its passage over petroleum, in the reduction of iron from its ores.

MINING SUMMARY.

THE following is mostly cond nsed from journals published in the interior, in proximity to the mines mentioned.

California.

ALPINE COUNTY.

Monitor *Miner*, May 25: THE ORE in Monitor No 3 west drift is looking well.

TARSHISH.—This mill started up again a few days since.

BUTTE COUNTY.

FORBESTOWN.— Oroville *Record*, June 1: The mines are paying well. Fowler & Howland will soon start their quartz mill.

CALAVERAS COUNTY.

GWIN MINE.—Calaveras *Chronicle*, June 1: Operations are progressing favorably· Rock is being taken from the 500-ft. level in the south shaft and from the 350-ft. level in the north shaft. The ore is the best yet uncovered. Only a portion of the stampe are running. The great central shaft being sunk has reached 50 ft.

GOON ROCK.—6 tons of rock from the Zacetara, at West Point were recently worked, yielding $420—an average of $70 per ton.

GOON YIELN.—The gravel claim of Brackett & Co., in Chili Gulch, continues to "pan out" handsomely. 15 men are employed and the yield approximatee $700 per week.

SAN BRUNO.—The work of taking out rock hae been re-commenced in the San Bruno mine, Mosquito Gulch. The last rock taken yielded $175 per ton.

PRUSSIAN HILL.—The mill being erected on this mine is nearly in readiness to start.

WEST POINT.—Bartolo mine—test rock, 3,800 lbs. yielded $139.

PETTICOAT.—Work has been resumed on the mine at Railroad Flat.

WOLVERINE.—A depth of 200 ft. has been reached, at which point the ledge shows wider and richer than any where nearer the surface.

ENORMOUS YIELN.—This week Mr. Schlnnd showed us a gold bar weighing $800, the product of 5 tons of rock from the mine of Herryhause &. Co. at Mosquito Gulch.

CAVEN.—The npper tunnel in the San Bruno mine at Mosquito Gulch has caved so badly that it will require several weeks' work to remove the *debris* and repair damages.

INDIAN CREEK MINE.—San Andreas *Citizen*, June 1: A run of 4 tons of rock was made last week and cleaned up $600.

LLOYN'S LEAD.—At the "clean up" on this claim 62 oz. were netted.

STICKLES MINE.—Down over 275 ft. At 260 ft. a level is heing run, the rock from which psys over $25 to the ton, mill process.

DOG TOWN.—The tunnel claim of Carley & Co., is in near 700 ft., and dirt has been struck which paid as high as $100 to the pan.

ANGELS QUARTZ.—Has reached 625 ft. At 500 ft. a level has been rnn, the ore from which is crushed in a 30-stamp-mill, paying over $20 to the ton.

INYO COUNTY.

KEARSAGE.—Inyo *Independent*, May 25: Within the next 2 or 3 weeks the Kearsage will resnme active operatioue.

NEVADA COUNTY.

THE SITUATION.—G. V. *Union*, June 2: The Idaho is flourishing. In the Eureka a cross cnt is being rnn from the fourth level, on a northerly course to strike the Mohile ledge.

The developments to westward in the Coe mine at the 350 ft. level continue very flattering.

Independence Co. is driving a tunnel into Independence Hill.

OMEGA.—Fuller, Pease & Co., cleaned up a splendid lot of fine gold a few days ago. Tully & Co. have commenced to clean the bed-rock.

MT. AUBURN CO.—Nevada *Transcript*, May 31: The Co. propose to pnt in 10 stamps to start with, and add 20 or 30 more as soon as necessary.

PLUMAS COUNTY.

PAYING BIG.—Quincy *National*, May 25: The Eureka Co. recently shipped $19,000, the result of 16 days' run; with 24 stamps.

SAN DIEGO COUNTY.

THE MINES.—S. D. *Bulletin*, May 25: Defrees' mill cleaned np last week $4,000 from a rnn on Owen's rock, 112 tons. The Stonewall mill is running day and night. Pierce & Reynolds' mill will start this week. The Swain boye are going to commence einking on the Good Hope claim, and we hear that work is to be resumed on the old Washington.

SIERRA COUNTY.

PORT WINE.—Downieville *Messenger*, May 25: The Slope Co. are working in excellent gravel.

The Union Co. are working gronnd that prospects well.

The Indian Queen Co. are taking out good pay grit, and making fair wages.

TUOLUMNE COUNTY.

GOPHER CLAIM.—Sonora *Independent*, June 1: The rock averages well, and the Co. have just erected several arastras.

Nevada.

EUREKA DISTRICT.

STRIKE.—Eureka *Sentinel*, May 30: An important development was made in the Eureka Con. yesterday, at the end of the Lawton tnunel. A splendid body of high grade ore, not previously known to exist, was cut.

HUNTER DIST.—The mines are very promising. Assays from the Petersburgh gave $1,140.16 silver.

The Home Ticket ledge ie from 25 to 40 ft. wide, the ore assaying about $47 per ton. The Emma is 12 ft. wide and the ore is supposed to be good. Monte Negro (Black Mountain) is a ledge 4 ft. wide, and the average assays range from $300 to $2,000.

PROSPECTINO.—Just now prospecting is lively among our people, and the hills are full of men.

WILL START UP.—The new eteam hoisting works of the Phenix Co. will start up the present week.

ELY DISTRICT.

BULLION.—Ely *Record*, May 26: During the past week, W F & Co, shipped hullion to the amount $122,661.08.

PIOCHE.—The Chicago Mill commenced rnnning on ore from this mine on the 12th of the present month, and up to the 22d inst., the snm of $23,819.32 had been shipped as the result. The 5th station drift is in 220 ft. from the shaft, with 80 feet more to drive to cut the vein.

CHIEF OF THE HILL is now running west drift ahead, which is in 20 ft. the air being good here. Abont 150 tons of fine ore is on the dump.

THE drift in the Spring Mountain tunnel from the station in winze is in 16 ft. Have jnst commenced running a drift west from the same station. Good ore ehows throughout the ledge in both drifts.

SETTING SUN.—Shaft down 45 ft. and still sinking with 2 shifts. The ledge shows well and is 4 ft wide.

CONDOR.—Assays on ore from the ledge in the lower shaft on Thursday last go as high as $613.21 and five assays of ore, taken from different parts of the ledge, show an average of $202.75.

AMELIA.—The ledge is 4 ft. in width, carrying mineral througout, the average assays from which during the past week have shown $105.66.

BOWERY.—Have resumed work on the old gronnd. Now drifting west 53 ft. from the surface. The north drift in the new ground is in 60 ft. from the bottom of the new shaft.

EXCELSIOR.—Stoping has heeu commenced. Assaye from the ledge in the winze eunk on bottom drift show $464.72. The winze will be sunk to 100 ft. and a new level then opened.

NEWTON BOOTH.—Intend sinking the shaft 400 ft. before drifting any more.

FREIBERG DIST.—The Co. owning the Morning Star have completed their emelting furnace, and have several parties engaged in burning charcoal. The main shaft is down 100 ft. at which point a cut was started across the ledge, which was run 25 ft. through ore all the way, before the hanging wall was struck. In this immense deposit of ore, there is a very rich streak about 6 ft. wide; and experienced miners estimate the average yield of the whole lead to be fully $100 per ton. The ore is argentiferons galena; but it is represented that milling ore has been struck in the bottom of the shaft.

STRIKE.—On Saturday last the workmen in the Newark mine cnt into a fine body of ore in the bottom of the winze being sunk on the lower level. The ore body shows in the ledge from 20 inches to two feet in width, and specimens exhibited to ue show plenty of chlorides slightly mixed with good galena.

HUMBOLDT.

BULLION.—Unionville *Silver State*, June 1: Amount shipped from the Arizona, since our last issne, was $7,270.

CENTRAL DISTRICT.—Humboldt *Register*, May 5: The mines are giving good yields of ore, ranging from $50 to $100 per ton, in value. The Marietta Co. have made a rich strike at 150 ft. from the surface. They have also a 4 ft. vein of splendid ore at the 35 ft. level.

REESE RIVER.

FREEHOLD.—Reese River *Reivelle*, May 25: McClusky and Brannan have a shaft down 80 ft. They struck the lead in the cross-cut yesterday.

SAYBROOK.—Running on the ledge at the 150 ft. east level and getting ore; ore also coming in from the 110-ft. level; about 12 tons on the dnmp.

SARATOGA.—Some of the very best of ore is steadily coming ont.

IOWA TUNNEL.—There is but little doubt that the old Hubbard ledge has been tapped by this tunnel, and the prospects for obtaining large quantities of good ore from the several ledges cut by the tunnel are very flattering.

LANE AND FULLER—PACIFIC CO.—Ore everywhere, in large quantities and of a high grade. Rock is again being ehipped to the Manhattan Mill for reduction. The ore house is nearly full and everything looks prosperous. The mine never looked better.

ESTHER.—This mine is shut down.

GIRARD.—Stripping the ledge at the west level and getting good ore.

GROVE TUNNEL.—Good ore coming from the end of the tunnel and from the east level of the main incline.

DOLLARHIDE INCLINE.—A prospecting drift, or cross-cut, is being run for the ledge.

WHITLATCH UNION—Everything looks gloriously encouraging.

YANKEE BLADE.—The mines all look well and are turning out considerable quantitiee of good ore.

VIRGINIA SHAFT.—Thos. O'Kane ie etill getting good ore from the 100-ft. level.

KLING & KELLEY.—Taking ont 2 tons daily of $300 ore.

ENSIGN.—Ensign & Co. are working the ledge throngh an incline 50 ft. deep, and getting good ore from both the east and west levels.

BELMONT—MONITOR.—The force has been increased to 15 men who are stoping out fine ore from the 140-ft. level below the tunnel south.

BELMONT CO.—The first screach of the whistle of their new hoisting works on the Canfield mine was given on Thnrsday. The machinery will be ready in a few days.

EL DORADO.—Workin 40 men—sinking and running level. The black metal ore in the bottom of the incline is increasing. The 240-ft. level is being extended south with fair prospects of cutting the rich south chimney at this depth. Considerable fine sulphuret ore is being taken out of of the lower north level.

WASHOE.

LOCAL SUMMARY.—Gold Hill *News*, June 1: SAVAGE.—They are stoping and raising on the ore body on the 1,300-ft, level, which is improving in qnality. They are also breasting out on the ore body in the winze on the 1,400-ft. level, finding as yet no limit to the extent.

SAPPHIRE.—An open cut on the surface near the middle of the location, has been run across the ledge 20 ft., and has not yet reached the west wall, and a tunnel has been driven in about 60 ft. below the croppings, exposing a ledge 47 ft. in width, from which ore has been taken that mills from $8 to $24 per ton.

BEECHER.—Daily yield 275 tons, from the 1,100 and 1,000 ft. levels. The main incline is down 380 ft., or 19 ft. below the 1,000-ft level. The drift west from the 1,100-ft. level, to intersect the bottom of the winze, has about 60 ft. further to go in order to reach the point of intersection. The new hoisting-works machinery will be completed and started up next week.

QUINN MINE.—A shaft is down 60 ft., which in sinking cut through ore assaying $80 per ton and drifting is commenced, expecting to strike the ledge at a distance of abont 30 ft.

WOONVILLE.—The shaft is 156 ft. deep, and sinking deeper is being continued. The mine is yielding 30 tons per day, which mills $32 per ton. The bullion is worth $6 per ounce, containing a large proportion of gold.

CROWN POINT.—Owing to trouble with the water tapped at the 1,300-ft. level, the ore yield hss fallen off to about 300 tons per day. The water drove the miners out of the 1,300 ft. or lowest level, and the pumps proved inadequate to reduce it.

IMPERIAL EMPIRE.—The drifts at the 1,650-ft. level toward the Imperial and the Empire mines respectively are each in about 75 ft., and the indications are snch that with each fresh blast the west wall of the ledge is expected to be penetrated.

MCMEANS.—The ledge in the south tunnel is looking better and better and more extensive as further developed, and assaye as high as $85 to the ton.

OVERMAN.—The pumps being in, sinking for a new level will he resumed in 3 or 4 days. The drift for the ledge at the 1000-ft level is in 166 ft., and the indications are very favorable for running into a body of of ore shortly.

SUTRO TUNNEL,—A little over 2,000 ft. in length, and penetrating farther west at a good rate.

JULIA.—Shaft 816 ft. deep and excellent progress being made. It is passing through an extensive ore body, some of which assays very well.

CHOLLAR-POTOSI. — Daily yield about 170 tons, of the average assay value of $40.20. All the ore sections are looking and yielding well.

BUCKEYE.—Daily yield 22 tons, of the assay value of $12 per ton. Tho new ore development in the south drift at the 100-ft. level is looking better than ever.

SILVER HILL.—Shaft enlarged and thoroughly retimbered to the depth of 110 ft.

GOULD & CURRY.—Both the north and south drifts on the 1500-ft. level are being driven ahead with dispatch. The incline is down sbont 50 ft., and progressing slowly.

KENTUCK.—The old workings still continne to pan out a few tons a day.

CONS. VIRGINIA.—The work of prospecting and developing at the 500 ft. level still vigorously going on.

HALE & NORCROSS.—The ore is not paying or promising quite as well.

CALEDONIA.—Shaft 696 ft. deep, and sinking deeper at a satisfactory rate. A drift for the ledge at the 400 ft. level has been started, and is being pnshed ahead fast.

JUSTICE.—Water reduced sufficiently to allow work being done in the 400 ft. level.

KNICKERBOCKER.—Shaft down 275 ft. and sinking at the rate of from 2 to 3 ft. daily. Hoisting works rapidly advancing towards completion.

ARIZONA AND UTAH.—Some very good milling ore is coming from the upper workinge adjoining the Globe, developed by the raise from the tnnnel.

BALTIMORE.—Shaft sinking at the rate of 2 ft. a day. Hoisting works building completed and the machinery willl be ready to start in a few days.

NEW YORK CONS.—Shaft sinking at the rate of 4 ft. a day, and showing coustant improvement in the ore indications as further depth ie attained.

COOK & GEYER.—Yielding about 40 tons per day. Plenty of ore in sight, and running 2 mills. It ie gold ore averaging $18 or $20 per ton.

GOLD HILL TUNNEL.—The new shaft is down 36 ft. in ore some of which assaye well. The work progresses eatiefactorily.

SIERRA NEVADA.—Daily yield about 50 tons, from the lower workings, keeping tho Co's. mill steadily running.

OCCIDENTAL.—Main shaft at the 600 ft. level being still driven north in tho ore vein at a satisfactory rate.

DANEY.—Shaft down 550 ft. Drifting at the 500 ft. level progressing well with good prospects.

JACOB LITTLE.—This mine, on Cedar Hill, is yielding some very good ore at present.

AFTER ORE.—Virginia *Enterprise:* Workmen are engaged at the old dumps of the Imperial, Bacon and Empire, at the upper end of Main st., Gold Hill, in cleaning up and saving the ore which in former times was wasted by falling from the cars and chutes.

WHITE PINE.

TREASURE HILL MINES.—MAMMOTH.—The ore croppings have been traced for over 500 ft. At present the whole force of men is at work in the open cut, breasting out in ore that assays from $25 to $150 to the ton in silver, and $5 to $10 in gold. The ore on the dump, when assorted, will amonnt to about 500 tons.

NORTH AUBORA.—The De Pass chamber, north of the Ridsdale chamber, promises from present appearances to be the most extensive body of ore ever found on Treasure Hill. The ore in the southeast chamber leading from Lady's chamber is improving. Connection is made with the winze of the Phillpott's chamber.

BEECHER CON. M. & M. Co.—There is a large amount of ore piled back in the Beecher, which will be hoisted eoon and shipped to mill. There is a marked improvement in the Anchor incline since last review.

GEN. LEE.—Running drift east on spar seam. Extracting ore and piling on the dump.

EAST SHEBOYGAN.—There is a large amount of ore on the dumps.

COPPER GLANCE.—The face of the drift has opened into ore of good qnality, with every appearance of being a large body.

SOUTH AURORA.—Running drift from big cut to strike the ore channel.

ICEBERG.—Logan and others leased the ground recently, and have made a strike of rich ore, which promises to hold out.

EBERHARDT.—Breasting ont west from the Keyestone shaft, and running out ore to No. 15 station. The ore in sight is of a high grade, but limited in quantity.

WARD BEECHER.—Working for an opening. Will commence breasting out and hoisting to the surface about the middle of next week.

NOONDAY.—Breasting out as usnal, with a force of 7 men. Width of ledge will average 6 ft. Assorting the dnmps, and will ship to mill next month.

OUTSIDE DISTS.—STIRLING.—A shaft is down, and a body of ore developed in the 50-ft. level, which assays $65 to $90 the ton. At 110 ft. down the ledge has widened and quality of ore much improved.

Arizona.

MINES AND MINING.—Prescott *Miner*, May 18:

The mincs of the Benjamin series look very promising.

BRANSHAW DISTRICT.—The new shaft on the discovery location of the Tiger, is sunk 50ft.; the vein in said shaft is exceedingly good.

The shaft on the Benton is down about 40 ft., at which depth there ie an immense pile of very rich ore.

Mr. Linn has just returned from visiting the Del Pasco mill and mine, of which he speaks very favorably.

From Wickenburg, the news] is that Bill Smith's workmen have "struck" water, near the Vulture mine,

The news from Wallapai, is in effect that every confidence was felt in mincs and furnaces.

Placer mincrs near Prescott are doing well.

Colorado.

SHIPMENTS.—Colorado *Miner*, May 23: Hall & Co. have crushed, sampled and sacked, since last report, 45,550 lbs. of ore.

Bailey & Nott have sent forward, during the week, 96,072 lbs. of ore.

Campbell & Clark have forwarded 8,141 lbs. of ore.

ITEMS.—The Bagley & West works at Golden approach completion. They will be in operation in about 3 weeks. Capacity, 10 tons per day.

The Judd & Co's. works, the amalgamating room is up, and the roof going on. Work is going forward at a rapid rate in every direction.

Work is going forward under high pressure at the Stewart mill. The Arey furnace building is up and inclosed. The frames for the pans and settlers are in place.

The Hiawatha tunnel is in 415 ft., with fair prospects of soon striking a vein of mineral. The Wagoner tunnel iein 330 ft., and is looking very encouraging.

PELICAN.—One of the tunnels, now nearly to the lode, will strike the vein of 100 ft. below the present depth. The other, 1,000 ft. in length, will cut the crevice 300 ft. lower etill.

THE SPRINGS.—Mr. Gray will have his assay furnace in full blast in a few days. He proposes, with the increase of business, to add crushing and sampling, and eventually, concentration worke.

To the Thackara mill is to be added a blast furnace for smelting ores.

The Whale mill has been sold to English parties, who propose to erect smelting works.

The Sheldon Jackson lode, Virginia cañon, is turning out big. Some 6 tons of ore were taken out in 2 or 3 days, which rune 100 ozs., silver, and from 40 to 50 per cent. of galena per ton.

Chicago Creek mines are promising better than ever.

MILLS.—Central *Herald*, May 21st: The Leavitt mine ie supplying ore for 80 stamps, ranking next to the Kansas lode in its yield of gold.

Several mills have receatly been pnt in operstion in Black Hawk. Wheeler & Sallivan are running their 25 stamp mill on the Kaasas ore. B. S. Bnell is runniug 40 stamps at the New York mill, and will soon have the remaining 15 at work. Norton's mill (23 stamps) is running on Kent Co. ore for Nichols, Fisher & Co. There is talk of the Hnrd mill being leased. The Black Hawk, Mellor & Borum, Polar Star, Lake, Sensenderfer, Smith & Parmelee and Kimber & Fullerten mills, pound away without ceasing.

In Nevada some half a dozen mills are runaing. Below East Nevada, Rue and Bates & Son have been running their aills for several weeks.

Idaho.

Local Recorn.—Owyhee *Avalanche*, May 25: Mahogany.—This mine is tnruing ont splendid ore, sufficient to keep the South Chsriot mill pounding swsy. Now sinkiag a winze south of the shaft and below the 5th level. The ore in the winze is first class. The ledge also continues good iu the 5th level beth north and south.

South Chariot.—The shaft is through to the 4th level. The timber and lining will be all into No 4 in in a day or two. It has also sunk 35 ft. helow No. 4, and will he timbered the coming week.

Minnesota.—The ore-house is full, and preparatiou is bcing made to let out on the ground so that more can be put in.

Empire.—The shaft and wiuze are being sunk fast, and grading has commenced on the surface for the hoisting works which are on the way up. They have a magnificent lookiug ledge in the winze.

New Discovery.—Last week Charley Brunzell discovered a qnartz ledge about 300 ft. helow Brunzell's Hetel at Booneville. The vein is well defined and one and a half ft. in width.

Placer Mining.—Placer mining is in full blast, with the prospect of a much larger yield of gold dust than for several years past.

Montana.

The Park Mines.—Helena *Herald*, May 25: 50 miaers can find immediate employment on the Park, at $4 per day.

Big Nugget.—Perry Thoroughman brought to the city yesterday a very fine gold nugget, weighing over 20 ozs., taken from his mine on Scratch Gravel Bar, near the Fair Grounds. Its valne in gold coin is a little over $400.

Utah.

Pioneer Mill.—S. L. *Tribune*, May 27: The mill and furnace sre running steadily—conveyors working splendidly.

Bullion City.—Hesse & Hawley are working the Grest Western with good prospects, their tunnel heing in some 50 ft. Acerd snd McLauren are engaged on the Springtown and are ohtaiuing heautiful ore, heing in about 30 ft., and hsving gone 20 ft. throngh vein matter. Hamilton and Acord are working the Belcher mine close to Springtown, taking out good ore.

Camp Floyd.—Cor. same: Work on the Sparrow Hawk is steadily progressing, with a force of over 100 men, taking out excellent ore. On the Silver Circle I find ahout 25 men st work, who are daily increasing the large dumps of rich ore. The Hidden Hand, west of the Eclipse, and the Identical and Western World, opposite the Silver Circle, are coming out finely, snd are being developed hy their owners, who are practical miners. The clsims on Colorado Gulch, among them the Washington, Enterprise, Gen. Lowe and Rattlesnske, sre undergoing therongh devclopment with full force.

Ophir.—Cor. same: The Rambler on the north side of Ophir Hill shows a splendid body of carhonate, oxide, and sulphuret of lead ore, about 8 ft. wide.

Black Jack Canon.—Cor. ssme: A tunnel is in 60 ft., that will tap the ledge—when completed—at the depth of 170 ft. Three shifts working.

At the Idaho a new tunnel is in 50 ft. that will tsp the ledge at the depth ef 170 ft. Two shifts working.

Prominent among the many goed locstions that are heing worked, are the Ellsworth, Beehee, Alhamhra, Pride of the West, Judge McKesu, Old Photegrapher, and Alphs.

In the Lncky Boy they have tspped the discovery shaft at the depth of 71 ft., and are taking out chloride in ahnndsnce.

Mining Discoveries.—A rich gold discovery has receutly been made in Skookum Gulch, Deep Creek, ahout 12 milcs from Diamond City, Montana. The Helena *Herald* says it is reported that $2.50 to the pan has been ohtained hy prospectors.

A large ledge, assays from which average 30 per cent copper and from $40 to $140 in silver has heen fonnd in the mountains to the eastward of Home Mountaiu hy Jos. Organ and J. C. Kiukead. So says the Unionville *Silver State*.

Rust—Wheat in spots begin to show rust, but we hear of none that is yet thought to be seriously affected. There ia time enough however, for it to extend and work a good deal of injury, though we hope to escape any such disaster, saya the Contra Costa *Gazette*.

[Continued from page 353].

a lathe, the leather shonld be placed in a split chuck, and carefully trimmed, finally coated with tallow and French chalk, as previonsly stated.

For making cap leather, the form of die should he nsed as shown in fig. 2. The plunger die *C*, should be forced from the centre as before, by a pressure applied to the top. The centre piece, *A*, is reqnisite for facilitating the romoval of the leather from the die, *B*. It is necessary to make the dio, *C*, with a bell, guide *C*, to keep a perfeot central position with *B*. When the leather has set, the die, *C*, is to be removed, and the leathera to be pared off level. It should of course, when practicable, be finished in a lathe, and always fiaished by dressing with French chalk and tallow as above.

In constructing hat leathers, the arrangement of dies necessary, is shown in fig. 3. The outer-die with its central piece, will be easily understood from the description of the other figures. The leather is in this case laid with the grain upwards, while in the other case it is downwards. In order to form a flat brim to the leathor, the holding down cap, *D*, is provided with a screw as shown iu the die, *B*. It must not hold the leather too tight, otherwise the ram, *C*, will burst the centre of the dise. The upper part of *I*, should form the guide of the rams, *C*. After the leather is set, it should be dressed around the edge; the crown should he cut out *FF*, as at the lines. Both these trimmings are however done in the lathe with better satisfaction, and cannot fail in their requirements. Let it be understood that no sticky material is to be nsed until ready for use, otherwise they will collect dnst, which is above all to be avoided.

Having constructed our leather or packing, next is the insertion. Usually the leather is forced through a smaller die than its own, into a recess suited for nothing so well as its own speedy destruction. The corner of the recess being square, the pressure is admitted and the leather forced into that shape. The result is that instead of wearing evenly and equally it soon cuts through at the sharp corners produced. This is wrong. The proper way to insert a leather is by a ring, following close up on the top of the leather, and constructed to the formation of the leather as shown in Fig. 4. Here it will be seen that the leather is not passed through any diameter less than its own. At *Y* is inserted a close fitting ring of metal, shaped to receive the formation of the leather, being its bed. Thus the leather will preserve its proper shape. No sharp corner is produced, and therefore the leathers wear gradual and evenly, in place of splitting or tearing.

So far I have spoken of joints suitable for pressures, as pumps, presses and accumulators. In each of these cases, a sliding motion through the joints, in pipes, etc., where there is no such motiou to be provided for. These joints are usually made by screwing up discs of leather or lead between the glands or flanges. The surfaces should have slight grooves turned in them; small lengths of copper or brass tubes can be inserted where the joints are likely to be forced into the pipe. In all cases when long lengths of pipes are used, expansive joints should be employed. These joints should be constructed on the French plan, with flanges held together by bolts, etc. Between the flanges thick rubber ahould be placed to allow of expanaion and contraction of the pipes.

These joints should be made water tight by a cup leather (on the apigot and filled inside the faucet) after this construction as shown in Fig. 5. The ring of metal *Y* may, when numbera of them have to be made, be produced by a pair of tools in a press, a aoft metal being aufficient for the purpose. *R R* are rubber washera, and *S* a loose flange. It will be seen that the rubber between the spigot and faucet allow for any compreasion on the joints, while the other ruhbers allow any stretching action. These joints are easily made, as they are simple lathe work, and where any quantity is required, they can be very rapidly bored and turned with special tools. No trouble will occur with a series of joints properly relieved in thia manuer. I have here indioated, in detail, a correct method of constructing hydraulio joints. Nothing here specified is at all superfluous if a good job ia to be made.

The May receipts from the Raymond & Ely mine amounted to $10,836 per day.

San Francisco Stock and Exchange Board.

Thursday, June 6.

The sales at the Stock Board for the week ending 29th ult., amounted to $3,142,600. The sum of $120,000 was received from the Meadow Valley mine for the month of May. The Eureka Consolidated Company crushed 1,200 tons of ore last month, and have 830 tons ready for the mills. The Pioche mine turned out 100 tons of ore averaging $224 per ton. The bullion shipment on the 31st ult. was $11,-062. The Crown Point mine turned out, last week, 2,200 tons of ore, valued at $75,000; the Chollar Potosi, 1,000 tons, assaying $39.20; the Buckeye mine, 155 tons, assaying from $22 to $204 per ton; the Savage, 1,300 tons, assaying $27.91; and the Hale & Norcross 400 tons, with 1,900 tons on the dnmp. The Kentuck crushed 1,300 tons of ore averaging $23 per ton. The dividend of the Raymoud & Ely mine for June—$7 per share—aggregates $210,-000. The Belcher dividend for this month, of $30, amounts to $312,000. The Crown Point dividend of $3, aggregstes $300,000. This reduction is due to the interruption of work in the mines hy water.

Stocks have heen rather depressed this week. On Friday the demand was very quiet, and prices were low. On Saturday they were again heavy and sll descriptions were lower. Monday prices were lower than they have been for some time, snd business at the Board was very light. Tucsday there was a still farther decline, and evidently tonched hottom, for that afternoon and Wednesday there was considerahle advance snd more business. To-day the market was still better and most everything showed au advance.

Comparative Prices—Extremes, Advance and Decline.—S. F. Stock and Ex. Board.

	May 30.	*Highest.*	*Lowest.*	June 6.	*Adv.*	*Dc.*
Alpha	$ 75	68	30	53	—	2
American Flag	16¾	16¾	14¾	20	3¼	—
Belcher	900	900	650	850	—	50
Buckeye	5	6	3	4½	—	½
Chollar-Potosi	100	100	75	102½	2½	—
Caledonia	55	55	29	45	—	10
Cons. Virginia	24½	23	13	22½	—	2
Crown Point	—	125	104	131	—	—
Daney	3½	3¾	2	3¼	—	¼
Eureka Cons	29¾	29¾	28	29	—	⅜
Eureka	—	—	—	—	—	—
Exchequer	23	26	14	24	1	—
Gould & Curry	240	230	125	170	—	60
Golden Chariot	11	11	10	—	—	—
Hale & Norcrose	96	96	50	74	—	22
Ida Elmore	—	18	15	18½	—	—
Imperial	220	220	150	—	—	—
Kentuck	330	330	160	270	—	70
Mammoth	1½	1¼	1¾	1¼	—	—
Meadow Valley	15½	14¾	15	16	½	—
Mahogany	26	26	17	21	—	5
Ophir	39	39	21	37	—	2
Orig. Hid. Treas.	14	14	10½	12	—	2
Overman	80	80	50	72	—	8
Pioche	15½	15½	14¼	14¼	—	1¼
Raymond & Ely	132½	132½	114	122	—	9½
Savage	225	225	150	170	—	55
Sierra Nevada	21	21	14	19	—	2
Succor	5¼	5¼	2½	5	—	⅛
Wash. & Creole	5½	5½	4¼	4¼	—	1¼
Yellow Jacket	135	135	95	125	—	10
Justice	16	16	10	—	—	—
Seg. Belcher	82¼	82½	59	75	—	7½

Latest Prices—Bid and Aeked.

	Bid.	Asked.		Bid.	Asked.
Alpha Cons	52	58	Ida Elmore	18	18½
Amador	—	—	Imperial	7⅞	8
Belcher	880	900	Kentuck	268	270
Chollar-Potosi	102½	105	Meadow Valley	15½	16
Crown Point	128	130	Ophir	36½	37
Daney	3	3⅛	Orig. Hid. Treas	11½	12
Eureka Cons	28½	29	Overman	70	71
Eureka	14	16	Savage	165½	169
Golden Chariot	—	—	Raymond & Ely	109	120
Gould & Curry	172½	175	Sierra Nevada	18	19
Hale & Norcross	74	75	Yellow Jacket	121	122

Leather Market Report.

[Corrected weekly by Dolliver & Bro., No. 109 Post st.]

San Francisco, Thuredny, June 6, 1872.

Sole Leather—The demand is good, with an advance in Eastern market, which will probably soon be felt here.

City Tanned Leather, ₱ lb	26@28
Santa Cruz Leather, ₱ lb	26@28
Country Leather, ₱ lb	25@28
Stockton Leather, ₱ lb	26@28

French skins are firmer with an advance in some grades. Heavy California skins are firm, with an upward tendency.

Jodot, 8 Kil., per doz	$60 00@
Jodet, 11 to 19 Kil., per doz	72 00@ 90 00
Jodot, second choice, 11 to 15 Kil. ₱ doz	60 00@ 76 00
Lemoine, 16 to 18 Kil., ₱ doz	75 00@ 77 50
Marin, 12 and 13 Kil., per doz	68 00@ 70 00
Cornellian, 16 Kil., per doz	70 00@
Cornellian, 12 to 14 Kil., per doz	60 00@ 68 00
Ogerau Calf, ₱ doz	54 00@
Simon, 18 Kil., ₱ doz	65 00
Simon, 20 Kil., ₱ doz	68 00
Simon, 24 Kil., ₱ doz	72 00
Robert Calf, 7 and 8 Kil	35 00@ 40 00
French Kips, ₱ lb	1 10@ 1 30
California Kip, ₱ doz	60 00 to 80 00
French Sheep, all colors, ₱ doz	15 00
Eastern Calf for Backs, ₱ lb	1 15@ 1 25
Sheep Roans for Topping, all colors, ₱ doz	9 00@ 13 00
Sheep Roans for Linings, ₱ doz	5 50@ 10 50
California Russett Sheep Linings	1 75@ 5 50
Beet Jodot Calf Boot Legs, ₱ pair	5 25
Good French Calf Boot Legs, ₱ pair	4 50@ 5 00
French Calf Boot Legs, ₱ pair	4 00
Harness Leather, ₱ lb	30@ 37½
Fair Bridle Leather, ₱ doz	48 00@ 72 00
Skirting Leather, ₱ lb	34@ 37½
Welt Leather, ₱ doz	30 00@ 50 00
Buff Leather, ₱ foot	18@ 21
Wax Side Leather, ₱ foot	20@ 22

California Cauliflowers. — Four cases of cauliflowers, through in seven days from the stalks, were recently received in New York from Sacramento, California. The cases were packed each with eight dozen head, wrapped in paper, and the freight alone of the consignment amounted to $68. This is the first lot of California cauliflowars received in eastern cities, and was sent as a sample to ascertain whether purchasers could be obtained and a market established for these and similar early vegetables.

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the Scientific Press and other San Francisco journals.]

ASSESSMENTS.

Name, Location, Amount and Date of Assessment.	Delinquent.	Day of Sale.
Alleghany Consolidated, Cal. Ap. 20, 25c.	June 3	June 24*
Balto. M. Co., Storey Co., Nev., Ap'l 30, $1.	June 6	June 28
Cascade Blue G. M. Co. Cal. May 15, 20c.	June 18	July 9
Crown Point R. S. M. Co., May 3, $5	June 20	July 20
Eagle Quicksilver, May 8, $40	July 11	July 16*
El Dorado M. Co., Cal., May 13, 25c	June 16	July 10
Gen. Lee S. M. Co., W. Pine, Ap'l 27, 10c.	June 11	July 2
Golden Chariot, Idaho T., April 13, $1.50.	May 22	June 18
Hid. Treas. M. Co., W. P., May 11, 10c.	June 17	July 8
Hid. Treas. Cons. M. Co., W. P., May 11, 10c.	June 17	July 8
Huhn & Huut, Ely Dist., May 29, 50 cts.	July 5	July 26
Ida Elmore M. Co., Idaho, May 24, $3.	June 29	July 27
Imperiatrice Eugenie, Cal., April 26, 25c.	June 2	June 17
Independent G. M. Co., Cal., May 16, 50c.	June 2	June 12
Ingomar, Ely Dist., June 5, 25c	July 15	August 9
Julia G. & S. M. Co., Nev., April 22, $5.	May 25	June 15
Justice M. Co. Storey Co. Nev., $1	June 24	July 15
Kincaid Flat, Cal., April 23, $3	May 27	June 17*
Knickerbocker, Nev., May 30, $1	July 3	July 23
Lemon M. and M. Co., Eureka, Apr 1, $1.	May 7	June 12
Lord Byron G. & S. M. Co., Nev., Apr. 29, 25c.	June 3	June 22
Louise M. Co., Nevada, April 0, 10c	May 14	June 10
Lemon M. & M. Co, Nev., May 29, $1	July 6	Aug. 10
Lyons & Wheeler Co., A. T., April 6, 10c.	May 15	June 3*
Lyon & Wheeler Arizona, May 18, 10c	June 24	July 15*
Magnolia S. M. Co., Nev., April 22, 25c.	May 25	June 20
Mina Rica M. Co., May 8, 20c	June 10	July 1*
Minn. G. & S. M. Co., I. T., May 12, $1.50.	June 22	July 20
Ohio Cons. M. Co., Cal., May 21, 10c	June 20	July 20
Ophir S. M. Co., Nev., April 17, $5	May 22	June 13
Pacific Borax Co., Nevada, May 4, 20c.	June 6	June 29
Page & Panaca, Nev., April 12, 50c.	May 20	June 15
Pea Vine S. M. Co., Ely Dist., May 14, 20c.	June 20	July 12
Piermont M. & M. Co., April 16, 40c.	May 20	June 19*
Pride of Mt. M. Co. Nev., May 7, 25c.	June 17	July 10
Rising Star S. M. Co, Idaho, Ap'l 27, $1.	June 1	June 29
Roxby, Gold Hill, June 3, 50c	July 6	July 27
S. F. M. Co., Utah Ter., April 13, 25c.	May 16	June 8*
Silver Sprout M. Co., Cal., April 29, 50c.	June 1	June 22*
Silver Wave, W. P, Nev. Apr. 10, 50c.	May 14	June 13*
Spring Mt. Tunnel Co., April 11, 15c.	May 20	June 10*
Sumner, Kern Co., April 11, $10.	May 22	June 21
Tecumseh M. Co., Cal., April 24, $5.	May 29	June 17*
Unton O. M. Co., Cal., May 20, $2.50.	June 22	July 9*
Washington M. Co., May 8, $3	June 11	June 29*
Wash. & Creole M. Co., Nev., May 13, 74c.	June 20	July 17
Woodland M. Co., Cal., May 21, 12½c.	June 25	July 16*

MEETINGS TO BE HELD.

Alaska Consolidated M. Co	Annual Meeting, June 8
Adriatic O. & S. M. Co	Special Meeting, June 8
Alpha Consolidated M. Co	Annual Meeting, June 17
Altona No. 1 Gravel M. Co	Annual Meeting, July 5
Belcher M. Co	Special Meetiug, June 25
Chapman M. and M. Co	Special Meeting, June 13
Del Rey S. M. Co	Special Meeting, June 10
Empire M. & M. Co	Special Meeting, June 8
Empire M. & M. Co	Special Meeting, June 10
Empire M. Co	Special Meeting, June 17
Hidden Treasure Consolidated	Annual Meeting, June 17
Independent G. M. Co	Annual Meeting, June 14
Independent Coal M. Co	Annual Meeting, June 17
Julia M. Co	Special Meeting, June 17
Kentuck M. Co	Special Meeting, June 10
Pocahontas O. M. Co	Special Meeting, June 18
Providence G. & S. M. Co	Annual Meeting, June 20
Schell Creek M. Co	Annual Meeting, June 11
Silver Sprout M. Co	Special Meeting, June 3*
Tecumseh O. S. and C. C.	Special Meeting, June 12*
William Penu Cons. M. Co	Special Meeting, June 15
Yankee Boy M. Co	Annual Meeting, June 6
Woodlaud O. M. Co	Annual Meeting, July 17

LATEST DIVIDENDS—(Within Three Months).

Belcher M. Co., $30	Payable May 10
Belcher, $30	Payable June 10
Blake Diamond Coal Co., ½ per cent	Payable May 29
Crown Point O. & S. M. Co., $3	Payable June 12
Eastport, Coose Bay, Coal M. Co., $6.00	Payable May 13
Eureka Gold M. Co., $1	Payable March 11
Keystone M. Co., $7.50	Payable April 10.
Meadow Valley M. Co., $1.00	Payable May 15
North Star G. M. Co., $7	Payable April 9
Raymond & Ely M. Co., $7	Payable June 10

—*Advertised in this journal.

Favorable Weather.

The last three weeks have beeu most favorable for the grain crops of the State. But one day, of north wind has been experienced in that time and the weather has heeu uninterruptedly cool and favorable. The result will be that millions of bushels of grain will he gathered in the State more than would have heen with a continuance of the weather we experienced during the previeus period of three weeks. The rsin of lsst week, while it did but very little dsmage to the hay that had been cut, for the resson that it was followed with a day or two of cloudy weather, will prove of immense valne to the grain crops, and if we are favored with a continuance of like favorable weather for a week or two longer the wheat and harley crep of 1872 will be the largest and best ever harvested in the State and will place our farmers in easy circumstances generslly.

Increasing.—Travel to the Yosemite is steadily on the increase, and the probability ia that, with the improved traveling facilities afforded thia year over any previons one, more people will visitthis famous reaort thia season than at any time since it became a place of publio resort. The Merced river is higher at present than has ever been known at this season of the year, and those who wish to see the falla in their greatest grandeur should not defer their visit much longer, as when the river becomea low the valley is less attractive. *People.*

Ice Machines.—Messrs. G. & J., of Hot Creek, Nevada, are informed that there are no ice-making machines in use, made or sold in San Francisco; nor do we know of any we can recommend. Ice-making, like sugar from heets, requires extensive and costly machinery to manufacture the article profitably.

The Eberhardt and Aurora.

It is unfortunate that such a difference of opinion should have arisen in the management of this mine, as has existed for the past few months. The retirement of Mr. Ridsdale from the position of Chairman of the Board of Directors, was no doubt, a serious misfortune—as is freely admitted on all sides—and it is, perhaps, equally unfortunate that such a persistent controversy, should be kept up, as has existed since that gentlemans' retirement. While we have no disposition to take any part in this unhappy difference, we have thought it might be interesting and instructive to many of our readers to peruse the following letter from Mr. Ridsdale, written for private circulation among the stockholders, but, which has found its way into the columns of the London *Mining World*. In his preliminary remarks, Mr. R. observes:—

"When I left your board, the proportion of silver extracted at your mills from the crushed ore, or pulp, was only 65 per cent. of the assay value of that pulp, the percentage having gradually fallen from 85 per cent, (which was obtained under Mr. George Atwood's management), to that low and disastrous figure; and as the extraction of the bullion is of far more importance than the mere indication of its existence by the pulp assays, because if it is not got out you get no dividend, I purpose to examine the process pursued at your International Mill in detail; then to examine that pursued at the Stanford Mill, compare the two, and make sundry suggestions therefrom for the better extraction of your bullion for the future. I will begin with the ore after it has been crushed in the battery, and passed through the sieves when it is termed pulp."

Process at International Mill.

About 2,300 lbs. of pulp, with water enough added to keep it in a tolerably thick condition, is charged into each pan; one per cent. of salt, or about 25 lbs., is then added, with two ounces of sulphuric acid and from one-half to one pound weight of sulphate of copper. (The temperature of the pulp should be about 160 deg. Fah.; this is maintained by the introduction of steam into the false bottoms underneath the pans). The mullers are kept down and the pans grind for three hours; at the end of this time about 150 to 200 lbs. of mercury are added; grinding goes on then for three hours longer; the mullers are then raised and about 2 lbs. of carbonate of soda, for "cleaning" the mercury, added; amalgamation goes on for two hours; the contents of the pans are then run off into the settlers, and left to settle for about three-quarters of an hour; the settlers are then filled with water, and let cool down, before running off, when at the proper temperature, the plugs are pulled and run off, a stream of cold water being introduced all the time. The pans run eight hours; settlers four. The pans run at about sixty revolutions a minute; settlers at ten. The tailings after leaving settlers pass into agitators and from thence to the reservoirs. About 60 per cent. of the ore treated contains its silver in the state of chloride, the remaining silver existing in state of sulphide, or in combination with base metal ores; the gangue being quartz, largely mixed with carbonate lime.

The reasons given for the addition of these chemicals are as follows: Oxyde manganese being present in the ore, the addition of sulphuric acid acting on it and the salt introduced, evolves free chlorine, which helps to chloridize the base metals present. Sulphate of iron is also produced by the solution in this acid of the iron from the shoes and dies of the pan, and also by that coming from the wearing of the shoes and dies of the battery, whilst crushing the ore. The sulphate of iron thus produced with the sulphate of copper added, forms "magistral." The action of the salt on this "magistral," as in the Mexican "patio" process, producing the chlorides of both copper and iron which further chloridizes the silver existing with the base metals. This chloride of silver, together with that previously existing, is reduced to the metallic state by the iron of the pan, and then amalgamates with the mercury. The carbonate of soda added merely cleans the mercury.

Now it is very doubtful whether, even if these reasons are sound, this process is the best that could be desired for the treatment of our ores; for it is clear, that on the addition of sulphuric acid, by far the greater part must be converted at once into sulphate of lime, from the presence of large quantities of carbonate of lime in the ore, and the sulphate of copper would be at once reduced by the iron of the pans; the liberated copper thus formiug an amalgam with the mercury, and finally passing into the bullion.

In the "patio" process considerable time is allowed for the action of the sulphate of copper and salt on each other, so as effectually to chloridize the sulphide of silver and other base silver ores before the addition of any mercury, and there is no substance present before the addition of mercury which can act as a reducing agent and liberate the copper. This chemical, therefore, has a fair chance for operating, which it cannot have in the pan process. The addition of carbonate of soda to "clean" the mercury, so far as experience of its use in gold miling and amalgamating has afforded, is of very doubtful advantage at all. Cyanide of potassium is the best chemical for sharpeuing the affinity of the mercury for amalgamation, where sodium-amalgam is not used; and nothing is more important in miling than that the mercury should be clean and lively.

Many practical mill men cousider that if efficient pans be driven at good speed, the pulp being properly heated by steam, the action of the iron of the pan, in the presence of the salt, with clean, lively mercury, through circulation of the pulp being ensured, will compete successfully with any one of the chemical receipts. It is alleged that the heat and friction, in presence of the iron of the pans, salt, and mercury, give rise to an electro-galvanic action, which has a good deal to do with the decomposition of silver minerals. If so, by fixing strips of zinc on the wooden sides of the pans, a galvanic battery would be formed, which would much increase this action; whether this is the case or not, it would cost but little to try it. It is probably on account of this action that many metallurgists consider zinc-amalgam to be very superior to mercury in its amalgamating powers.

The Stanford Mill Process

Is far more efficacious than the one followed at the International Mill (the pans are smaller). Charge, 1,600 to 1,800 lbs. of pulp, half per cent. of salt, and about a quarter pound of cyanide potassium to the ton. Grind for 4½ hours, then add to each pan 200 lbs. mercury, grind for 1½ hours longer; raise mullers and amalmagate two hours. About one hour before running off pan into settler, add some perfectly clean lively mercury, so as to collect together the "floured" mercury. Whilst running off settler, a stream of cold water is allowed to flow into it. The coarse sand, etc., is shovelled out of the settlers and worked over in pans every 48 hours. Now the advantages of this process are, that the cyanide of potassium entirely does away with the use of acid, sulphate of copper, and carbonate of soda, whilst the mercury is kept in much better condition, and the out-turn of silver is larger.

In August last, the Stanford Mill crushed our ore, guaranteed us 85 per cent. of the assay value of the pulp, charged 15 dollars for milling, and made a handsomne profit; our sheets, so far as they are reliable (for the figures never agree), showed only 65 per cent. of the assay value of the ore as having been realized in bullion, at the time I left the Board. With rich ore, defects of management are not so vital in affecting the interests of a company as when you have to treat ore of a low grade. Then defective management frequently leads to irretrievable ruin. On a comparison made between the two mills when running on the same quality of ore, assaying 38 dollars to the ton, the tailings at the International mill averaged 13 dollars per ton, whilst the tailings at the Stanford mill ranged between seven and eight.

Importance of Careful Mining.

Now every dollar per ton that goes away with the tailings of our mill represents a loss on the yearly amount of ore crushed of 2*l.* per cent. on the whole capital of the company, and therefore is so much lost for distribution as dividend. That is the way to look at it. One dollar per ton on 80 tons crushed per day for 330 days, supposing the mill to run so long, taking our capital as 265,000*l.*, is 5,300*l.* Supposing this difference to persist throughout the whole year, that I have shown to exist between the silver lost in the tailings of our mill, and that of the Stanford, when running on the same grade of ore, that difference of 5 dollars between eight and thirteen, represents a differential loss of over 26,000*l.* per annum, or ten per cent. on the whole capital of the company, that would otherwise be available for dividend! a rather heavy price to pay per annum for want of adequate scientific supervision in our mill.

Are shareholders content that this is to go on? It is little use paring down wages or economizing trumpery petty expenses, such as those reported at the last meetiug to have been effected, when from want of proper scientific supervision, your property is subject to such gigantic drains as I have indicated. Your manager goes on month after month running your Oasis Mill upon "tailings." (*Vide* last report for January.) It costs at least five dollars a ton to work tailings at all, and you ought never to have tailings that pay you to re-work; you would not have were your amalgamation properly conducted.

The late Board of Management, at my instance, sent out a competent metallurgist to supply the place of Mr. George Atwood (who possessed the requisite metallurgical skill, but whose services are now unfortunately lost to us), Mr. R. J. Frecheville, of the Royal School of Mines. It is to this gentleman that I am indebted for the only accurate and reliable scientific information respecting our property that has yet reached this side of the water. Mr. Phillpotts has hitherto declined to avail himself of his services, not having been previously consulted in the appointment.

In Further Discussing the Subject of Milling,

I wish to observe that there is reason to believe that enough attention is not paid to keeping the mercury in a clean active condition, and the heavy sand that accumulates in the settlers and agitators does not appear to be shovelled out regularly and worked over in pans, as at the Stanford. This is professed to be attended to at our mill, but I have reason to believe that it is not done regularly; indeed, some of our pans have been known to be running for a long time without grinding, and this was only found out at last by accident; nor is it clear that any attempts are made to save the large quantities of mercury that escape from the mill, ranging from ¾ to 1 lb. per ton. The average charge of our pans is 2,300 lbs.; time of treating, 8 hours; thus 3 charges are worked per day per pan.

Now, looking at the high assay value of the tailings, as before shown, it is a question whether the pans are not overloaded, and if a lesser quantity, say 1,800 lbs. per pan were used for 6 hours, four times a day, probably better results would be obtained than from the larger charges run 8 hours 3 times per day. There is, however, in the International Mill scarcely pan power sufficient for the large number of stamps. The excellent practice pursued at the Stanford Mill, of adding clean lively mercury to the pans just before running off, is not followed at the International. There is another point connected with the question of

The Enormous Loss of Mercury

At our mill, to which I desire to direct attention. The amalgam, after being cleaned and strained, is retorted; the mercury which distils off is led through a pipe, kept cold by water circulating round it, into a receiver containiug water, and thus condensed to the metallic state, so as to be again available for use at the mill. The crude bullion produced generally amounts to one-fifth or one-sixth of the amalgam operated upon; this crude bullion is then taken to the assay office and melted into bars. Of course as it always unavoidably contains more or less quicksilver and foreign matters, there is necessarily a discrepancy between the weight of the crude bullion and the weight of the bars produced from it; but the discrepancy at our mill is far larger than it should be, and this is owing to imperfect retorting.

In one of the largest miuing companies on the Comstock lode, I find that this loss averaged only 1 68-100 per cent. for the year; our loss is frequently 10 per cent., and it has in an extreme case even reached 26 per cent. Now, the great bulk of this loss is mercury, and mercury costs 90 cents per pound. The whole figures in detail are before me. If the retorted silver was melted in pots with alembic heads, a great part of this loss in mercury might be avoided. There are a number of other minor metallurgical details that require careful attentiou in this department.

The mines belonging to this company, particularly the North Aurora, appear to have fully borne out all that the experts (employed at the time of the sale of these mines,) reported of them. The largest and richest deposits of ore, run close up to the north line of the South Aurora, which claim is on that portion of the vein lying between the Eberhardt and North Aurora mines.

Whatever may have been the fault in the Eberhardt Co's management, indeed if any, it contrasts very favorably when compared with that of the South Aurora. Where they have wasted vast sums of money in useless out-door work, and neglected to develop and follow their rich ore deposits, thereby bringing discredit on the district.

By refereuce to the files of the *White Pine News*, also to our summary of last week, it will be seen that the developments all the way on the line of the "Treasure Hill Vein," from the Hidden Treasure to the Eberhardt, are of the most encouraging and satisfactory character.

The Emerald Mines of Muzo.

The mountains of Muzo, New Grenada, says the *Jour. Soc. Arts*, like those of the whole central Cordillera of the Andes, belong to the lower formation of chalk. In the mines now worked, the emeralds occur in two distinct layers,—the first, or upper one composed of a bitumen which is black and friable; the second, lower down, also of calcareous bitumen, but hard and compact. These two layers are generally separated from each other from 17 to 22 yards. In the upper layer, the emerald occurs in nests, in the lower, in what approaches nearer to veins. Nests of emeralds are seldom found in the latter, but the gem is more easily extracted. The presence of well crystallized fluorspar denotes proximity to the emerald, and the occurrence of rock crystal or parisite is also a good sign.

The mine of Muzo is worked both by galleries and in the open air, the latter method, although more expensive, being preferable on account of the greater ease of finding the emeralds. All the gems now extracted are sent to Paris to be cut. The annual production is not made public.

There are indications that the mountains of Muzo are rich in emeralds, and it is thought that the stores of this precious stone have hardly been touched. But in 1864, the Columbia Government in return for an annual payment of $14,700, granted to a French company a lease of the mines at Muzo for ten years, together with a monopoly of all emeralds in Columbia, binding itself to prohibit the working of any other mines in the Union. This lease, which expires in 1874, will probably not be renewed.

Evidently the mines of Muzo were known long before the discovery of America. The Spaniards in 1553 found the Indians in possession of a large quantity of the stones. After the arrival of the Spaniards the mines were extensively worked, but, for some unknown reason, were abandoned about the middle of the 18th century. After the War of Indepeudence, the Republic took possession of the mines and let them out to individuals and to companies.

Increasing the Vigor of Growth in Plants.

A very important announcement has lately been made in France as to the effect produced upon the luxuriance of vegetation by the disturbance of the natural position of the branches. It has been known for some time that if two branches of a fruit-tree be selected of about the same size, and the same upward inclination to the horizontal plane, and one of these be bent downward toward this plane, it appears to lose its vigor, while the other gains in a like ratio. It is now announced as the discovery of an ignorant peasant on the Dauuhe, named Hooibreuk, that this law holds good only up to the horizontal position; and that if the branch is depressed still further, and below the horizontal, it becomes characterized by much greater vigor than before, and, in fact, will put out leaves and branches to an astonishiug and unheard-of degree. But this depends upon keeping the branches as nearly as possible in a straight line, the effect being measurably lost with a considerable curvature. In this case, only the buds which occupy the top of the arc are developed completely, at the expense of the rest, which remain in their original condition, contributing neither to the extension of foliage nor of fruit.

Duchesne Toureace, in communicating these facts to *Les Mondes* attempts to show the causes which seem to determine so great a flow of sap to the brauches inclined below the horizontal line, and thinks that the explanation is to be found in the establishment of a siphon arrangement, by means of which the juice is carried over the bend from the main stem in excessive flow. Be this as it may, the fact remains, as illustrated by an experiment prosecuted by this gentleman. In early spring, when the sap was ruuuiug in the vines, he took four plants of about the samo size, and trimmed them so as to leave one stem to each, these beiug arranged vertically, obliquely upward; horizontally and obliquely downward. He then cut off the stems, and collected aud measured what exuded, and found the amount from the branch inclined downward was more than three times greater than that from the others.

Something About Wool.

The San Joaquin Valley *Argus* complains of the want of discrimination exhibited by purchasers of wool, and says: "The great desideratum seems to be quantity—quality being of comparatively little or no importance. An apt illustration of this point was furnished last year in the case above referred to. The party in question had 2,300 yearlings, the fleece from which was considered next to worthless, being short and exceedingly foul—the owner estimating at least one pound of dirt to every five pounds of wool. It was baled separately, and with many misgivings as to the result forwarded to market, a full statement of the case being made to the commission merchant to whom it was consigued. It was sold at 29½ cents per pound, while the fleece from the older sheep, which was long and silky, and almost entirely free from dirt—with which extra care had been exercised in shearing, baling, etc.,—brought in the same market 31½ cents—a difference of only *two cents per pound* in favor of the finer quality. This being the case, what encouragement is there for the wool-grower to improve the grade of his sheep, or to exercise more than ordinary diligence in the preparation of his wool for market? Cotswolds and Southdowns to the dogs—give us scrubs! The more dirt the more money, seems to be the rule; and as the benefits of any system are to be judged by the practical results, we conclude that all efforts to improve the grade of sheep by crossing stock, etc., must necessarily prove futile, and the time spent therein worst than wasted. Money is what the producer is after—the largest return for a given amouut of labor. Let him, therefore, cease his efforts at improvement, and turn his attention to scrubs and dirt. The latter will pay—the former won't—and that's 'what we know about wool.'"

California Butter vs. Eastern Butter.

From the tone of the Eastern Press we find that California is in a fair way of securing better prices for butter than Eastern States do for their own production. A reliable exchange says:

"The highest color is all that is sought for by both the local and shipping trade, and prices for such are consequently well sustained, selling at 30@31c., whereas the other grades mentioned are difficult to dispose of at prices varying from 20@26c. There is some increase in the receipts of Ohio, with a slight improvement in quality, but the greater portion of it is yet very poor stuff indeed, and despite the very best efforts of receivers to clear their houses of it, it is too inferior for the market men, and there is no other trade to carry it off. The reports from New Orleans are not flattering for extreme prices for butter this season, and shippers, except on orders, are buying but sparingly. The result of this will be a gradual weakening of prices, not so much, however, as to deter the Western Reserve from forwarding what is needed".

The car load of California butter shipped to the East a few days since, is receiving marked compliments from the Atlantic papers; they pronounce upon it in Boston "as perfectly delicious." If eastern butter is in such disfavor as the above remarks seem to indicate, our shipments will command excellent prices, for we send a good article, which is fully appreciated.

Useful Information.

Education of the Eye.

How few there are that appreciate that optical marvel the eye! How few understand its mechanism, the principle on which it acts and the wonders which it accomplishes! As an avenue by which external impressions find their way to the mind, it is worth all the others man possesses. So gradually is its skill acquired that we hardly recognize it is acquired skill. We educate, through long and systematic practice, hands, feet and muscles; but in the main the eye is left to itself, to acquire as it may its power of estimating distance and size, color and the definition of form.

In this desultory way it acquires a skill beyond expression wonderful; yet we believe that with most the power of visou is only imperfectly developed. What is to hinder systematic discipline of the eye any more than of any other organ. To be able to see correctly is of as much importance to the mechanic as to the artist. Mr. Ruskin, in his admirable treatise on the "Elements of Drawing," lays particular stress upon teaching the eye to see correctly, and shows that the hand will have but little difficulty in learning to represent what is accurately seen.

The mechanic is often called upon to make forms for which his unaided eye must be the principal guide. The wagon maker may lay out his work by patterns, but the ornamental finish principally depends upon the nicety with which the eye can trace lines of grace and beauty. Even in shaping a boot sole there is great skill of eye. If any one doubts this let him try to shape a sole to the outlines of his own foot, and see what an uncouth, ungainly form he will make. None but novices will try the experiment, for any one who has tried it knows the difficulty in combining comfort and beauty in a boot sole. Shoemakers have been much denounced for their failures in this respect, but the reader may rest assured that their art is a difficult one. They cannot go by plumb line, square and level, like the mason or the carpenter, and no one who has ever tried to draw a sole pattern knows how slight variations will affect, favorably or unfavorably, its appearance. The cabinet maker, the carver, the sign painter, the decorator, all of these attain skill principally through the education of the eye.

The impressions gained through this organ may be placed under the categories of distance, size, light and shade, form and color. It is through the power to appreciate distance that we form our first estimates of size; then we begin to distinguish light and shade, and thus to gain power to define form, and lastly we distinguish, more or less perfectly, colors and tints.

A most profitable system of exercises might be devised by an ingenious teacher, calculated to train the eye in the exercises of its various functions in early youth, and to form correct habits of vison; for he who supposes the eye is not influenced by habit as well as any other organ makes a serious mistake.

The worst habit of all is the habit of partial sight. Instead of closely scrutinizing everything they see, the majority of men only superficially look at objects as they pass before them. They thus become inaccurate witnesses in court, inaccurate in their impressions of material objects in general, and fail when they attempt to imitate, because the images they strive to produce are imperfect.

If in early youth children were taught to look carefully at everything, and to constantly test the accuracy of the preceptions thus obtained, we believe the habit of close observation thus acquired would be of greater advantage than the result of any other mode of discipline now practised in elementary schools.—*Ex.*

Difference of Hydraulic and Common Lime.—Most dealers in common lime sell also hydraulic mortar. It is not sold in lumps like common lime, as it can not be used so; it does not slake and fall to powder like common lime, but must be ground in a mill, like plaster of Paris; it is, therefore, only sold in powdered form, packed in barrels. In that condition it looks very different from common lime, as it is not white but gray or brownish, and feels more gritty than pure lime, which feels even fatty when moist. We never needed any other test; but if a chemical test be required, we should advise hydrochloric acid, (muriatic acid,) which dissolves common lime entirely without leaving a remnant, while it will not attack the silicates of the hydraulic mortar. But as a practical test which at the same time determines the value of the hydraulic mortar, it is best to tie different samples up in small stiff linen bags, and throw them in water, let them lay and examine from time to time their increasing hardness. That which sets the quickest will not be the hardest in the end, but the purpose for which it is intended must settle the choice of the kind of cement to be used.

Brown Tint for Iron and Steel.—Dissolve, in four parts of water, two parts of crystallized chloride of iron, two parts of chloride of antimony and one part of gallic acid, and apply the solution with a sponge or cloth to the article, and dry it in the air. Repeat this any number of times, according to the depth of color which it is desired to produce. Wash with water and dry, and finally rub the articles over with boiled linseed oil. The metal thus receives a brown tint and resists moisture. The chloride of antimony should be as little acid as possible.

The Preparations of Fancy Soaps.

Fancy soaps, which are made in great variety for the toilet, are usually scented with some aromatic oils. For this branch of the trade the ordinary commercial soaps are used, after undergoing a process of refinement, or a soap is specially made for the purpose from almond oil, or the like. Much taste is shown by the best London makers in the selection and combination of the perfumes, which, along with the coloring matter, such as vermillion, yellow ochre, aniline, etc., are usually boiled up with the soap. To facilitate this operation, as well-dried soap does not readily melt, it is usually cut up into fine shavings, and after boiling is well worked under the rollers until it presents a uniform appearance. If the soap is intended to be highly scented, or very extensive perfumes are to be employed, the cold process is adopted, as much of the strength of the scent is lost by boiling. In this case the soap is shredded as before, and the perfume and coloring matters well amalgamated with it by being worked in a mortar with a pestle. It is then divided into lumps, and roughly moulded with the hand into something of the shape it is finally to assume. After being left on a rack to dry for about a week, it is pressed into a mould, which imparts to the cake the form and device which may be required, and when taken out the edges are trimmed and the surface polished with the hand. *Cassell's Technical Educator.*

The Age of Oysters.—An old oysterman can tell the ages of his bivalves with great precision. Those who are familiar with an oyster shell must have observed that it seemed composed of successive layers or platss overlapping each other. These are technically termed "shoots," and each of them make a year's growth, so that by counting them he can determine at a glance the year when the creature came into the world. Up to the epoch of its maturity, from five to seven years old, when they are in perfection, the shoots are regular and successive; but after that time they become irregular, and are one over the other, so that the shell becomes more thickened and bulky. Among fossil oysters, specimens are found occasionally of enormous thickness, and the amount of time that has passed between the deposition of the bed of rock, in which such an example occurs, and that which overlies it, might be calculated from those observations of the shape and number of layers of calcareous matter composing an extinct oyster shell. In some ancient formations, the above stratum of extinguished oysters may be seen, each bed consisting of full grown and aged individuals. Judging from the greatness to which some oyster shells have attained, this mollusk is capable, if left to its natural changes and unmolested, of attaining a patriarchal longevity.

Solder Wire, so very convenient for some work, may be made as follows: Take a sheet of stiff writing or drawing paper, and roll it in a conical form, rather broad in comparison with its length. Make a ring of stiff wire, to hold it in, attaching a suitable handle to the ring. The point of the cone may first of all be cut off, to leave an orifice of the size required. When filled with molten solder it should be held above a pail of cold water and the streams of solder flowing from the cone will congeal as it runs, and form the wire. If held a little higher, so that the stream of solder breaks into drops, before striking the water, it will form handy, elongated "tears" of metal; but, by holding it still higher, each drop forms a thin concave cup or shell, and, as each of these forms have their own peculiar uses in business, many a mechanic will find these hints very useful.

Gimlet Pointed Screws.—Most mechanics who work in wood do not appear to understand the eminent superiority of wood screws over brads and nails. In many places, one screw is worth three or four nails. When one is securing cleats to batten doors, or cleats to a wagon box, nails are very unsuitable when compared with the efficiency of gimlet pointed screws. Screws will hold two pieces of wood more rigidly than nails; and, if the timber should shrink a trifle, the screws can be turned up tight; whereas it is difficult, in most instances, to tighten up loose work with nails. Screws should be used in preference to nails in all places where there is an unusual strain on the parts to be held together.—*Ex.*

Waterproof Leather.—An ingenious patent is now being worked, by which leather for the soles of boots and shoes is rendered impervious to wet and damp by exhausting the air from the pores of the leather, and filling them up with a substance which unites with and adheres to the fibre, thereby strengthening without impairing the elasticity of the material. It is stated that the patent, known as "Fanshaw's Waterproof Leather," is not only likely to be largely employed for the purpose to which we have referred, but when asphalt pavement becomes more general, it will be possible to shoe horses with a material as hard as the asphalt itself, and which will prevent them slipping.

Restoring Charred Writing.—The restoration of the writing on manuscripts charred by fire may, it is said, be accomplished by separating the charred paper into single leaves, immersing them in a solution of nitrate of silver (forty grains to the ounce of water). The operation is to be conducted in a dark room, and when the writing is sufficiently legible the excess of silver solution should be washed out with distilled water and dilute solution of hyposulphite of soda.—*Am. Artisan.*

Good Health.

Adulteration of Drink.—We (*Lancet*) referred cursorily last week to the adulteration of drink by brewers or publicans, and we would once more call attention to the extent and magnitude of the evil. We fancy it is far more due to the effect of adulteration by narcotics in increasing drinking than to increased cheapness of production, or any other ordinary cause. The object with which it is done appears to be that the working man, who sits down to refresh himself with a half-pint, or pint, shall at once become sufficiently muddled to lose his self-control, and to call for more and more in excess of his originally prudent and proper intention. A business that poisons men for the sake of plundering them is simply a public nuisance, and even if other kinds of adulteration are for a time left unpunished, no leniency should be shown to this. It is difficult to say by whom the noxious ingredients are most frequently added. In any enactment on the subject, care should be taken that publicans are not made scape-goats for more wealthy sinners. Between them, the lot of the poor man, who depends upon a beer-shop for refreshment, is hard indeed. If he go there, the chances are that he is drugged into drunkenness, when he wishes only to quench his thirst; and if he drink water, he incurs risks of poisoning by sewage, which are not to be lightly regarded.

Evidences of Illness.—Pain and fever are not the only evidences of sickness. It is quite possible to have a tolerably regular pulse, a fair appetite, and even to sleep six or eight hours out of the twenty-four, and yet be far from well. In spite of these favorable indications, the body may waste away, and the nervous energy of the system rapidly decline. Emaciation, languor, and depression of spirits, although they may not be the symptoms of any specific disease, are infallible signs that the life power of the frame is deteriorating, that the mainsprings of vitality are losing their elasticity. If no help be given to nature in this emergency, a collapse of the vital machinery will finally ensue, and a life that might probably have been extended to the full scriptural span of three score years and ten, will be prematurely brought to a close. Thousands of such cases occur every year. Physicians call this running down of the animal machinery, atrophy, marasmus, nervous debility., etc., and it is often mistaken for pulmonary consumption. It arises, however, simply from a lack of constitutional energy, and a corresponding torpidity of the reproductive principle upon the vigor and activity of which the nourishment and repair of the whole organization depend.

Growing Men.—Dr. W. Holmes has shown what every body knows, that we are, as a race, deteriorating. But he has not given us the reason why the New England man grows smaller in bone and muscle. Chemistry tells us it is owing to the want of mineral in the soil to produce bones. Much is owing to our unnatural habits of life. Much to the weakness of our female sex, who do anything but develop their muscular powers. But the main reason why the race deteriorate so rapidly in the eastern part of New England, is owing to the hard granite soil, which does not furnish limestone sufficient to form the bones. In Kentucky, Ohio and Western Vermont, men grew to large size because of the limestone formation beneath the soil. Parts of families have emigrated from Massachusetts to limestone regions, and the result in the next generation, has been a larger bone development in those who left Massachusetts than those who remained. Kentucky, Ohio and Iowa will grow great men. The finest figures in the world will be found in the valley of the Mississippi in a few generations. Indoor labor, so unnatural for men, will weaken the vital powers and stop the growth in large cities, but the great and glorious West, with its broad prairies, will compensate for the growing feebleness of the Eastern States.

Use of Lemons.—When persons are feverish and thirsty beyond what is natural, indicated in some cases by a metallic taste in the mouth, especially after drinking water, or by a whitish appearance of the greater part of the surface of the tongue, one of the best "coolers" is to take a lemon, cut off the top, sprinkle over it some loaf sugar, working it down into the lemon with a spoon, and then suck it slowly, squeezing the lemon, and adding more sugar, as the acidity increases from being brought up from a lower point. Invalids with feverishness may take two or three lemons a day in this manner, with the most marked benefit, manifested by a sense of coolness, comfort, and invigoration. A lemon or two thus taken at "teatime," is an entire substitute for the ordinary supper of summer, and would give many a man a comfortable night's sleep, and an appetite for breakfast, to which they are strangers, who will have their cup of tea, or supper of "relish" and "cake," and berries, and peaches and cream.—*Hall's Journal of Health.*

Railway Air-Cushions.—A writer to the *Medical Times* refers to the fatigue of the limbs produced after a long railway journey as due mainly to the trembling motion of the floor under the feet, and states that, having suffered considerably from this abuse, he was induced to try the experiment of using the well known air cushion as a footstool. This answered so well that he has never travelled without using one in this way, and has found the effect to be a remarkable improvement.

A Simple and Effective Remedy for Corns.—When a young man, I used to be very much annoyed by those painful excrescences called "corns," on the toes and feet, until I was told of a very simple, but effectual remedy for them, by some person. It was to bathe the feet in tepid water, to soften them; then pare them off very closely with a sharp knife; then rub on well, green peach tree leaves; when, after continuing the rubbing once or twice a day, the corns will entirely disappear, and not return, without the cause which first occasioned them. I have often tried the remedy, and never found it to fail yet. It seems to be the prussic acid in the peach tree leaves that takes them away.

A good corn salve could no doubt be made for winter use, by bruising the peach leaves when green, then boil them in water until the strength is extracted; then take out the leaves; strain the water off the sediment, and add a sufficient quantity of resin, beeswax, tallow and lard oil to make it soft enough, and simmer down, without burning, until the water is evaporated. Soften and pare the corn, as before directed, spread it on a small piece of cambric or linen, and apply, putting on the sock or stocking carefully, so as not to rub it off. Keep applying until they disappear.—*Country Gentleman.*

If a woman's dress is suddenly enveloped in flames, instead of running to her, or out of the house, speak distinctly and commandingly: "Lie down and roll over!" Meanwhile, rip up the carpet, or drag off a bed blanket, throw it over the person, and then proceed to wrap her up closely in it; this is a more certain and speedy extinguisher than water, is more accessible, and entirely safe to the person giving aid.

If a woman faints away, instead of yelling out like a savage, or running to lift her up, lay her at full length on her back on the floor, loosen the clothing, push the crowd away, so as to allow the air to reach her, and let her alone. Dashing water over a person in a simple fainting-fit is a barbarity, and soils the clothing unnecessarily. The philosophy of a fainting-fit is, the heart fails to send the proper supply of blood to the brain; if the person is erect, the blood has to be thrown up hill, but if lying down, it has to be projected horizontally—which requires less power, is apparent.

Explosive Pills.—Some pills prescribed by a physician in London contained one-half grain nitrate of silver, one-sixth grain extract nux vomica, and one-half grain muriate of morphine, together with *Cons. ros.* and extract of gentian. They exploded in a very short time, evolving a considerable amount of heat. A similar case occurred in the practice of Dr. Jackson, of Nottingham, England, who prescribed pills containing four grains nitrate of silver, one grain muriate of morphia and extract gentian. The lady patient, who had the box about her person, was badly burned by the explosion. Pills containing nitrate of silver and creosote or carbolic acid become heated, and even take fire. Of course, when chlorate of potash is employed the explosion is much more violent.

Evening and Night Air.—From the time when the sun withdraws his light in the evening, until he scatters the fogs and mists of night with his morning beams, the air is in a condition much less congenial to health than during the day. Light itself is an invigorating element, and darkness has a depressing effect upon the body as well as the mind. Moreover, from the hour when the dew begins to fall or rise—we know not which—until the East is brightened and warmed by the morning rays, the atmosphere contains a smaller proportion of oxygen, or vital air, than when the sun shines.

For Offensive Breath.—For removing this disagreeable affection almost the only safe and effective thing to use is the concentrated solution of chloride of soda. From six to ten drops of it in a wineglass full of pure spring water, taken immediately after the operations of the morning are completed. In some cases the odor arising from carious teeth is combined with that of the stomach. If the mouth be well rinsed with a teaspoonful of the solution of the chloride in a tumbler of water, the bad odor of the teeth will be removed.

Cool Rooms.—Open all the windows and doors at daylight, and let them remain open at least until sunrise, then close them, and darken the windows, and they will remain delightfully cool and fresh for a great part of the day, besides keeping out the dust and flies; for want of this precaution many splendid parlors have a close sickening smell as you enter them, wholly incapacitating you from enjoying the beautiful things around you, and enjoying the visit to your friends.

When Beginning To Use Glasses, use them as short a time as possible, only in deficient light, or on minute objects, and then change the strain to distant or larger objects. By a judicious attention to these two points, the age of the sight will be retarded many years. And as reading is one of the luxuries of the age, and one of its most delightful pastimes and amusement, we can not be too careful of the eye-sight, and should study how we may best husband its powers.

Food forced upon the stomach in the absence of all appetite, can never properly nourish the system. Even when it is retained, it is never more than half digested, for the palate and the mucous membrane of the stomach are in sympathy with each other, and what the palate loathes, the gastric juice only imperfectly dissolves and assimilates.

Scientific Press.

W. B. EWER.....SENIOR EDITOR.

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ILLUSTRATIONS AND REPORTS OF MINING ENTERPRISES WANTED.—Drawings or photographs of mining works that are of general interest to our readers are solicited for publication in this journal. Official reports of Companies, and description of mines of importance, or of special interest, are also desired. Sketches of any new method and discoveries will be very acceptable.

San Francisco:

Saturday Morning, June 8, 1872.

Gold and Legal Tender Rates.

SAN FRANCISCO, Wednesday, June 5, 1872.—Legal Tenders buying, 88½; selling, 89¼. Gold in New York to-day, 114¾.

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POPULAR SCIENCE MONTHLY.— This publication fills a most urgent want in the magazine literature of the day, and promises to become immensely popular. Scientific matters are here treated in a familiar and popular manner by some of the most eminent scientists of the day. The magazine is issued in Appleton's best style, and bids fair to become immensely popular. The second number, which has just come to hand, amply fulfils the high promise of the first. It contains a large number of interesting articles, among which we notice one from Herbert Spencer on Social Science, continued from No. 1. Prof. Yeomens gives an interesting article on What is Known About Sun Spots. The Natural History of Man is continued from No. 1. One of the finest articles is by an anonymous writer on Darwinism and Divinity. Every article in the two numbers which have already appeared, are both timely and well written, and constitute the cream of the scientific literature of the day.

MINING BUREAU.—We have received the first number of the *Monthly Bulletin* of the Bureau of Mining Information for Utah. The *Bulletin* contains some useful facts concerning the furnaces and smelting works, stamp mills, mining districts, etc., of Utah Territory. This Bureau was organized in March, 1872, with Warren Hussey for President, Thos. P. Akers, Vice-President, Theo. F. Tracy, Treasurer, and E. M. Barnum as Actuary and Secretary. It proposes to give reliable information in regard to character, extent, development, etc., of mineral properties in the Territory.

Academy of Sciences.

An exceedingly interesting meeting of the Academy of Sciencee was held on the 5th, inst., Prof. Davideon in the Chair. The Committee appointed to draft resolutions of respect to the memory of F. L. A. Pioche, reported, and the resolution was accepted. A medallion of the deceased member was presented to the Society by P. Mezzara and was acknowledged with thanks. A number of donations to the cabinet were received.

The Proposed Arctic Expedition.

M. Pavy, the young Frenchman who is about to attempt to reach the Open Polar Sea by way of Bheringe Straits and Wrangell's Land, was introduced by Dr. Stout. He presented a letter from the American Geographical Society, of New York, commending him to the courtesy of Scientists all over the world. Prof. Davidson made a few remarks concerning the proposed expedition and invited M. Pavy to explain by means of the charts the manner and route by which he expects to reach the Pole, and give his theory concerning the currents, etc., of the region.

Mr. Pavy then addressed the Association on his proposed expedition, and gave them his views and reasons for attempting to reach the open sea seen by Morton and others, by the way of Bhering's Straits, instead of going by the other side. He said that the question of the passage from the Pacific to the Atlantic was an old one, and only interesting from a scientific point of view, since the passage would of course be useless for the purposes of commerce. He then referred to the various expeditions which have from time to time gone out to explore the polar regions, and said that all attempts to reach the.

Open Polar Sea

Had been from the Eastern side, and that since they had all failed he proposed to mark out a new course and make the attempt from this side. He gave many reasons why he thought he would be successful, and based the principle part of his reasoning on the direction of the currents. The Polar Sea, he thought, was not only open in the summer, but in the winter also. This fact has been demonstrated by deduction from the fact of wood being found at Spitzbergen which is known to have come originally from the Anadyr river, which empties on this coast. Prof. Davidson thought this no proof of it being open in winter since it might take a number of years in its passage. M. Pavy supposed that this wood must have been carried by a current which passes north through Behring's Straits.

He is confident that Wrangell's or Kelly's land extends much farther north than the present known limits, and that the course of the current referred to must be deflected by the continent toward the northwest where explorations have never been made. Passing Wrangell's Land this current in accordance with known laws, must deflect toward the East, pass through the Polar sea and south, into the Atlantic Ocean, in the vicinity of Spitzbergen, where the deposits of wood referred to are seen. This current on the other side runs south as experience has shown, and Dr. Hayes found it had a velocity of three and one half nautical miles per hour. This large amount of water coming from the north precludes the idea of much land in that direction. He thinks that the Gulf Stream sinks in the north at Spitzbergen when it comes in contact with the counter current from the Polar Sea, for known reasons.

The belt of ice which surrounds the Polar Sea, and which keeps out the ships of the explorers, Dr. Kane thought was about eighty years old. The current running south hinders the passage of vessels. The members of the Russian Expedition who thought last year that they had reached the Polar Sea have come to the conclusion that they were only in a "bight" in the ice which was created by the warm current of the Gulf Stream. M. Pavy thinks the Gulf Stream after sinking, as mentioned before, rises again and keeps the sea open when it becomes superficial. He proved the existence of this open sea from the facts of the birds and animals passing north instead of south, when the cold weather came; certain species of whale also go north and their breeding grounds are unknown. The open water to the north has been seen by Morton and others, and there is no doubt that it actually exists.

M. Pavy will leave here so as to reach Wrangell's Land by September 1st, and expects to occupy the time from then until May 1873 in crossing northward with sledges and dogs, carrying his india rubber raft, provisions, etc., and will launch his raft on the Open Polar sea, cross it and come down with the current on the other side. He will be on the sea in the summer and will return by Smith's Sound on the other side.

Professor Davidson

Differed from M. Pavy as to the direction of the currents, and is in doubt about a warm Polar Basin. He thought that the Gulf Stream flowed northward and rounding the Polar Sea flowed southward again through the straits into Baffin's Bay. He considered the latest European charts of the regions around Bhering's Straits very defective. The straits are 25 miles wide and about 30 fathoms deep, the current running from one and a half to three knots per hour and must therefore, from the narrowness and shallowness of the passage, be entirely inadequate to produce the effect which M. Pavy thinks it does. An animated discussion ensued between M. Pavy and Prof. Davidson on points connected with the direction and velocity of the currents which was very interesting, and proved that both gentlemen were thoroughly posted on the subject in question.

The Colorado Desert.

Col. Gray submitted to the Academy an extract from his report as Engineer of the Southern Pacific Railroad Co. Lieut. (now Col.) R. S Williamson in his report on explorations for a route for the Pacific Railroad refers to a line from San Gorgonio Pass to the San Diego and Fort Yuma wagon road. He says it was evident that the surface was below the level of the sea and that they were traveling in the bed of what was once a lake or the head of the Gulf of California; a water line being visible and the barometer indicating a depression nearly 100 feet below the tide level.

E. A. Phelps, assistant engineer under Col Gray has just completed a survey, of a branch line of the Southern Pacific R. R. via San Gorgonio Pass to Fort Yuma. He followed along the east side of the valley while Col. Williamson's route lay on the west side. Phelp's line on leaving the summit of San Gorgonio Pass was by an easy grade about 65 miles; then descending gradually 26 6-10 miles to a point on the stage road opposite Dry Lake, the lowest point but one on the line, being 203 feet

Below Tide Water Level.

Then with an undulating grade to Salt Creek, about six miles, the lowest point on the line, being 215 feet below tide level; then gradually ascending about twenty miles, where they rose to the sea level. The total length of the line below sea level is 50 6-10 miles. The bed of Dry Lake, opposite the stage road, is at least 100 feet lower than any other point on the line.

There is a distinct water line on the eastern slope of the mountains, coinciding with the sea level, as far as the eye can see south. The water line or ancient shore line is still more plainly visible on the mountains bordering the western side of the basin.

The Chorvilla Valley, lying within this basin and traversed by the line of the road, is covered with vegetation, sage brush, arrow-weed mesquite trees; the latter of which grow ten to thirty feet high and fifteen inches in diameter. Water can be found in the valley by digging from six to ten feet. Taking Williamson's report of the west side of the basin, and this report of the east side, proves conclusively that a large area of the Colorado Basin is below the sea level. Williamson's elevations were taken with the barometer, Phelp's by leveling from tide water of San Francisco Bay. The elevation of the Colorado river, at the crossing at Fort Yuma, was found to be about 117 feet above sea level, which coincides with Williamson's barometrical observations.

QUARTZ MINING IN NEW ZEALAND.—During the months of March and April, 14,997 tons of ore were crushed from 64 mines in New Zealand, which produced a yield of 27,388 ounces of gold, valued at $15 per ounce.

METEOROLOGICAL.—The monthly mean of the barometer in San Francisco during May was 29.986 inches. The monthly mean of the thermometer was 56.3°; and 0.18 inches of rain fell. The prevailing wind was southwest and the total number of miles it traveled was 8, 355.

MINING SUIT.—Charles F. McDermott brought suit in the Twelfth District Court, on the 5th inst., against the Raymond & Ely mine to recover 950-1350th part of the product of the mine for last year and for that proportion of the mine. The plaintiff alleges that he and others located the Panaca silver mine (now the Raymond & Ely) in August, 1862, in Meadow Valley District, and that in March, 1864, Thos. Box, Steven Sherwood, J. N. Vandernark and S. S. Shutt made a separate location adjoining the one before referred to. He claims to have come into possession of a part of the mine by certain conveyances. On March 1st, 1872, the defendants entered upon what is known as the "discovery claim" of the mine, which is claimed by the plaintiff, and commenced working the ground. He says that from May 1st, 1871, to June 1st, 1872, defendants have taken from said claim ores valued at $1, 500,000, and that he is entitled to a certain proportion of the profits since that by right of discovery and of conveyance a portion of the mine belongs to him. The plaintiff prays that defendants be compelled to pass over to him the proportion of profits stated above, and that a receiver be appointed to work the mine and deposit plaintiff's proportion of profits monthly, in some interest paying institution in this city to be paid on order of the Court to the plaintiff; and that he be let into possession of his proportion of the property.

A NEW STYLE PAN.—Ira S. Parke has recently planned and had made for him an amalgamating pan for working tailings. The Gold Hill *News* says that the principle of the pan is a correct one, and will doubtless prove a success. It is simply a huge double pan, being about twelve feet long by six feet wide. The bottom portion is of cast-iron, about a foot deep, and the wooden sides when completed will make it five feet higher, or six feet deep in all, calculated to work about twenty tons of tailings at a charge. The bottom portion alone weighs 7,500 pounds, independent of the cones, mullers, etc., and when the whole is ready for use it will be taken to Parke & Bowie's tailings mill in Six Mile Cañon. The castings were made at the Gold Hill Foundry, Lower Gold Hill.

MINERS' FESTIVAL.—The members of the Miners Association will hold a festival on the 9th and 10th inst. at the City Gardens in this city. There will be a procession, after that a lunch, and an effort will be made to show as far as possible mining in some of its branches, and life of miners in their cabins. The advertisement says that on Monday at 1 P. M. there will be some prize mining connected with the preparation of flapjacks, pork and beans and the presenting of a true and complete picture of miners in their housekeeping and the enjoyments of the miners in the olden time. They will endeavor to show the public a representation of the early mining days in California.

MINERS' STRIKE.—About 100 miners, employed by the Treasure Hill Companies, at Hamilton, Nevada, "struck" for $4 per day on the 4th inst. Their demand was at first refused and all the mines in the vicinity closed down, but next day three or four of the companies acceded to the demands and consented to pay that figure to skilled miners.

THE WOOL CLIP IN TULARE.—The season shows a falling off—owing to the severity of the winter—as compared with the clip of last year. The Visalia *Delta*, from the best information it can obtain, through the wool-growers and purchasing houses, estimates this year's product at 947,335 pounds. Last year it reached 1,474,500 pounds.

ANOTHER suit has been instituted against the Flagstaff mine, Utah for the appointment of a receiver.

About Patents.

There seems to be an infatuation connected with invention which acts in somewhat the same manner that gaming affects the gambler. Some one has called it patent lunacy, and in fact it amounts to nothing less. It is the result of a constant and continued application of the thoughts and feelings upon one single subject until it assumes its most captivating and tempting form. This feeling affects every inventor to a greater or less extent, and in a few cases amounts to a positive mania. Who has not at some time or other been compelled to listen to the laudation of some new style of churn, washing machine, or other invention, by an over-confident inventor.

Yet without this mania, this same over-confident feeling, our patent office would have little to do and our progresss would in a measure stagnate. The primary cause of this mania is the liberal provisions which our lawmakers have established in favor of the inventor. The monopoly of any useful invention for the term of seventeen years, in competent hands, is almost invariably equivalent to a fortune, and it is therefore no wonder that we find a large proportion of our population ever on the alert to pick up or originate a new idea, or a useful machine, and when once the idea is seized upon, the mania alluded to is the engine that urges on the originator to complete and patent the result.

In foreign countries, where the laws are not so favorable to the inventor, the incentive to originate new ideas is not so great, and consequently we find that fewer patents are applied for.

It is a familiar remark in the United States that if any new machine or improvemsnt is required, it is only necessary to let the people know it and it will soon be provided, not only one but a hundred, thus proving the adage that "necessity is the mother of invention."

In many cases this mania only lasts until the patent is secured, as the reaction, if it does occur, is more likely to happen at that time than at any other; the crisis has passed. This is unfortunate, as then is the time when all of the mania of the inventor is most required. The energy necessary to successfully handle a patent is seldom possessed by the inventor, at least by the professional inventor. He gets up a good head of steam to begin with and successfully secures his idea, but his steam has all exhausted by this time and no further progress is ever made. (By substituting the word "money" for the word "steam" in the last sentence, the case will perhaps be more perfectly stated.) We therefore say to the patentee, keep up the mania; don't let it flag when you have secured your patent. Throw all of your energies into the business of introducing the invention. Don't allow yourself to ask a price for your patent which is twenty times more than it is worth, and more than you hope ever to sell it for. Be satisfied with a good, ordinary profit, and you may be assured that when once you have it introduced and in public use your revenue from it will repay you for your ingenuity, and all of the time and money you have spent upon it, if the invention is in any way useful to the public.

Mining Sales.—The Helena ditch, in Montana, better known as the Big Ditch, has been sold to Wm. A. Chessman, for $28,500. It is 30 miles long and covers Last Chance, Dry Gulch, Helena Hill, California Bar and Bowery and Michigan Gulches.

The Eureka *Sentinel* says that the Excelsior and Gaslight mines, on Prospect Mountain, near New York cañon have been sold to Thos. J. Taylor & Co. for $25,000.

The Eagle mine in Spring Valley cañon, says the Unionville *Silver State*, has been sold to Geo. B. Walker, of Salt Lake, for $17,000.

The Grass Valley *Union* says that M. McDonough has purchased the claims of the Irish American Co. which are on the old Auburn road, near the North Star companies claims. Consideration not stated.

It is reported that the McMahone mine, near Schellhurn, has been sold to a San Francisco Co. for $30,000.

Mining Accidents.—The foreman of the Prospect Flat Cement Mining Company at Placerville, H. L Newton, was killed on the 3d inst. by a loaded car which fell from the upper level through the shaft.

Mr. Branvelt, one of the engineers at the Stonewall mill, near Julian City, San Diego Co., was run over by a wagon last week, and was injured to such an extent that the amputation of an arm was necessary.

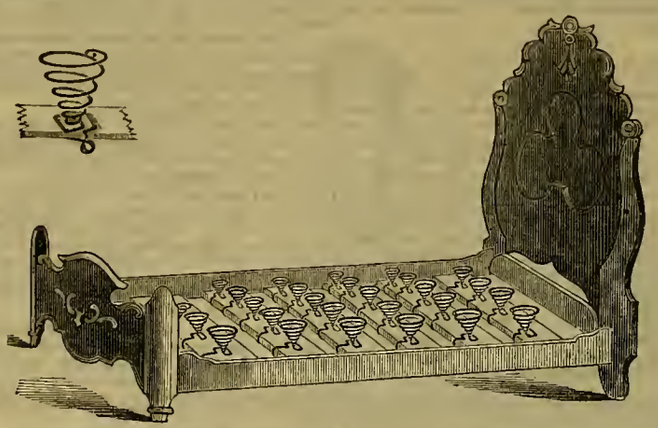
Twenty-five million of dollars has been appropriated by the city of Birmingham, Eng., to establish a system of sewage.

A Self-Fastening Bed Spring.

We give annexed an illustration of a new device for securing bed springs. As will be seen by the single spring herewith shown, the bottom of which is so constructed as to clasp the slat and hold itself firmly in position, each spring is thus self-fastening, and can be applied directly to the slats of the bedstead without making holes or any other preparation, and being all complete in itself, needs not the attachment of any wood, iron or leather work to fasten it to the bedstead or to connect it to the other springs. Moreover, when any one spring gives out it can be readily displaced and a new one substituted.

They are claimed to be superior to any other, because they are simpler, more elastic, do not squeak, (as most slat bed springs do,) have no cracks or holes in which the vermin can hide, and have no strings to break or leathers to pull out. They are equal to the best upholstered spring beds, as they are exactly like them in the principle of action, being a spiral spring, (which is acknowledged to be the most elastic and strongest spring known,) and superior to them, in as much as they are not covered with cloth, which collects dust and vermin, are much easier to handle, and cost only about one-half as much.

These springs can be applied to any ordinary slat bedstead. Their number can be increased or diminished at any time. From three to five dozen make a set, and a set can be packed in a space of one foot square, and can be attached to the slats by any person, so that no upholsterer is required for such work. The attention of furniture dealers, hotel keepers and others is called to this new device, as one especially worthy of their attention. They may be seen at 642 Mission street.



WARNER & SILSBY'S IMPROVED BED SPRING.

"Mines, Mills and Furnaces of the Pacific States and Territories."

Commissioner Raymond's last report, "Mines, Mills and Furnaces of the Pacific States and Territories," published by J. B. Ford & Co., of New York, can now be had. We have several times alluded to Mr. Raymond's book, the Congressional edition of which, however, on account of its meagreness of appropriation, was not circulated as extensively as its importance required. In fact it is almost impossible to get a copy on this coast, where it is most needed. The present edition was printed as a private enterprise and this really valuable report will now be accessible to all. It gives an account of the condition, resources, and methods of the mining and metallurgical industry on this coast, chiefly relating to the precious metals, and is a sequel to "American Mines and Mining."

The book is one which is of interest to every miner and mill-man on the Pacific Slope, since it gives not only a review of mining industry, statistics, etc., but a large proportion of the work is devoted to the subject of metallurgical processes, which are important to all. The condition of mining industry of each State and Territory is taken up and treated in a separate chapter; the metallurgical processes are under appropriate heads, written in an easily comprehensive style, while they are, at the same time sufficiently in detail to permit of a thorough understanding of the subject under consideration. The work is one of great importance to the mining community on this coast, and will fully repay any one its cost ($3.50). Dewey & Co., of the Scientific Press, are the publishers' wholesale and retail agents for the work on this side of the continent.

New Method of Prospecting.

Under the above head we made allusion in our issue of May 1st to a new method of prospecting, mentioned by the Nevada *Transcript* as about to be put in operation at North Bloomfield, by drilling a hole at the start to the full proposed depth of the shaft with a diamond drill, and filling the same with sand, and taking out the sand to the proper depth for successive blasts. We expressed the opinion that such a plan would not work; but that if one hole was bored in the center, and several more around it, and all fired simultaneously by electricity, a great saving of time and labor would result.

During the past week we have received a private letter from Prof. Wm. B. Blake, from which we learn that the plan we suggested has been put into practical operation in Pennsylvania. We make the following extract from the letter:—

"I was for a day or two at the meeting of the Institute of Mining Engineers, at New York, at which several very important papers were read, and among them one describing a very great advance in the art of shaft-sinking, now being practically shown in two shafts in Pennsylvania. The diamond drill is used, and a series of vertical holes are bored at even distances within the walls of the shaft or its limits, horizontally. These holes are bored to a depth of 300 feet, and are then all filled up with sand. When all is ready to begin blasting, three feet in depth of the sand is pumped out of all of the holes. A charge of dynamite is placed *in each of the central holes*, and these charges are all simultaneously exploded by electricity. The result is that a mass of rock is lifted out of the center to a depth of three feet. The sides are then blasted down, and when the rubbish is cleared out the operation is repeated. The result is a clean-cut shaft, with sides almost as smooth as if they had been cut down by chisels. The work proceeds with great rapidity. Some important improvements have been made in the drill-carriers. Compressed air will soon replace ths rotary engines now used. I have not time to enter into the details. They will all appear in the journal of the Institute."

New Incorporations.

The following have filed certificates with the County Clerk, San Francisco.

Crown Point Ravine G. and S. M. Co.—May 31. Location: Gold Hill District, Nevada. Capital stock, $3,000,000, in 30,000 shares. Trustees—George D. Roberts, J. J. Hucks, S. W. Lee, Martin White and M. C. Hillyer.

Ruby Hill M. and M. Co.—May 31. Location: Ruby Hill District, White Pine. Capital stock, $3,000,000, in 30,000 shares. Trustees—Ferdinand Vassault, Thomas R. Hayes, E. J. Moore, H. W. Byington and Benjamin Dore.

Aztec M. Co.—June 4. Location: Ely District, Lincoln county, Nevada. Capital stock, $3,000,000, in 30,000 shares. Trustees—Geo. D. Roberts, G. Howard Thompson, M. J. McManus, Peter Hopkins and Robert J. Harrison.

Insurance M. Co.—June 4. Location: Virginia M. District, Storey county, Nevada. Capital stock, $3,000,000, in 30,000 shares. Trustees—James L. Blaikie, Samuel L. Theller, R. F. Bunker, R. G. Brown and John Landers.

Fairfield S. M. Co.—June 5. Location: Wallipai District, Mohave Co., Arizona. Capital stock, $1,200,000, in 12,000 shares. Trustess—W. H. Hardy, Herman Brixhaum and William J. Bennett.

Rising Star M. Co.—June 5. Location: Nevada county, California. Capital stock, $2,000,000, in 20,000 shares. Trustees—Wm. J. Gunn, J. J. Hucks, Charles E. Elliott, Thomas Bryan and C. M. Kinne.

Concentrators.—Parties who have inquired of us about ore concentrators are referred to a certificate appearing this week in the advertisement of Hendy's Patent Concentrator.

U. S. Centennial Commission.

We have received from Prof. Wm. B. Blake, Chairman of the Committee to propose a system of classification for the Centennial Exposition of 1876, some printed slips, in advance of publication, giving a report of the programme which has been made in the work of that Committee. In the formation of the system proposed, the governing idea has been to group together objects in the following order:—

1. The natural products useful to man, or the basis of manufactures.
2. The manufactures and results of the combinations of these products.
3. The means and appliances by which such results have been accomplished.
4. The resultant effects of such productive activity.

The raw materials are first presented, and then in succession the results of their use by man, leaving until the last the higher achievements of intellect and imagination.

It is a natural and simple classification, and we think well calculated to show effectively—more effectively than any other system—the development of man, and the progress of the arts and of civilization.

Ten comprehensive divisions, to be named *Departments*, have been arranged, each of which are subdivided into ten groups, each group into ten classes, thus giving abundance of latitude for the appropriate reference and classification of any object. It was one of the defects of the classification of 1867 that there was not enough classes. The arrangement now proposed not only remedies this difficulty, but it also gives us elasticity and an opportunity for expansion under every group and under every department; an advantage that only those who have had to deal with exhibitions can fully understand and appreciate.

The departments will be numbered from I to X, and the groups from 1 to 100, while the classes will be numbered from 1 to 1000. Thus the number of any class will at one indicate the group and department to which it belongs. This is a system similar to that upon which the houses are numbered in the city of Philadelphia, where the number of the house at once indicates its location with respect to the streets.

A peculiar and interesting feature in the arrangement will be the effort to show, at a glance, the progress of industry and invention, especially in the United States during the century. For instance, the printing press of Franklin will be shown in the same range with those of Hoe, Adams and Bullock.

The cotton gin of Whitney, yet preserved, will stand side by side with those used to-day, and the early efforts to construct locomotives will be contrasted with the latest.

We understand that the arrangements for the exhibition are being made in a most satisfactory and energetic manner.

A Convenient Table for Miners.

It is often convenient to weigh large bars of bullion on a platform scale, and to calculate Troy ounces from the avoirdupois weight so obtained.

This is specially the case at isolated mining localities, where no accurate bullion balances and sets of large Troy weights can be obtained. The following table, which has been prepared for us by Mr. H. G. Hanks, will be found very useful in such cases:

Avoirdupois.	Troy ounces.
1 ounce	0 9 1 1 4 5 8
2 "	1 8 2 2 9 1 6
3 "	2 7 3 4 3 7 4
4 "	3 6 4 5 8 3 3
5 "	4 5 5 7 2 9 1
6 "	5 4 6 8 7 4 9
7 "	6 3 8 0 2 0 8
8 "	7 2 9 1 6 6 6
9 "	8 2 0 3 1 2 4
10 "	9 1 1 4 5 8 3
11 "	1 0 0 2 6 0 4 1
12 "	1 0 9 3 7 4 9 9
13 "	1 1 8 4 8 9 5 8
14 "	1 2 7 6 0 4 1 6
15 "	1 3 6 7 1 8 7 4
1 pound	1 4 5 8 3 3 3 3
2 "	2 9 1 6 6 6 6 6
3 "	4 3 7 4 9 9 9 9
4 "	5 8 3 3 3 3 3 3
5 "	7 2 9 1 6 6 6 6
6 "	8 7 4 9 9 9 9 9
7 "	1 0 2 0 8 3 3 3 3
8 "	1 1 6 6 6 6 6 6 6
9 "	1 3 1 2 4 9 9 9 9

A single example will explain: Suppose the bar to weigh 74 pounds and 9 ounces; set the figures thus:

70 pounds	
4 "	
9 ounces	

Look for 7 pounds in the table. Opposite will be found 102.0833+; move the decimal point one place to the right, and it will represent 70 pounds; set this on the first line to the right of the "70."

Opposite 4 pounds in the table will be found 58.333+ ounces. Set this under the first.

Opposite 9 ounces in the table will be found 8.203+; place this under those already set down, and add the whole together. The sum represent the weight of the bar in Troy ounces and decimals.

70 pounds	1020.833
4 "	58.333
9 ounces	8.203
74 pounds 9 ounces	1087.369

Domestic Economy.

New Mode of Washing.

Scienca is not above giving its attention to even tha smallest things, as is ahown by an artiala in the *Moniteur Scientifique* for March, wherein Dr. Queonevilla describes something new in washing, whereby our linen may be saved from tha destructive effects of soda and other washing-powders.

The plan has been extensively adopted in Germany, and introdnced into Belgium. The operation consists in dissolving two pounds of soap in about three gallons of water as hot as the hand can bear, and adding to this one tablespoonful of turpentine and threa of liquid ammonia; tha mixture must then be well stirred, and tha linen steeped in it for two or three hours, taking cara to cover up the vessel containing them as nearly hermetically as possible. The clothes are afterward washed out and rinsed in the usual way. The soap and water may be reheated and used a second time, but in that case half a tablespoonful of turpentine and a tablespoonful of ammonia must be added. Tha process is said to cause a great economy of tima, labor and fuel. The liuen scarcely suffers at all, as there is littla necessity for rubbing, aud its cleanliness and color are perfect. The ammonia and turpentine, although their datersive action is great, have no injurious effact upon the linen; and while the former evaporates immediataly, the smell of the latter is said to disappear entirely during the drying of the clothes.—*Am. Artizan.*

We would add to the above the following from the *Providence Journal*, on tha specific use of ammouia for varions honsehold purposes:—

Ammonia, or as it is commonly called, spirits of hartshorn, is a powerful alkali, and dissolves grease or dirt with great ease. It has been recommended very highly for domestic pnrposes. For washing paint, put a teaspoonful in a quart of moderately hot water, dip in a flannel cloth, and than wipe off the woodwork; no scrubbing will be necessary. For taking grease spots from any fabric nse the ammonia nearly pure, thcn lay white blotting-paper over the spot and iron it lightly. In washing lace, put about twelve drops in a pint of warm suds. To clean silver, mix two teaspoonfuls of ammonia in a quart of hot snds. Put in yonr silver-ware and wash, using an old nail-brush or tooth-brush for the purposa. For cleaning hair-brushes, etc., simply shake tha brushes up and down in a mixture of a tablespoonful of ammonia to one pint of hot water; when they are cleansed rinsa them in cold water, and staud tham in tha wind or in a hot place to dry. For washing finger-marks from looking-glasses or windows, put a few dropa of ammonia on a moist rag, and make quick work of it. If you wiah your house plants to flourish, put a few dropa of tha spirits in avary pint of water used in watering. A teaspoonful will add much to the refreshing effects of the bath. Nothing is better than ammonia water in cleaning the hair. In avery casa rinse off the ammonia with clear watar. To which we would add that, for removing greasa spots, a mixture of equal parts of ammonia and alcohol is better than alcohol alone; and for taking out the red staina produced by tha strong acids in blua and black clothes, thera is nothing better than ammonia.

Economy in the Household.

Mrs. O. T., of Missouri, writes sensbly regardiug economy in the house and on tha farm. Housekeepers should not go in dabt to tha storekaapera just because they will trust them for a few months. When one caunot pay for table luxuries, it is not wise to nse them three times per day. It is not right to give children tea and coffae just becausa it may look stingy to outside people, when we know that the children ara better off without them. Tryiug to keep up with the fashions is extravaganca on the part of the farmer's wifc and daughters, unless wealthy. To dress neatly and comfortably is all that is required. Usa mora fruits and vegetables. The finest flour is not the best; mix the shorts with tha flour and tha food is more palatable and haalthful. She prepares tha mixture as follows:

Taka about one-fourth fine flour and three-fourtha shorts, raise with yeaat and baka on a griddle. The cakes are to be eaten with molasses or butter, or both, the samea as buckwheat cakea.

Her letter closes as follows: "It is the duty of every housekeeper to see that nothing goes to waste in or about the house that sha can make use of, and it is the duty of every farmer to sea that nothing goes to waste on the farm that he can make use of. If we will attend to thasa things we will get along better and wa shall like farm life better. We let too much of labor come to naught."—*Prairie Farmer.*

A Rival to Tea and Coffee.—Tea and coffee ara threatened with a Brazilian rival, called guarana. The guarana consists of tha seeds of a tree known to botanist as tha *paullnas sorbitis* which is very abundant. The tree produces fruit about tha size of a walnut, containing five or six aeeds. The seeds are roasted, mixed with water and dried. Before being used they require grinding when they fall iuto a kiud of powder. The active principle is an alkaloid idautical with that found in tea or coffee, but thera is twica as much of it in guarana as there is in tea. The effects are similar to those of tca and coffee.

Convenient Arrangement of Houses.

It would seem that tha adjustmant of the rooms is secondary to external appearances, while the reverse is indead the case. A kitchen should be in an L; that in summer tha honsa need not ba heated, and in winter filled with the odor of cooking. The kitchen and living room should have but one door between them, and without passages or steps up or down.

The size of the kitchen should ba determined by the uses for which it is designed. For myself, I should prefer to hava it small, say twelve feet each way, with a cupboard, sink, cistern pump and painted floor.

The kitchen disposed of, then comes what is scarcely second in importance—the bedrooms. A woman who wishes to concentrate her work as much as possible, will prefer having at least her own sleepiug apartment on the ground floor, and opening directly iuto tha living room. And all kuow that this should be large and well ventilated, with a closet opening into it.

Running up and down stairs is woman-killing work, and should be avoided as much as possible, by having oua or mora bedrooms below. Tha living room and parlors can ba disposed of accordiug to the taste aud means of the builder.

We are annually presented with plans for country cottages, which abound on tha outside with ornament, and on the inside with a labyrinth of entries, passages and pantries (pantries and closets ara of coursa necessary). That utility should ba sacrificed to ornament is evidently in bad taste, besides baing poor economy. If a man's means are uot sufficient for both, build substantially, and trust the future for decorating the outside.

A substantial, well proportioned, well kept house, is always a good looking house. But boards placed around the bottom to hide an uusightly openingbeueath, with latticed porches and ornamental cornices, is a disgraca to the roadside.—*Ohio Farmer.*

How to Cure Hams.—Here is J. Howard McHenry's recipe: The maat, after being cut out, must ba rubbed, piaca by piece, with very finely powdered saltpetra, on tha flesh side, and whera the leg is cut off; a tablespoonful (not heaped) to each ham, a dessert-spoonful to each shoulder, and about half that quantity to each middling and jowl; this must ba rubbed in. Then salt it by packing a thin coating of salt on tha flesh sida of each piece, say one-half an inch thick; pack tha pieces on a scaffolding, or on a floor with strips of plank laid a few inches apart all over it (that is, nndar the meat); the pieces must be placed skin sida down, in the following order: first layer, hams; second, shoulders; third, jowls; fourth, middlings. Take the spare rib out of the middlings. The meat must lie iu this wise: Six weeks, if the waathar is mild, and eight if vary cold, tha brina being allowed to run off freely.

Orange Chips—Oranges are lass used upon tha tabla than thay should be. Here is a very good way of serving them up as "oranga chips."—Cut your oranges lougways, taka out all tha pulp, and put the riuds iuto rathar strong salt and water for six days, then boil them in a larga qnantity of spring water until thay ara teuder; taka them out, and lay them on a hair sieve to drain, then make a thin syrup of fine loaf-sugar (one pound to one quart of water); put in your peels, and boil them over a slow fire till you sea the syrup candy about the pan and peals, then taka them out and grate fine sugar over them. Lay them on a hair sieve to drain, and set them in a stova, or befora the fire to dry. Lemon chips or candied peel may be made in tha same way.

All over India, sweetmeats are consumed as a substantial article of food. A native when traveling seldom eats anything elsa, and between tha two great meals, at all timea he whiles away tha long noon of the Indian summer day by sucking lollipops or candy between the whiffs of his hookah. Large dishes of sweetmeats are very common prasents to make on religious fastivals or domastic red-letter days; and whan a Hindoo wants to ba very merry or very dissipated he never gata drunk, but goes to a "millial" shop and makes himself ill with candied sugar.

For Mixed Pickles, prepare any vegetablas you lika by cutting tham in pieces, and let them lie in aalt and water for two or threa days; then make the pickle in the following manner: Boil the quantity of vinegar required with pepper-corns, mustard-seed, a small quantity of mace, a few Cayanne pods and ginger, and half a ponnd of flour of mustard mixed smoothly in a basin, to ba put in while boiling; put all together in a large stone jar.

Rancid Butter may ba greatly improved, and made sweet by the following process:—Melt the bntter at a tolerably high temperature, iu fact, till naarly boiling. Strain clear through cloth, and thoroughly wash with water, to which has been added a little solution of chlorinated soda, or, as it is commonly called, Labarraque's solution. Finally wash with clean watar. Butter so manipulated will ba sweet and good for cooking purposes; but will not have the flavor of the fresh made article.

Fruit Stains.—Fruit stains may, it is said, be removed by moistening the article affected with a solution of hyposulphite of soda, and adding to it a little pulverized tartaric acid, which is to be rubbed on the stain, which will soon bagin to disappaar, whan tha article can be cleansed with warm water.

Selected Receipts.

Oyster Pie.—Cover a well-buttered, deep plata or tin—a soup plata answers perfectly—with puff paste; lay an extra layer around the edge of the plate, and baka it very naarly enough. That done, fill the pie with oysters, seasoning with nutmeg, pepper, salt and buttar; dnst in a littla flour amongst them, and cover all with a thin puff paste. Baka quickly; when the top crust is done the oysters will be done also. If to be eaten hot, serve ae soon as baked, as the top crust quickly absorbs the gravy. If to be eaten cold, let it cool nntouched, in the plate or pan. It is quite as good in this way as hot, and is excellent for pic-nics or for traveling.

Rolled Jelly-Cake.—One cup of sugar, one tablespoouful of butter, ona and a half cup of flour, two-thirds of a cup of milk, one egg, two tea-spoonfuls of baking-powder, sifted with the flour. Bake iu a large sheet, and when done, spread on tha jelly, and cut tha sheet in strips three or four inches wide, and roll up, If, iustead of jelly, a sauce is made and spread between the layers of the cake, it may be aaten as cream pie, and furuish a very nice and easily prepared dessert.

For the sauce.—Beat together one agg, one teaspoonful of corn-starch, one tablespoonful of flour, and two of sugar. Stir it into a half pint of milk, and boil till it forms a good custard; remove from the fire, and flavor with vauilla.

Green Pea Soup.—Take some young carrots, tnrnips, ouions, celery, aud cabbage-lettuces; cut them in slices, and put them in a stew-pau, with a little butter, and some lean ham cut in pieces. Cover them closely, and let them stew for a short time. Fill up with stock sufficient for the soup required, and let it boil until tha vegatables are quite soft, adding a few leaves of mint, and tha crust of a roll; pound all, and having boiled a quart of peas, as green as yon can, strain them off, and pound them also; mix them with tha rest of the ingredients, and pass throngh a siave. Heat it, and season with salt, pepper, and sugar; add a few young boiled peas, aud use the spinach to restore it.

Cleaning Gutta Percha.—This is best dona by using a mixture of soap and powered charcoal, polishing afterwards with a dry cloth with a littla of tha charcoal on it.

Salad Dressing.—This is also excellent over sliced tomatoes in tha summer. Taka tha yolk of one fresh egg and mix with it two tablespoonfuls of olive oil very slowly, add oue and one-half spoonfuls of mustard, three spoonfuls of salt, a little pepper, and last of all two spoonfnls of vinegar. Beat the white of the egg to a stiff froth and lightly stir in.

Apples stewed for sauce should be pared, cored and put iuto cold water nntil they are ready to be cooked, to keep tham from discoloriug. Add a littla water, putting them in a porcelain kettle or stew pan. Cover them, and let them cook gently.

Loss of Weight in Cooking.—The loss of weight in a leg of mutton in cooking has been found, by actual experiment to ba as follows: Before roasting, tha weight was uine pouuds and ten onncea; after roasting, six pounds and twelve ounces; weight of cooked meat, four pounds aud thirteen ounces; weight of bone, ona pound and fifteen ounces; of gravy, ten ounces.

Clarifying Water.—Two grains of alum to a pint of water that is not fit to drink, render it perfectly clear and pure, and the taste of alum will not be parcaived. A little pulvarized alum thrown into a pail of water, and allowed to stand fifteen minutes, will precipitate all tha impurities, and leave it perfectly clear.

To Brown Potatoes Under Meat.—Boil some fine, large, mealy potatoes; take off the skins carefully, and about an hour bafore the meat is cooked put them in the dripping pan, having well dredged tham with flour. Baforc serving drain them from any grease, and serve them up hot.

A Modern Kitchen Maid.—Not long since an excellent Kentucky housewife had occasion to send to Louisville for a cook. The latter in a few days put in her appearance, arrayed apparently in a large quantity of cast-off masquerade finery of the Queen of Sheba, dilapidated panniers, flounces, hoops, and with a stunning headdress that would have befitted the Queen of Hayti—jute curls, frizzles, chignons, and rats in alarming profnsion. The former looked at the latter in astonishment, and when sufficiently recovered, she informed her that she did not think she would suit as mistress for the kitchen, as her appearance indicated it would require three-fonrths of the day to get up her elaborate head-toilet alone. "Why, la, ma'am, answered Dinah, I *never* combs my head!"

Tobacco-cancers on the lip and tongue are increasing so alarmingly as to greatly diminish pipe-smoking in Germany. This deadly form of tha cancer is incurable. In our country we have a few fearful examples. President Stirling, of the Burliugton Bank, N. J., clerk of C. Dodge & Co., Bankars of Philadelphia, and a physician of Sonoma, California, have fallen victims to the cancer of the mouth.

The Vine and the Cottage.

Among the thousands of men of moderata means, who own their little cottage, in every town and villaga in tha land, too many are fonnd without the simpla adornment of a vine of any kind or variety. We do not refer to tha absence of a garden or even a miniature vineyard of a few vines, for oftantimes there is not room either in front or back yard of tha cottaga for either. And yet there is room for a vina or two or three of them, so that there is a bare spot of ground in ona cornar, of a foot square not covered by a building.

Let a vine be planted there, and if there is no room for a little covered way of trellice work, carry tha vine up the sida of the doorway and let it spread ovar the whola wall of the house, and year by year it will repay yon for your care, in tha luscious fruit it affords, besides tha real pleasure it gives in witnessing its annual expaneion. If you ara in a locality too cold for a fruit-bearing vine, then taka one of the many hardy, beautiful flowering vines or runners to ba had of almost any florist and plant it out, and let the wife and daughters saa that it be properly trained and cared for, and it will prove a thing of beauty aud of course a joy forever, or for many years.

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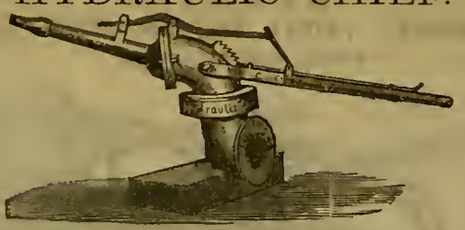

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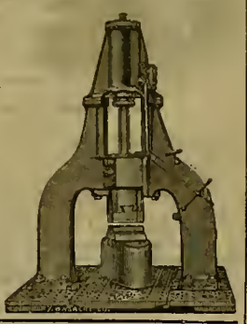

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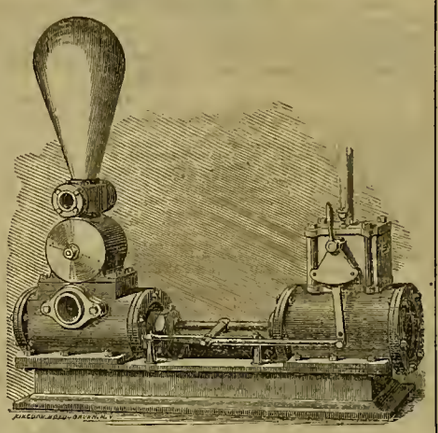

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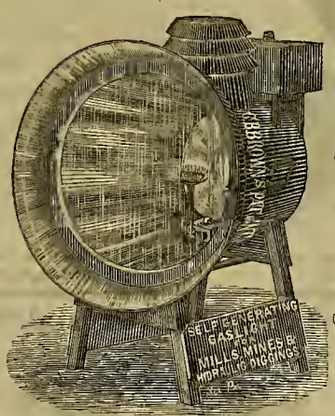
BROWN'S PATENT LAMP, FOR Mills and Hydraulic Mining Claims.



One of these Lamps, when placed at a distance of 200 feet from the bank, will light up a bank surface 250 feet in length and 100 feet high, and to a much better advantage than any other light heretofore tried, and at an expense not to exceed five cents per hour. Lamps furnished at short notice.
For further particulars address
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118 Front street, SAN FRANCISCO.
Patent Combination Carbolized Steam Fire Hose, Steam and Petroleum Oil Hose,
Suction Hose, Hydrant Hose, Conducting Hose, Engine Hose, Round Packing, Rubber Belting, Packing, Valves, Caskets, Pure Vulcanized Sheet Rubber, Fire Buckets.
12v23-3m J. W. TAYLOR, Agent.

RICHARD H. STRETCH, Civil Engineer,
City and County Surveyor.
Office—Room 16, City Hall, 11v24-3m

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STROUDSBURG, PA.,
Sole Manufacturers of
THE TANITE EMERY WHEEL,
And builders of Emery Grinders, Saw Gummors, Etc., Etc.
Emery Grinding Machines,
At $15, $30, $50, $75, and $110. DIAMOND TURNING TOOLS, $15 each.
SOLID EMERY WHEELS,
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Every IRON FOUNDER can save money by using these Wheels to grind the sprues and gates off of castings. Every MACHINIST can save money, files, and labor, by using them to shape his lathe tools, to grind off chilled edges, to finish nuts, etc., etc. Every BRASS WORKER can use them on Brass. Every WOOD WORKER can use them to gum his saws, to sharpen his planer knives, to make his moulding cutters. For illustrated circulars address THE TANITE Co., Stroudsburg, Monroe county, Pa.
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Same system as the "Remington" Celebrated Military Rifle, of which over half a million have been sold. Its simplicity unsurpassed. For strength and durability unequalled. In accuracy unrivalled. In range, penetration, and ease of manipulation, without comparison.
The "Sportsman's" Delight, the "Hunter's" Favorite, the "Target-Shooter's" Pride. Also
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In these days of thieves and Burglaries, every householder should have a revolver for home protection.
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Hydraulic Miners, Attention!

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If you wish to keep up with the times, buy a LITTLE GIANT or a DICTATOR. These are fully protected by Letters Patent, and infringe on no others.
Manufactured of any size to suit. Are in use under all pressures, from 445 feet down.
WILL DISCHARGE FULLY TEN PER CENT. MORE WATER than any other, under the same circumstances.
An injunction from the U. S. District Court is now in force against HYDRAULIC CHIEF, and parties using the same will be duly prosecuted.
I fully guarantee my customers against all damages for alleged infringement.

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Sole Licensee and Manufacturer, under Allenwood's, Masey's, Rice's, Craig's, and Hoskin's Patents.
16v24tf

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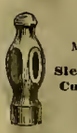
AGENTS FOR
Thomas Firth & Sons' Cast Steel.



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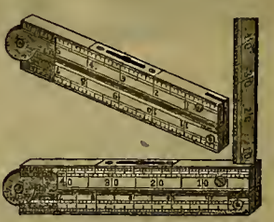

ALSO EXCLUSIVE MANUFACTURERS OF
L. C. Stephens' Patent Combination Rule.
This cut represents the COMBINATION RULE, which comprises a Foot Rule, Spirit Level, Try Square, Bevel, Plumb, Slope Level, Etc.
It is made of the very best quality of Turkey Boxwood, heavily bound with brass, and is graduated with mathematical accuracy.
The Square is adjustable, and can be tested and made perfectly true by the aid of a small screw-driver, but this is seldom required.
In its application as a Slope Level it is especially adapted for Miners' use, as it shows the PITCH TO THE FOOT, and DEGREE OF INCLINATION at once. It is six inches long when folded, by one and three-eighths wide, and three-eighths inches thick, the cut being just one-fourth size.
"By the use of one of these, a builder, mason, carpenter, or other workmen, can always have in his pocket the most valuable of his apparatus used in construction, combined in a portable, useful and cheap form."—*Scientific American.*
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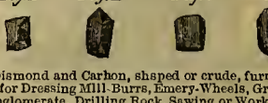
DICKINSON'S
Patent Shaped Diamond Carbon-Points.
Fig. 1 *Fig. 2* *Fig. 3* *Fig. 4*



Diamond and Carbon, shaped or crude, furnished and set for Dressing Mill-Burrs, Emery-Wheels, Grindstones, Conglomerate, Drilling Rock, Sawing or Working Stone, Trueing up Hardened Steel, and for other mechanical purposes. Also Glaziers' Diamonds. See Scientific American, July 24th, Nov. 20th and 27th, 1869; Engineering and Mining Journal, Jan. 17th, 1871; Journal of the Franklin Institute, Philadelphia, June, 1870. For Circulars descriptive, and Prices, send stamp to
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A person who is competent to prepare plans and take charge of the construction of Dwellings, Mills, Bridges, or other architectural improvements, will make favorable engagements with persons or corporations in the city or the interior. Has had full experience on this coast, and can insure good satisfaction. Address
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The Explorers', Miners' and Metallurgists' Companion; Compriaing a Practical Exposition of the Various Departments of Exploration, Mining, Engineering, Assaying, and Metallurgy. The Most Practical and Comprehensive Work on Mining Subjects Extant. Compriaing 640 Pagee, and 81 Engravinga. By J. S. Phillips, M. E. Price, bound in cloth, $10 (in coiu); in leather, $12. Forwarded by mail, in cloth, $11.40, currency; in leather, $13.75. Issned and for sale by DEWEY & Co , Patent Agents and Publishers Scientific Press, S. F.

RICHARD H. BUEL, Consulting Mechanical Engineer, 7 Warren Street, New York. Advice and assistance given to those who desire to invest funds in meritorious and valuable Patent Rights. Machinery of all kinds bought and sold. Unusual facilities for testing engines, boilers and other machinery. I refer particularly to Professor R. H. Thurston, of the Stevens Institute of Technology, who has consented to associate himself with me in consultation on matters of special importance. 10v24-13t

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Endless Chain Elevator,
FOR RAISING WATER FROM WELLS.
BALL & CRARY, Patentees.

The inventor claims that his ELEVATOR excels any other apparatus that has ever been brought before the public for the purpose of raising water from wells. Its chief merits are: First—The water is obtained from the well in a purer and colder state, for the reason that it is drawn from near the bottom. Second—It is operated with the least difficulty, particularly in lifting a certain amount of water from any depth in a given time, as compared with any other mode. Third—It obviates all necessity for going down into the well in putting in the machinery, or for repairing the same, as such labor can be performed at the surface. Fourth—It can be easily taken out of one well and transferred to another. Fifth—It is less liable to get out of repair—but when repairs are necessary they can be easily made by any one; the action made by the Endless Chain and buckets keeps the well properly ventilated; there is no possibility for the person operating it [nor for a child] to fall into the well.

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For Steam Pipes & Boilers Hair Felting

SAVES 25 PER CENT. OF FUEL—An item worth looking after. Also, Steam Governors, Tuba Scrapers, Steam Pumps, Self-Oilers, Cylinder Cups, Belting, Lacing, Hose, Fuse, Packing, etc., including all kinds Miners', Engineers' and Millmen's Supplies, at the Machinery and Supply Depot of TREADWELL & CO.; old stand, Market street, head of Front, San Francisco.
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Author of the "Explorers', Miners' and Metallurgists' Companion." (The very Comprehensive Work of 639 pages and 81 illustrations.
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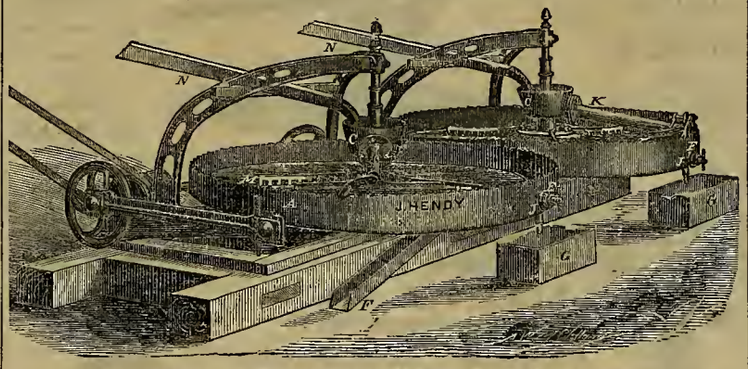
LATEST IMPROVED PATENT SELF-DISCHARGING SULPHURETS CONCENTRATOR.



Can be seen at the Manufactory, 32 Fremont Street, San Francisco.

SAN FRANCISCO, April 27, 1872.

JOSHUA HENDY, Esq.—*Dear Sir:*—As a practical miner and millman, I take pleasure in recommending the use of your Concentratore in all mills where gold or silver ores are reduced. No milla should ba without them for the following reaaons:

1st. They are good sizers (no perfect concentration in pulverized ores can be effected without first sizing).
2d. The best Concentrator I have ever known—(the concentrated stuff only containing 5 per cent. of sand).
3d. They are good amalgamators, light (feathery) particles of amalgam and particles of coated gold, by attrition are brightened, and from their specific gravity and tha action of the pan, fall to the bottom and adhere.
4th. They raquire hut little power and attantion to run them, and with ordinary care will laat for yeara.

I have been familiar with tha workinga of your Concentratora for four years past; have run them myself in the North Star Mine, Grasa Valley; am familiar with their practical workings on the Empire Mine, Grasa Valley; St. Patrick, Placer Co.; St. Lawrence, El Dorado Co.; Oaks and Reese, Mariposa Co., and most cheerfully give you this tastimonial. For further information you are at liberty to refer to,

Youra, respectfully,
JAS. H. CROSSMAN, M. E.
409 California street, or Cosmopolitan Hotel.

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JOSHUA HENDY, Esq.—San Francisco—*Dear Sir:*—Having had charge of eight of your Concentrators for two years past, at the North Star Mine, Grasa Valley, I can speak from experience, and cheerfully recommend them to every one engaged in gold or silver ores that requira concentrators. They require but little power and attention, are the best concentrators and amalgamators that I have ever saen or used, and with ordinary care and attention are not liable to get out of order. I most cheerfully give you this recommendation, and for furthar information you can refer to me at North Star Mine, Grass Valley.

Yours truly,
HENRY BOUDOIN.

References:

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NORTH STAR M. & M. CO. (8 Concentrators).....Grase Valley, Nevada County.
VULTURE CO. (8 Concentrators).....Prescott, Arizona.
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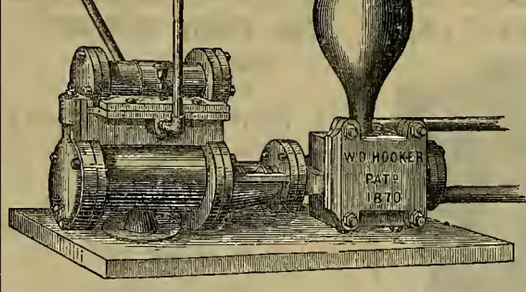
ST. LAWRENCE MILL.....Georgetown, El Dorado Co.
ST. PATRICK MILL.....Newcastle, Placer Co.
JULIAN MILL.....Newcastle, Placer Co.
VIRTUE MILL.....Oregon.
KEYSTONE MILL.....Amador Co.

CAUTION—All of HENDY'S PATENT CONCENTRATORS are marked thus: "J. HENDY, Patented April 17th, 1866, and May 19th, 1868."

For full description send for Circular. Orders or lettera of enquiry, address,

JOSHUA HENDY, San Francisco.
Office and works, 32 Fremont street. 18v24-1am-tf

Hooker's Patent Direct Acting Steam Pump.



SIMPLE, CHEAP AND DURABLE.

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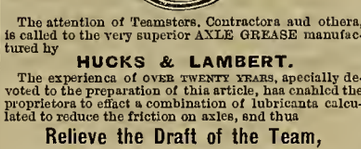
☞ SEND FOR CIRCULAR.

N. B.—Also manufacturer of Hooker's Deep Well and Double-Acting Force Pump. Received the Silver Medal awarded at the last Mechanics' Fair in San Francisco. 23v24-1am6m-bp

H & L AXLE GREASE.



The attention of Teamsters, Contractors and others, is called to the very superior AXLE GREASE manufactured by

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The experienca of OVER TWENTY YEARS, specially devoted to the preparation of thia article, haa enahled the proprietors to effect a combination of lubricants calculated to reduce the friction on axles, and thus

Relieve the Draft of the Team,

Far beyond the reach of any who have hut recently gone into the business; and as the H & L AXLE GREASE can ha obtained by consumers at as

LOW A RATE

As any of the inferior compounds now being forced upon the market by unprincipled imitators, who deceive and defraud the consumer.

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Invite all who desire a First-class and Entirely Reliable Article, and which for Over 18 Years in this country has given such GENERAL SATISFACTION, to ask for the H & L AXLE GREASE. See that the trade mark H & L is on the red cover of the package, and take no other.
3v24-eowr

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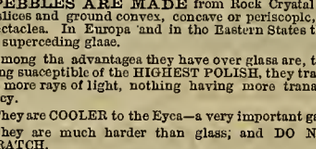
"Clear as Crystal."



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They are COOLER to the Eyes—a very important gain.

They are much harder than glass; and DO NOT SCRATCH.

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Persons sending their Spectacles can have Pebbles inserted of the same grade as their glasses.

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☞ Pebbles sold as such by us, are Warranted.
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—AND—
WINCHESTER REPEATING ARMS.

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Of SUPERIOR QUALITY, FRESH FROM THE MILLS. It being constantly received and transported into the interior, is delivered to the consumer within a few days of the time of its manufacture, and is in every way superior to any other Powder in Market.

We have been awarded successively

Three Gold Medals

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Which combines all the force of other strong explosive now in use, and the lifting force of tha BEAT BLASTIN POWDER, thus making it vastly superior to any other pompound now in use.

A circular containing a full description of thia Powder can be obtained on application to our Office.
16v20-3m JOHN F. LOHSE, Secretary.

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All of the above will be sold at good bargains by

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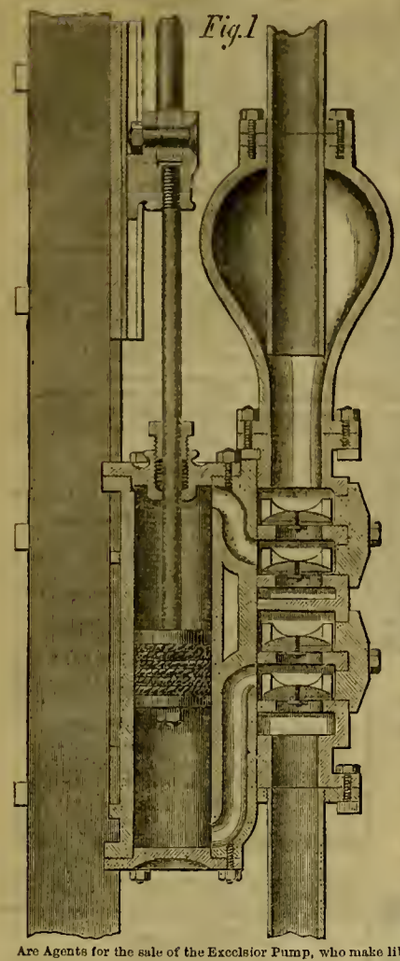
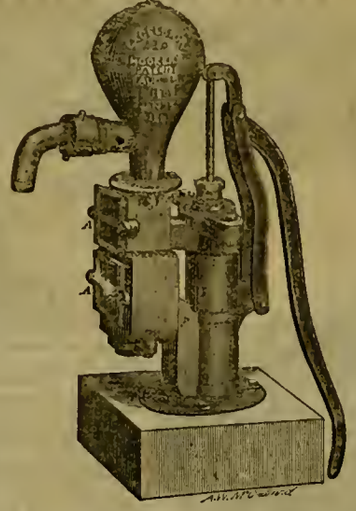
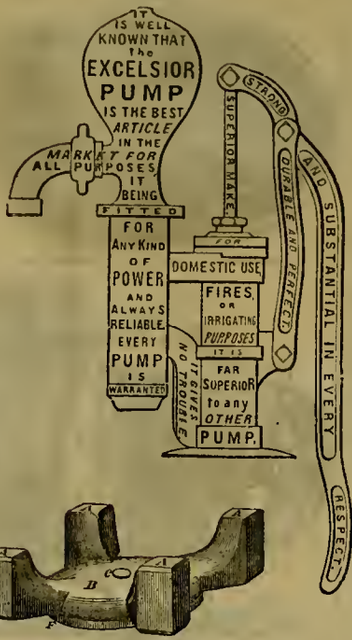
EXCELSIOR IMPROVED DOUBLE-ACTING SUCTION AND FORCE PUMP.

HOOKER'S PATENT, August 13, 1865, and January 15, 1867.






IT IS WELL KNOWN THAT the EXCELSIOR PUMP IS THE BEST ARTICLE IN THE MARKET FOR ALL PURPOSES IT BEING FITTED FOR ANY KIND OF POWER AND ALWAYS RELIABLE. EVERY PUMP IS WARRANTED
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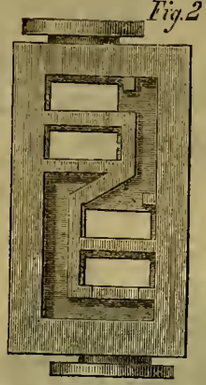
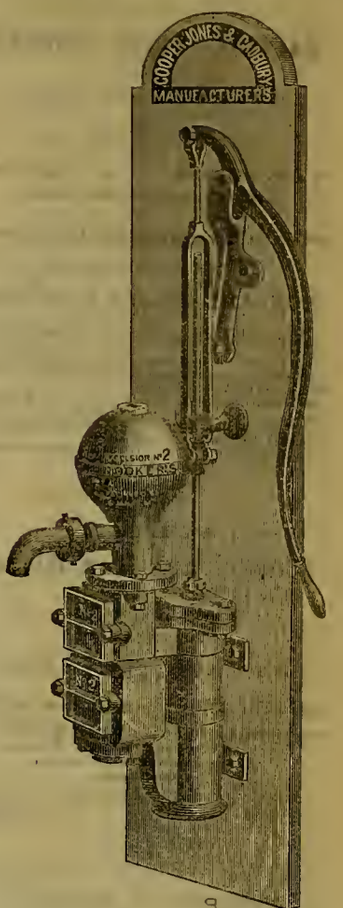
DURABLE AND PERFECT
AND SUBSTANTIAL IN EVERY RESPECT
FOR DOMESTIC USE
FIRES OR IRRIGATING PURPOSES
IT IS FAR SUPERIOR to any OTHER PUMP.
NO TROUBLE

VALVE.



VALVE BOX.



We call the especial attention of all Millwrights, Miners and Farmers to this very superior Force Pump. It is more simply constructed, more durable, and has larger and more direct ports for receiving and discharging water, and warranted to furnish more water than any other pumps of equal caliber. It has Poppet Valves, which cannot be wrongly placed in the Pump. The Fair of the Mechanics' Institute, held in the city of San Francisco, awarded the owners of this Pump FOR ITS SUPERIORITY, A FIRST PREMIUM AND SILVER MEDAL. Suitable for DEEP WELLS, Factories, Mining, Breweries, Sugar Refineries, Tanneries, Railroad Purposes, Drainage, Irrigation, etc. As the above Pumps are already in use in the principal Sugar Refineries, Factories, Rolling Mills and Gardens in this city, reference may be had where they are working. ☞ See Circular for particulars.

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Messrs. **BRITTAN, HOLBROOK & CO.,**

111 and 113 California street, and 17 and 19 Davis street, S. F.,

Are Agents for the sale of the Excelsior Pump, who make liberal discount to the trade. **H. J. BOOTH & CO.,** Union Iron Works, First street, corner of Mission, S. F., manufacture and have the sale of the Excelsior Pump.

Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the Scientific Press we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

Alleghany Consolidated Gold Mining Company.

—Location of Works: Alleghany, Sierra County, Cal.

NOTICE.—There are delinquent upon the following described stock, on account of assessment (No. 11) levied on the twenty-sixth day of April, A. D. 1872, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No Certificate.	No. Shares.	Am't.
J. J. Roche	4	15	$ 3.00
Geo. Treat	54	500	100.00
Geo. Treat	58	35	7.00

And in accordance with law, and an order of the Board of Trustees, made on the 26th day of April, 1872, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the office of the Company, Room 37, New Merchants' Exchange, California street, San Francisco, California, on the 24th day of June, 1872, at the hour of 12 o'clock M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

J. M. BUFFINGTON, Secretary.

Office, Room 37, New Merchants' Exchange, California street, San Francisco, California. June 8—3t

Eagle Quicksilver Mining Company---Location

of works, Santa Barbara County, California.

Notice is hereby given that at a meeting of the Board of Trustees of said company, held on the 8th day of May, 1872, an assessment of $40 per share was levied upon the mines of said company, payable immediately in gold coin of the United States, to the Secretary at his office, room 5, No. 302 Montgomery street, San Francisco, California.

Any shares upon which said assessment shall remain unpaid, on Thursday, July 11th, 1872, shall be deemed delinquent, and will be duly advertised on Saturday, July 13th, 1872, for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 15th day of July, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. WM. H. WATSON, Secretary.

Office—Room 5, No. 302 Montgomery street, San Francisco California. ma11.

Lyons & Wheeler Mining Company—Location

of works, Maynard Mining District, Mobave County, Arizona Territory.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 18th day of May, 1872, an assessment of Ten Cents per share was levied upon the capital stock of said Company, payable immediately, in United States coin, to the Secretary, at the office of the company, Room 3, No. 419 California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on Monday, the 24th day of June, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 15th day of July, 1872, to pay the delinquent assessment, together with the costs of advertising and expenses of sale. By order of the Board of Trustees. T. W. COLBURN, Secretary.

Office, Room 3, No. 419 California street, San Francisco, California my25-td

Stockholders Meeting.—Office of the Silver Sprout Mining Company, No. 318 California street, San Francisco, May 23, 1872.

NOTICE is hereby given that the annual meeting of the stockholders in the above named company will be held at their office, No. 318 California street, (Room No. 1, second floor,) San Francisco, on Tuesday, the 25th day of June, 1872, at the hour of 1 o'clock P. M.

may25-4t T. B. WINGARD, Secretary.

Mina Rica Mining Company—Location of works, Auburn District, Placer county, State of California.

Notice is hereby given, that at a meeting of the Trustees of said company, held on the 8th day of May, 1872, an assessment of 20 cents per share was levied upon the capital stock of said company, payable immediately in United States gold and silver coin, to the Secretary of the company, at the office of the company, No. 320 California street, room No. 5, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on Monday, the 10th day of June, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday the first day of July, 1872, to pay the delinquent assessment, together with cost of advertising and expenses of the sale. GEO. R. SPINNEY, Secretary.

ma11-4t No. 320 California St, San Francisco, Cal.

Silver Wave Mining Company----Location

of works, White Pine Mining District, White Pine county, Nevada.

NOTICE:—There are delinquent upon the following described stock, on account of Assessment, No. 8, levied on the 10th day of April, A. D. 1872, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificates.	No. Shares.	Am't.
Barton, W H, Trustee	352	200	$100 00
Barton, W H, Trustee	376	10	5 00
Barton, W H, Trustee	490	50	25 00
Breed, H L, Trustee	394	20	10 00
Copc, Oeo W, Trustee	508	100	50 00
Crocker, J H, Trustee	492	100	50 00
Crocker, J H, Trustee	493	50	25 00
Holmes, H J	511	447	223 50
Loveland, L F, Trustee	217	50	25 00
Pomeroy, E B	474	200	100 00
Richardson, E A, Trustee	429	100	50 00
Richardson, E A, Trustee	430	100	50 00
Richardson, E A, Trustee	471	100	50 00
Richardson, E A, Trustee	450	150	75 00
Richardson E A, Trustee	486	80	40 00
Richardson, E A, Trustee	496	50	25 00
White, Jas T	399	12	6 00
Woods, F H, Trustee	375	22	11 00
Woods, F H, Trustee	434	10	5 00

And in accordance with law, and an order of the Board of Trustees, made on the 10th day of April, 1872, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of said Company, on Thursday, the 13th day of June, A. D. 1872, at the hour of 2 o'clock P. M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

J. W. CLARK, Secretary.

Office, 418 California St., Room 102, San Francisco, California. ma18-4t.

Stockholders Notice---Office of the Tecumseh Gold, Silver and Copper Mining Company. San Francisco, May 6th, 1872.

In accordance with a Resolution adopted at a meeting of the Trustees of the Tecumseh Gold, Silver and Copper Mining Company, held this day, a special meeting of the stockholders of said Company is hereby called, the same to be held at E. Mazzuchi's Hall, S. W. cor. of Kearny and Clay Sts., opposite the Plaza, San Francisco, Cal., on Wednesday, the 12th day of June A. D. 1872, at 2 o'clock P. M., to take into consideration and decide upon the proposition to increase the capital stock of said Company from one hundred fifty-three thousand and five hundred dollars, divided into six hundred and fourteen shares of two hundred fifty dollars each, the present capital of the Company, to three millions of dollars, to be divided into thirty thousand shares of one hundred dollars each.

J. TH. HELMKEN,
J. F. G. EGGERS,
JACOB HAHN,
F. SCHUMACHER, } Trustees.

Piermont Milling and Mining Company—

Location of works, Piermont Mining District, White Pine County, Nevada.

NOTICE.—There are delinquent upon the following described stock, on account of assessment (No. 3) levied on the 16th day of April, 1872, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Briggs, Charles A	15	583½	$233.33
Briggs, Charles A	47	111	44.40
Perkins, J E, Trustee	21	1000	400.00
Perkins, J E, Trustee	23	1000	400.00
Perkins, J E, Trustee	41	381	152.40

And in accordance with law, and an order of the Board of Trustees, made on the 16th day of April, 1872, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the company, on the 19th day of June, 1872, at the hour of 2 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale. J. W. CLARK, Secretary.

Office, 418 California street, San Francisco, Cal. m25

San Francisco Tunnel and Mining Company.—Location of Works, Little Cottonwood Mining District, Utah Territory.

NOTICE.—There are delinquent upon the following described stock, on account of assessment (No. 1) levied on the 13th day of April, 1872, the several amounts set opposite the names of the respective shareholders as follows:

Names	No. Certificate.	No. Shares.	Amount.
Brommer Diederick	48	3000	$750 00
Moroney, Paul	5	3000	750 00
Reticker, Chas	8	3000	750 00
Seaman, LaFayette	7	3000	750 00
Selby, T. H	4	3000	750 00

And in accordance with law and a supplementary order of the Board of Trustees, made on the 30th day of April, 1872, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the office of said company, on the 10th day of June, 1872, at the hour of 2 o'clock P.M., of said day, to pay said delinquent assessment thereon together with costs of advertising and expenses of sale.

J. W. CLARK, Secretary.

Office, 418 California street, San Francisco.

Washington Mining Company---Location

of works and mines, Mariposa County, State of Cal.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 8th day of May, 1872, an assessment of $3 per share was levied upon the capital stock of said company, payable immediately in United States gold and silver coin, to the Secretary at the office of the company, No. 318 California street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the 11th day of June, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the 29th day of June, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. B. WINGARD, Secretary.

Office—Room No. 1, second floor of No. 318 California street, San Francisco. ma.11-4

Woodland Gold Mining Company—Location

of works, West Point Mining District, Calaveras County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 21st day of May, 1872, an assessment of 12½ cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, Room 64, Merchants' Exchange, California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the 25th day of June, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 16th day of July, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. F. MADOF, Secretary.

Office, No. 64 Merchants' Exchange, California street, San Francisco, California. may25-td

Stockholders' Meeting—Office of the Hardy Coal Mining Company, San Francisco, June 4, 1872.

In accordance with a resolution adopted at a meeting of the Trustees of the Hardy Coal Mining Company, held this day, a special meeting of the stockholders of said company is hereby called, the same to be held at the office of the company, 332 Montgomery street, San Francisco, California, on Tuesday, the 9th day of July, at 11 o'clock A. M., to take into consideration and decide upon the proposition to increase the capital stock of the said company, from two hundred thousand dollars, divided into four hundred shares of five hundred dollars each, the present capital stock of the company, to five hundred thousand dollars, divided into five thousand shares of one hundred dollars each.

I. BARTLETT,
E. WARD McLEAN,
JACOB HARDY, } Trustees

MILL STONES.

Portable Mills, Eureka Smut Machines, Bran Dusters, Dufour & Co.'s Celebrated Dutch Anchor Bolting Cloths, and General Mill Furnishing.

TRAVIS & WAGNER,

18v24-3m 41 First street, San Francisco.

From 3 to 30 Horse Power. ALL SIZES **Hoadley's PORTABLE Engines** Sole Agents TREADWELL & Co

"THE HOADLEY" is the Perfection of the Portable Engine. For sale, with or without wheels, at Machinery Depot of TREADWELL & CO., Market, head of Front street, San Francisco, 14v24 eowbp

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ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,

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IRA P. RANKIN, A. P. BRAYTON,
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Steam Engines and Boilers,

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS

Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

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N. B.—Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR.

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FULTON
Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

E. corner of Tehama and Fremont streets, shove Howstreet, San Francisco. 3-qy

GEORGE T. PRACY,
MACHINE WORKS,

109 and 111 Mission Street,

SAN FRANCISOO.

These Works have lately heen increased, by additional Tools, and we are now sble to turn out any kind of work, equal to and cheaper than any establishment in the State; that is to ssy:—

STEAM ENGINES,

Flour and Saw Mills,

QUARTZ MACHINERY

Printing Presses,

AND MAOHINERY MADE OF EVERY DESCRIPTION.

Improved Safety Store Hoists,

Fitted with Cutting's Patent Cams, unequaled for ssfety, convenience and cheapness. This Hoist can be built for sbont half the price of any other in use. To be seen at HAWLEY & CO.'S.

ALSO, MANUFAOTURER AND SOLE AOENT FOR

Pracy's Celebrated Governor.

TURNING LATHES, Etc., constantly on hand.

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UNION IRON WORKS,

Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTBERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR

WILCOX'S PATENT WATER LIFTERS,

Dunbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

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SACRAMENTO CITY

PACIFIC
Rolling Mill Company,

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Estsblished for the Mannfacture of

RAILROAD AND OTHER IRON

—AND—

Every Variety of Shafting,

Embracing ALL SIZES of

Steambont Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames

—ALSO—

HAMMERED IRON

Of every description and size.

☞ Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will ceive prompt attention

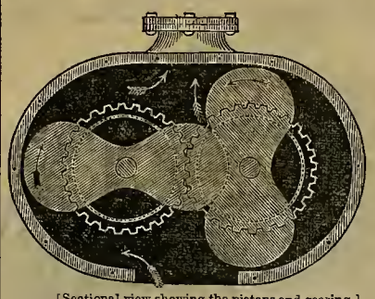
☞ The highest price paid for Scrap Iron 9v14sm

ROOT'S PATENT FORCE BLAST ROTARY BLOWER,

MANUFACTURED AT THE

GLOBE IRON WORKS,

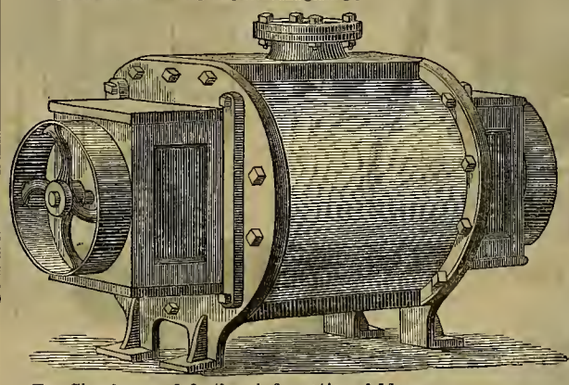
Stockton, Cal.



[Sectional view showing the pistons and gearing.]

Awarded the First Premium at the Paris Exposition.—Patented November 1, 1864; July 24, 1866; and October 9, 1866.

Adapted for Smelting, Foundry, Mining and Steamships. Requires 50 Per Cent. less power than any Blower now in use.



One of these Blowers may he seen at W. T. Garstt & Co.'s Brass Foundry, San Francisco; Gould & Ourry and Savage S. M. Co.'s, Nevsds; and at C. P. R. R. Co.'s Works, Sacramento; and other places on this coast.

CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certsin parties, not anthorized to manufacture the Blower, have put in the market machinos of inferior construction, which do not answer all the requirements of the genuine srticle. Quartz, Saw and Grist Mill, Iron, Stationary and Steamboat Engines, Horse-Power and Pumps, of all Sizes.

For Circulars and further information, Address

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CAMERON'S

STEAM PUMPS.

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Engine Regulators.

GIFFARD'S

INJECTORS.

BARTOL'S

STEAM TRAP.

Surface Condensers.

DAVID STODDART,

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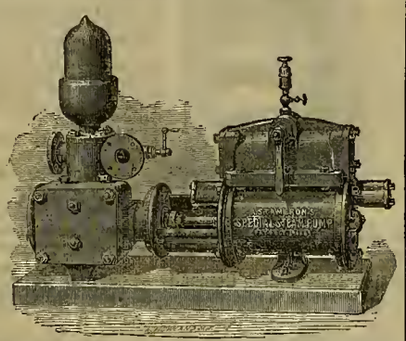

San Francisco Boiler Works, 123 and 125 Beale Street, San Francisco.

F. I. CURRY (late Foreman of the Vulcan Iron Works), Proprietor.

High and Low Pressure

BOILERS

of all descriptions.

SOLE

Manufacturers of the

CELEBRATED

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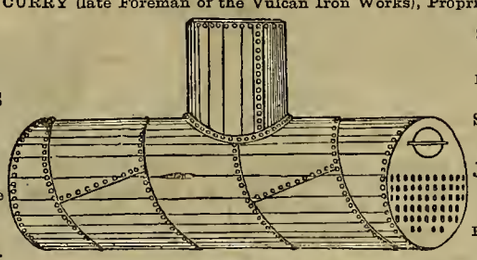

Sheet Iron Work of every DESCRIPTION done at the Shortest Notice.

All kinds of

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and Repairing Promptly Attended to.

22v22-3m

THE RISDON
Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1868.
CAPITAL.....$1,000,000.

LOCATION OF WORKS:
Corner of Beale and Howard Streets,
SAN FRANCISCO.

Manufacturers of Steam Engines, Quartz and Flour Mill Machinery, Steam Boilers (Marine, Locomotive and Stationary), Marine Engines (High and Low Pressure). All kinds of light and heavy Castings at lowest prices. Cams and Tappets, with chilled faces, guaranteed 40 per cent. more durable than ordinary iron.

Directors:

Wm. Alvord,	O. J. Brenham,	C. E. McLane,
Wm. Norris,	Wm. H. Taylor,	Lloyd Tevis,
	James D. Walker.	

WM. H. TAYLOR.....President.
O. E. McLANE.....Vice President.
JOSEPH MOORE.....Superintendent.
LEWIS R. MEAD.....Secretary.

24v17-qy

OCCIDENTAL FOUNDRY,

137 and 139 First st., nesr the Gas Works, San Francisco.

STEIGER & BOLAND,

IRON FOUNDERS.

IRON CASTINGS of all descriptions st short notice.

NOTICE.—Particular attention paid to the making of Superior Shoes snd Dies. 3v24-3m

Miners' Foundry and Machine Works,

CO-OPERATIVE,

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Machinery and Castings of all kinds.

COPARTNERSHIP NOTICE.

We have this day admitted Mr. William R. Eckart as a member of our firm, the husiness of which will he hereafter conducted under the firm nsme of Prescott, Scheidel & Co. PRESCOTT & SCHEIDEL.

Marysville, Jan. 8, 1872.

MARYSVILLE FOUNDRY.

Referring to the above, we respectfully solicit the patronage which has for the past twenty years been enjoyed by our predecessors, pledging our best attention to the wants of all who may so favor us.

Quartz and Amalgamating Machinery,

SAW AND GRIST MILLS,

STEAM ENGINES,

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HOUSE FRONTS, ETC.

Repairs upon all kinds of machinery promptly made and at moderate charges. Having unrivalled facilities, we are prepared to make to order, at short notice, everything required in our line.

Specimens of our work may be seen in all the mining regions on this coast.

5v24-3m PRESCOTT, SCHEIDEL & CO.

CALIFORNIA BRASS FOUNDRY,

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ALL KINDS of Brass, Composition, Zinc, and Babbitt Metsl Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch

☞ PRICES MODERATE. ☜

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Marine, Locomotive and Stationary Engines Quartz Crushing and Amalgamating Machines, Mill Irons and Brass and Iron Castings, of every description, made to order.

Steamboat Repairing, Boiler Making, Turning and Finishing,

EXECUTED WITH DISPATCH.

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OIL MACHINERY.

A complete set of Machinery of our own design and patent for extracting oil from Castor Bean, dispensing with Hair Cloth. Also Machinery for Flax Seed Oil, Mustard Seed Oil, and Sun Flower Seed Oil.

MARBLE MACHINERY

For sawing Marble of any thickness or size.

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MANUFACTURERS OF ALL KINDS OF

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EUREKA FOUNDRY,

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LIGHT AND HEAVY CASTINGS,

of every description, manufactured 24v16qr

FERRACUTE MACHINE WORKS,

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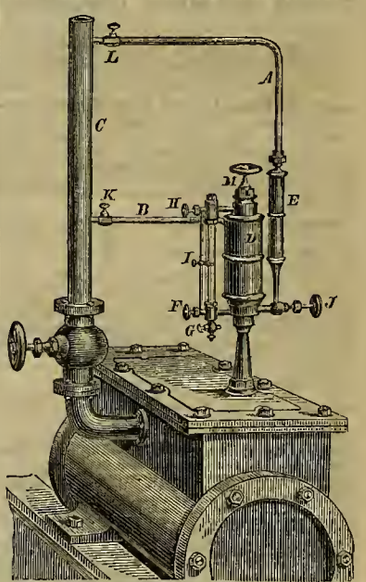
PRESSES, DIES and all FRUIT CANNERS TOOLS a specialty.

Improved 3-lb. Can Press for $65; Rotary Solder Cutter, $15, etc. 13v24-13t

Machinery.

N. Seibert's Eureka Lubricators.



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Awarded hy the Mechanics' Institute Fair, San Francisco, and State Fair, Sacramento, 1871.

These Luhricators are acknowledged hy all engineers to be superior to sny they have ever used; feed constantly by pressure of condensed water, supplied by pipe A, regulated under the oil by valve J, and forced out through check valve snd pipe B into the steam pipe C; it then becomes greasy steam, passes to all the valves and cylinder at every stroke of the engine; glass tube I indicates smount used per hour. Packing on rods snd steme lasts longer, and the rings on the piston will not corrode. One pint of oil will last from three to six days, according to speed and size of engine; I, sliding gauge; K, valve to shnt off when engine stopps; H, F, valves to shut off in case of frost; steam does not enter the cup; it is alwsys cool; warranted to give satisfaction. Patented February 14, 1871. Manufactured hy California Brass Works, 125 First street, S. F. 24v23tf

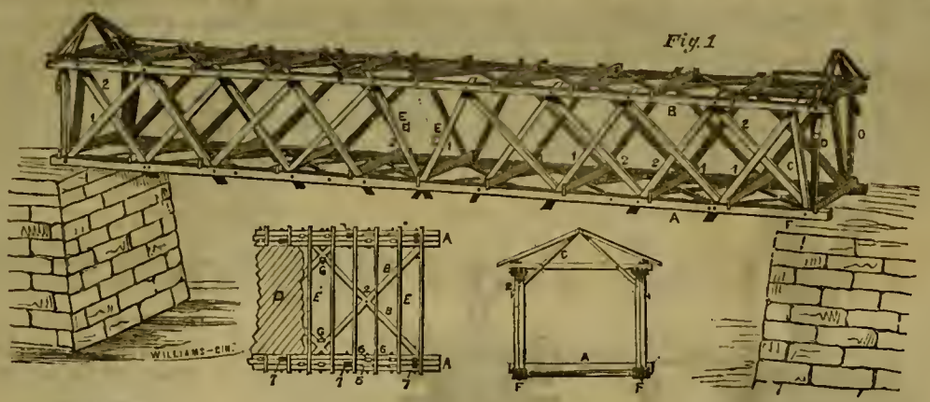
Notice is hereby given, that the copartnership herctofore existing hetween A. J. Severance, Charles W. Randall and J. Gus. Burt, under the firm name of "Severance, Holt & Co.," is this day dissolved hy mutual consent. A. J. Severance, having purchased all the interest of his late partners, will continue the business of manufacturing and selling Diamond Drills, as before, under the style of A. J. Severance & Co.

Dated San Francisco, Nov. 24, 1871.

Office, 315 California street. A. J. SEVERANCE, CHAS. H. RANDALL, J. GUS. BURT.

22-v23-tf

PACIFIC BRIDGE COMPANY,



WORKS NEAR SOUTH POINT MILL, BERRY STREET, SAN FRANCISCO, CAL.

Are Prepared, with Superior Machinery, to Manufacture and Build all kinds of Bridges on Smith's, Howe's, and other Improved Plans. Framing of all kinds done by Machinery.

The Smith Bridges have been thoroughly tested in the East for Three Years, and wherever tried have proved superior to any other Bridge in the following points:

Being built of wood entirely, they are not affected by change of temperature.

The timber used is placed so directly in the line of strain, that less material is required to support the same load.

It is not perceptibly affected by shrinkage. It is the most Economical Bridge built. It is adapted to any practicable LENGTH OF SPAN.

Plans, Specifications and Terms will be sent to any County, Township or Person wishing to build a Bridge, and no charge made unless the Plan is used. For all Public Bridges the Plan will always be open to competition.

Smith's celebrated CAST IRON PIER, economical, and adapted to heavy currents, built at low rates.

C. H. GORRILL, Secretary. **W. H. GORRILL, President.**

WOOD WORKING MACHINERY

MOLDING, MORTISING,
TENONING AND SHAPING MACHINES,
BAND SAWS,
SCROLL SAWS,
Planing & Matching
MACHINES, ETC.,
For RAILROAD, CAR, and AGRICULTURAL SHOPS, Etc., Etc.
☞ Superior to any in use

J. A. FAY & CO.,
14v24-6m CINCINNATI, OHIO.

POWER, TAINTER & CO.,

MANUFACTURERS OF

WOOD-WORKING MACHINERY,
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☞ Woodworth Planers a Specialty. 2v23-1y

Varney's Patent Amalgamator.

These Machines Stand Unrivaled.

For rapidity pulverizing and amalgamating ores, they have no equal. No effort has been, or will be spared, to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces.—Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Setlers made on the same principle excel all others. They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

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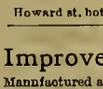

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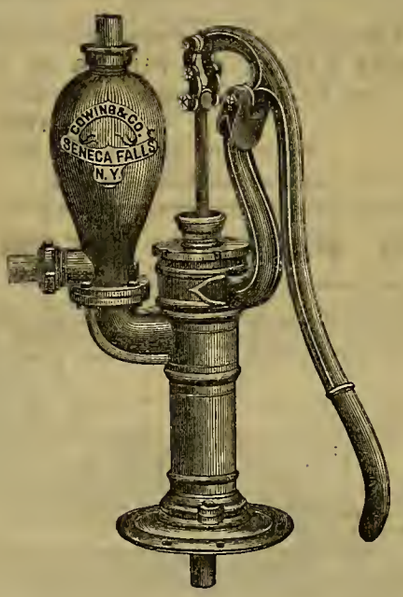

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Extract from Official Report of Mechanics' Institute Fair of San Francisco, 1871.

"In the foregoing trials it appears that the most efficient Pump on exhibition is the KNOWLES. The workmanship on this Pump is also very good. We would therefore recommend that this Pump receive a Silver Medal. (Diploma awarded). Signed by the Committee:

G. W. DICKIE, H. B. ANGELL,
CHAS. R. STEIGER, W. EPPELSHEIMER, MELVILLE ATWOOD."

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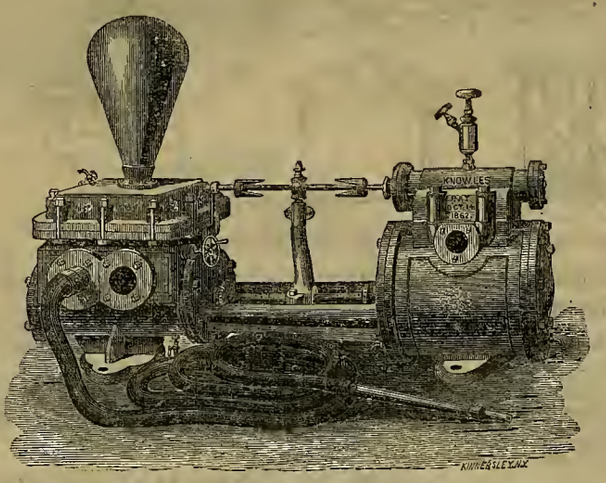

It has no Cranks or Fly-Wheel, and has no dead points where it will stop, consequently it is always ready to start without using a starting-bar, and does not require hand-work to get it past the center. Will always start when the steam cylinder is filled with cold water of condensation.

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BLAKE'S STEAM PUMP.—This Pump yielded the best results as to the quantity of water discharged as compared with its measured capacity. The valves are of brass, and well arranged. The steam valves are well arranged for operating the pumps, either fast or slow.

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[No other Steam Pump received other than a Diploma or honorable mention at the LAST Mechanics' Exhibition, *all other assertions to the contrary notwithstanding*. Hooker's Hand Pump was the *only* Pump of any kind whatsoever, that received a MEDAL and FIRST PREMIUM (highest award to pumps) at the *last* Exhibition, for which we are also selling agents.—*See official Report of the above Committee.*]

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BY DEWEY & CO., Patent Solicitors.

SAN FRANCISCO, SATURDAY, JUNE 15, 1872.

VOLUME XXIV. Number 24.

The Hydraulic Ram.

EDS. PRESS:—Boing a subscriber to your valuable paper, I wish to ascertain something abont tho working of a hydraulio ram, through your columns. I do not understand anything of the workings of the ram, tho number of feet they will force the water, the amount of water needed to work them or the quantity of water forced np tho elevation, the cost of the ram, pipe, etc., and whore they can be purchased. If you can answer my question yon will confer a favor on O. O. I.

Bear Valley, Colusa Co., May, '72.

Wo have received numerous qneries similar to tho above during the past year, from which we infer that mnch attention is heing given to this mode of snpplying water for household and farm purposes. It is in view of this that we have had an engraving propared from an original drawing, giving a view of the working parts of the machine, which, with the aocompanying description, will give a clear insight into the principle upon which the machine works. The tahle appended will also enahle the reader to judge of the size of the ram which he may require to meet his needed supply, or to ntilize the amount of water he may have at his command. The illustration which is herewith given differs from any with which we have met in any of the technical works of the day, and shows the machine in its most improved construction. We hsve examined some of these machines, for sale hy the importers, Messrs. Brittan & Holhrook, of this city, who can be consulted fully with regard to pricos, etc., which we helieve range from $9 to $60, according to the size of the machine.

Philosophy of the Hydraulic Ram.

Fluids are subject to the same law of gravity as solid bodies, and a mass of fluid descending vertically has its motion accelerated in the same manner as a solid mass, and the momentum generated is the product of its quantity of matter and velocity. If a column of water moves throngh either a vertical or an incline pipe, it acquires a velocity, which from the friction of the pipe will soon become nniform, and the momentum generated will be measured by the mass, multiplied into the uniform velocity; new force is also necessary for the destruction of motion, and the shorter the time through which it acts the greater is the effect produced. Thus a small hammer of steel is more effective against a nail than a mallet twenty times its weight, hoth moving with the same velocity. By the density of the face the motion is destroyed instantly, and instantly received by the nail. In the mallet, motion is communicated gradually, and diffused more or less over the body into which the nail is driven.

The sudden destruction of motion in fluids as a mass is attended with effects precisely analogous. When the motion of a large body of water is suddenly stopped, the surface which stops it sustains a great force. The pipes of our hydrants are sometimes bursted when the stop-cock is suddenly shut off.

The power of the hydraulic ram is constructed on this principle, being an impnlsive machine, deriving its power from the work accnmulated in the water which snpplies it.

In the illnstration herewith presentod, *A* is a valve which opens downwards, allowing the water to escape, and so produces a current down tho conduotor pipe *H;* the water acqniring a sufficieut velocity will close the valve *A*. The motion is thus suddenly stopped, cansing a reaction and a pressure snfficient to open the valve *B*, and forces water into the chamber *C*. The pressnre overcome, the valve *A* falls by its own weight, and the current again directed towards the opening *A*, the pressure at *B* being removed, the valve falls and closes the chamher *C*. The ram is now in the same condition as at first. The water acquiring a sufficient velocity, closes valvo *A*, and is forced into chamber *C*, and so the action continues.

The space *C* is an air chamher, from which the supply into the discharge pipe *E* is steady. If a ram he used to raise water to a grcat elevation, it would be suhjected to a great inoonvenience that would soon destroy the benefit of the air chamber, from the fact that if the air he suhjected to great pressnre, it will in time be incorporated hy the water, and to remedy this a very small hole shonld be made in the upper side of the pipe *H* at *F*. Where the rush of water is suddenly stopped by the valve *A*, a partial vacuum is produced below the air chamber hy the recoil of the water and air enters at *F*, and is afterwards forced into the chamber *C*, and supplies the deficiency. In small rams the opening is not necessary.

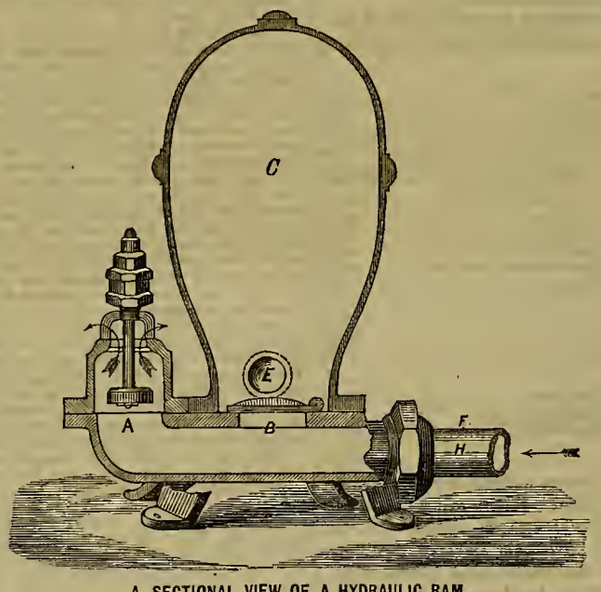
The annexed tahle has heen prepared to show the nseful effects of this device for raising water, designating the capacity of varions rams, with the necessary appendages of pipe, etc.:—

Size of Ram.	Amount of Water Delivered Per Minute.	Conduction.	Diameter of Pipes. Inches.	Discharge.	Weight of Ram.	Space Occupied.
2	3 quarts to 2 gals.	⅜	⅜	½	22 lbs.	1 cubic ft.
3	1½ " " 4 "	1	½	¾	29 "	
4	3 " " 7 "	1¼	¾	1	35 "	
5	6 " " 14 "	2	¾	1¼	55 "	
6	12 " " 25 "	2½	1	1½	125 "	4 cubic ft.
7	20 " " 40 "	2¾	1¼	2	200 "	
10	25 " " 75 "	4	2	3	700 "	18 cubic ft.

The above table is calculated for a conductiou pipe, with a head not exceeding ten feet, with 25 to 50 feet length of conduction pipe, and 50 to 100 feet hight of discharge pipe.

If the ram he placed under a greater head or fall than designated in the ahcve tahle, then the strength of the conduction pipe must he increased—that conseqnently increasing the weight; also, should it be necessary to force the water to a greater hight than those mentioned, the discharge pipe must he increased in thickness in proportion to the pressure exerted, and the diameter enlarged.

If the head of water be over that given in the tahle, then a smaller sized ram will furnish the same quantity of water as a larger one under a less head. For instance, a No. 4 would be of sufficient capacity, under a head of 8 or 10 feet, to deliver 7 gallons per minute; whereas if the head was hut 3 or 4 feet, a No. 5 would he necessary to deliver the same amonnt. If the head is a large one, and a greater supply of water delivered be required than one ram will supply, then increase the numher of rams, for several rams can he erected so as to deliver into one discharge pipe, each ram having a separate conduction pipe to its head. There is a governor attached to these rams, by which the supply is regulated, and the quantity delivered is not affected by the rise and fall in the head.



A SECTIONAL VIEW OF A HYDRAULIC RAM.

THE mines of LaSalle, Ill., now produce 700 tons of coal daily.

The State Fair.

The indications are that the California Stato Fair will far exceed this year any fair of the kind ever held in the State. The visiting committee are traveling among the producers and exhibitors, and give most flattering accounts of the prospects. Col. Younger, of the committee who has been among the cattle, sheep and goat men of the Sontbern Counties, writes to the Board of Directors as follows.

"I mnst say that I have never seen any people in better spirits. Their crops are looking splendidly, and stock the same.

There will be the largest exibition of sheep and angora goats and their grades that has ever been made at any fair in the United States. You will have to make more room for sheep and goats. From this section alone, there will be from three to four hundred head of sheep and goats. They are preparing to contend for every premium offered—in other words, they intend to make these departments a success at the State Fair. The prospect is that the coming fair will be the greatest exibition ever held in any State in the Union. Great interest is manifested everywhere."

SAN FRANCISCO MICROSCOPICAL SOCIETY. The regular semi-monthly meeting of this Society was held on the 7th inst. A fine specimen of platin. cyanide of magnesinm was presented hy Mr. Charles G. Ewing. The committe on purchase of instruments reported that they had sent for two first class instruments with accessories including a cahinet capahle of holding 1,000 objects. C. M. Kinne read a paper on the scale insect which was spoken of at the previons meeting. Under the microscope it appeared of a reddish color with dark spots, tortoise-shaped, flexible hack proecting over the body and legs, fringed with a sort of hair. It has apparently eight legs. The mouth is large and circular. The insect fastens itself to one spot, lays about 100 eggs aud then gradually shrivels np and dies, leaving the scaly covering as a protection for the eggs. The insect is about one-tenth of an inch long and half as wide. The young are a yellowish green color.

Mr. Hanks showed a 1-15 inch object glass of fine construction with which animalcnlae from the city water were examined. It is proposed shortly to incorporate the society.

THE PIONEER MINERS' ASSOCIATION.—The first annual festival of this association was held at the City Gardens in this city on the 9th and 10th inst. An old time lunch of pork and beans, flap jacks, etc., was set out for the guests. The association paraded the streets headed by a band, all dressed in the characteristic costnme of the miners of early days. All the requisites for illustrating the methods of mining were supplied. Long toms, sluices, cradles, etc., were arranged near the lake, and some "salted" dirt was washed ont. An arastra was in operation, and a shaft was sunk; the Court of the Justice of the Peace was in full blast. A number of miners cabins were erected and cooking done in good style. Prizes were awarded for the best miner; best cook; best rocker; best flap-jack; best two sluices; shaft sinking; representation of Judge Lynch; best chimney, etc. A dance wound up the festival. The association numbers about 200 members, embracing many old pioneers. It is a benevolent organization intended particularly to assist old-time miners who have become aged and infirm.

CORRESPONDENCE.

The Manufacture of Tea.

EDITORS PRESS:—I find hy yonr paper that something is heing done in the way of experiment towards the manufacture of tea in California. I have much pleasure in sending you a few of the methods which I have successfully employed in India, commencing with green teas.

Green Tea—Process No 1.

First day and night—1. Plucking the leaf; 2. Panning at 200° F.; 3. Rolling thoroughly (by machines or otherwise); 4. Expressing the juices by means of the hands or a press.

Second day—5. Slight evaporation of juices in the sun, or artificially; 6. Drying on the pan at 180°, gradually cooling the pan as the process proceeds; 7. Picking out stalks and coarse leaf.

Third day—8. Winnowing and sifting; 9. Packing.

Green Tea—Process No. 2.

First day and night—1. Plucking the leaf; 2. Roasting; 3. Rolling.

Second day—4. Exposure to the snn; 5. Rolling on trays meanwhile; 6. Drying over charcoal fires if still wet; 7. Fermentation on pans at 150°, gradually cooling to 130°; 8. Sifting and classifying.

Third day—9. Final drying on cool pan, to ohtain color; 10. Pack hot.

Black Tea—Process No. 1.

1. Plncking leaf; 2. Spreading out thinly; 3. Exposure to sun and air; 4. Panning; 5. Rolling; 6. Exposure to air until completion of rolling; 7. Fermentation; 8. Spreading thinly to partially dry; 9. Final drying over charcoal; 10. Picking, sifting, etc.; 11. Packing.

Black Tea—Process No. 2.

First day and night—1. Plucking the leaves; 2. Spreading out thickly.

Second day and night—3. Exposure to air and tossing; 4. Panning at 180° or 200°; 5. Rolling and exposure to air; 6. Panning at 160°; 7. Rolling; 8. Spreading out thinly.

Third day and night—9. Partial drying in sun or otherwise; 10. Picking coarse leaf, etc; 11. Final drying over charcoal fires.

Forth day—12. Sifting, separating, winnowing, etc; 13. Packing.

Very many other methods are in vogne, according to climate and the kind of tea required.

JAMES MACPHERSON,
4 Stoneleigh Villas, Erith, Kent, Eng.

James Davenport Whelpley.

The subject of the following sketch was for several years a resident of California, where he found many warm friends, who deeply deplore his death, several of whom have desired to see the following tribute to his memory appear in a California paper:

On Monday, April 17, there died in Boston, one of the most remarkable Americans who have contribnted to the thought of the present century. Descended from the leader of the New Haven colony, and inheriting those qnalitiee which made one ancestor a martyr for the canee of the church, universal and catholic, and another a seeker for liberty of conscience in the wilde of the new world; learned in all the exact sciences, and an accomplished reasoner from facts; of varied experience as a journalist, a politician, a leader of a colony, an inventor and a scientist, a most fascinating conversationalist, an exact thinker, a wonderfnl man in every respect, his life still failed of being a success to himself or to the world, jndged as the world judges.

But the prophet is a mystery to the ordinary man, and hie life must be measured by the "prophet'a reed," and not by the ordinary measure of men. He lived, a eearcher after truth—he lived, a student of the exact sciences,—ho lived, a collector of material for a great work he was always promising himself to pnblish. And to this end he had bent all the energiea and love and hope of his life, and to this end all other objects and aims, the fruition of ordinary hopes were but means. No snccess wae a finality to him becanse there was this hope in the future; no disaster could depress, for this hope always remained. A physician by profession, his technical knowledge was only a broad fonndation of physiological atudy. A trained and practical geologist and mining engineer, his profound knowledge was only a stone in the bnilding he was hoping to construct. A chemist who anticipated the dednctions of Gerhardt by a dozen years, the chemical knowledge was only a solution of some problems of the arcannm, which gave rise to new questiona to be solved. Noted as a controversial writer, a master of the humorous satire which Rabelais and Irving have used so powerfully, of a weird and brilliant imagination and fascinating style as a story writer, this command of English, which would have made him famous if it were his sole possession, was still only a means. His many inventions in mechanics and the arts he looked on, not as resnlte so mnch as incidente, and his life was spent in trying to do more. For ten years an invalid in terrible daily snffering, his brain daily worked his enfeebled body to its ntmost, and he lived almost by sheer strength of will.

His life's work is unfinished. Contribntions to it appear in the papers of the American Academy, in detached newspaper articles, some under his eignature, others not. Bnt he died almost before his material was heaped together. He intended to develop a new theory of evolution of order from chaos, of life from inanition, of spirit from life, and he died before the work was more than begun. In thinking of him hereafter his career mnst be judged by its hopes and intentions and not by its results. And let ns hope that the thought of that active brain, that truly remarkable mind, has not been utterly etilled by death bnt that, as the master workman has among his journeymen, among many craftsmen, some sons of the craft, so the labor of his life may be taken up by loving and loyal hearts and strong and active minds, and that the nnwritten results of his life may still fructify for the nourishment of mankind.

Mining Companies' Reports.

Crown Point Mining Co.

The annnal meeting of the Crown Point Mining Co. was held on the 3d inst., and Trnstees for the ensuing year were elected. Their names will he found in another column. The Secretary's report for the fiscal year ending May 1st was read. The numher of tons of ore extracted was 81,226, at an average cost of $7.09, and 80,567 tons of ore were milled at an average cost of $11.43 per ton. The numher of mills employed in crnshing this ore was fifteen, inclnding the Rhode Island mill helonging to the company. The average of this ore was $43.48, and the total product amounted to the sum of $3,503,633.

The Secretary's report gives the following receipts and expenditures for the fiscal year:

RECEIPTS.	
From bullion	$3,603,633
Miscellsneous sources	2,328
Totsl receipts	$3,505,961
Cash on hsnd, Msy 1st, 1871	94,602
Totsl	$3,600,663
EXPENDITURES.	
Mines, labor snd supplies	$576,670
Mine improvements	66,331
Rhode Island mill—lsbor	109,331
Rhode Island mill—improvements	14,307
Crushing 67,220 tons ore	807,309
General expenses, Gold Hill office, etc	36,369
Legsl expenses	8,400
San Francisco offics expenses, etc	9,171
Discount	2,803
Interest	1,335
Assaying	18,462
Taxes	18,454
Tressure freight	13,647
Real Estate	468
Total expenditures	$1,682,048
Cash, Msy 1st, 1872 $644,607	
Cssh in hands Superintendent 14,008—	658,515
Dividends to stockholders	1,260,500
Total	$3,600,563

The difference between the total receipts and expenditures leaves a surplus of $1,823,913, of which $1,260,000 has heen dishursed as dividends and the remainder carried to the surplus fund, leaving $644,507.09 cash on hand on the 1st of May. The assets of the company, inclnding said cash amount to $895,903, and the liabilities are nominal. The mine has paid out as dividends a total of $105 per share or $1,260,000. Of these dividends five were $10 per share, two $15, and one $25. Since the first of May the largest dividend ever paid by a mining corporation has heen dishnrsed, viz.—$480,000 or $40 per share.

This showing is a very favorable one as the expenses were very small. The average yield of the ore for the year heing $43.48 the mining costing hut $7.09, the crushing $11.43, and the general expenses on the numher of tons crushed $1.53, leaves a profit of $23.05. The operations in the mine during the past month have been retarded hy the water, and hy an accident to the machinery. The capital stock of the company is now $10,000,00 in 100,000 shares.

Mammoth S, M. Co.

This company held their annnal meeting on the 3d inst. and elected trustees for the ensuing year, whose names will he found in another column. The Secretary's report shows the receipts to have heen $10,997.93, of which $7,184.32 were from assessments, $1,539.41 from hullion, and cash on hand in 1871, $2,217.45. The dishursements were $10,339.51, of which the principal items are milling and hauling, $965.25, labor $4,744.75 and general expenses, salaries, etc., $2,276.44. The assessments during the fiscal year only amonnted to 20 cents per share and there are no liabilities.

Yule Gravel M. Co.

The Yule Gravel Mining Co. met on the 3d ult. The Secretary's report shows the receipts to have heen $599.24. Nine dividends amounting to $45,000 were disbursed by the company and other expenses were $13,853, leaving $1,400 on hand.

The Institute of Mining Engineers.

The Institnte of Mining Engineers has elected the following officere for the coming year:

President, Rossiter W. Raymond, New York; Secretary, Martin Corryell, Pennsylvania; Treasnrer, J. Prior, Pennsylvania; Managers: Abraham S. Hewett, New York; G. W. Maynard, Troy; T. M. Drown, Philadelphia, and several others.

Yesterday the members of the organization visited the Stevens Institnte of Technology, in Hoboken, where they were joined by ex-Gov. Ward, Peter Cooper, Prof. Draper, Dr. John Torrey, Prof. Silliman, and a large company of distinguished scientific men. Prof. Henry Morton, Principal of the Institute, received his guests in a hospitable manner, and several hours were spent in examining the commodious new building and the valnable collection of apparatus which the Institute possesses. The workshops, laboratories, and lecture-rooms, aside from the excellence of their construction, have every appliance for facilitating stndy. Although the Institute has not yet been open eight months, it has already 21 students.

In the evening the members reassembled at the rooms of the Geographical Society, Cooper Institute, when Prof. R. W. Raymond of New York read, in substance as follows, on the "Eureka (Nevada) and other Base Metal Districts of the West:"

"The Eureka District stands now third in rank of the silver producing camps of Nevada. During the most of the year four and sometimes five furnaces (combinations of the Rachette and Piltz) have been in blast. Late last year, and in the earlier months of the present year, the Eureka Consolidated Mining Company discovered immensely valnable and extensive bodies of ore in the Lawton tnnnel. Ruby Hill is a spur of the diamond range. The openings of the Eureka Consolidated as well as those of the Richmond and Tip-Top are on the western, and the new ones on the eastern slope. The strike of the ore body is nearly east and west, and its dip abont 45 degrees to the northeast. For this reason ore was first discovered on the western slope of the hill, where the vein crops out. The Lawton tnnnel is now in over 600 feet, and passes 120 feet to the north of the Keyes shaft, between it and the windsail shaft. At its end it is in ore. The Keyes shaft is now 175 deep, and serves as the main hoisting shaft for the old works. These are the largest extent in quartzite. The approach to the vein matter is distinguished by a yellow color of the first dense, afterward broken, limestone; next by a stronger impregnation of pulverulent brown and yellow iron ore and stripes of the first; finally, the ore body proper—brown iron ore, with impregnations and bands of carbonate of lead or lead ocher, is reached. While on the western slope, beside the yellow memetele, large masses of solid carbonate of lead, with so-called 'black carbonate,' whoh is probably a new mineral, and little galena were found. The oree encountered on the eastern slope in iron-stained masses, which are poorer in lead, are principally highly argentiferous galena and 'black carbonate' in lumps and nests of often over 100 ponnds weight. For this reason there is now much more base bnllion prodnced than formerly. Seven tons of ore now produce one ton of lead, while formerly it required 10 to 12 tons. At Richmond the best and most profitable smelting works in the State are building energetically. All signs point to the enormous industrial increase dnring the coming year, especially if capitalists should take up the Prospect Hill mines. The total prodnct of bnllion of the Eureka Consolidated, during 1871, was abont 3,172 tons. The average contents in gold and silver for the whole yearly product may be estimated as $250 per ton. Adding $100 per ton for the lead we have a gross vàlue of $1,110,314.10. The gross valne of the total productions of gold, silver, and lead, dnring 1871 by the varions companies, including the Eureka Consolidated in Eureka, was $2,035,588.86; the total qnantity of bullion shipped, 5,665 tons, 1,074 pounds. All the base metal mines in the district have the same character as those previously described, and vary less in the classes of ores occurring in them than in the size of the ore bodies."

Prof. Raymond then read a paper, snbmitted by R. H. Terlmne of Chicago, on "Malleable Cast Iron." Papers were also read on "Peckham's Improvement in Forge Firee and Furnaces," by George W. Maynard, and on "The New Mining Law," by Prof. Raymond. The Institute is nominally adjourned until October, when it will meet again in Pittsburgh; bnt today several members will visit the East river caissons and the Hell Gate works.—*N. Y. Tribune*, May 24.

Important Mining Decision.

Commisioner Drummond, of the Land Office Department, has jnst rendered an important deci sion touching qnestions of conflict on the the Cometock lode, State of Nevada. The Gold and Silver Mining Company have made application for a patent, which was protested by the Chollar-Potosi and Bullion Companies lying immediately east of the Julia claim, which protest was overruled and the patent issued.

The Chollar Company claimed that the lodes upon which the Julia was located were "parts and parcels of the Comstock lode," and belonged to the Chollar Company by virtne of its patent, issued February 4, 1870. The Commissioner says there is nothing to show that the surface claims conflict and that the objections are based rather on a contingency which may hereafter occur, than anything at present definite or tangible; but as this can only be determined by future developments, the wisdom and justice is not perceived of indefinitely snspending the execution of the United States Mining lawe on any claims which may be in the neighborhood of either the Comstock or any lode, to await such future event. Should the veins eventnally unite, he points to the remedy in the Mining Law, which declares "that where two or more veins nnite, the oldest or prior location shall take the vein below the point of nnion, including all the space of intersection;" by which clause, he says, the Chollar Company would be fully invested with title to the lode below the point of union, but that their claim to the veins claimed by the Jnlia Company above the point of intersection, is not recognized by the statute.

A RECENT issue of the London *Mining Journal* records the trial of a new form of stamping machinery, which professes to economize greatly in consumption of fuel, to he exceedingly efficacious in work, and to be of comparatively small original cost. A working experiment was made with this new machinery—which appears to he an adaptation and modification of the Nasmyth hammer—with a view of determining its usefulness for purposes of tin ore crushing, the trial being made at the West Wheal Jewell. The head of the stamp is fixed to a piston-rod and works by direct action, the steam heing conveyed through a steam pipe from the boiler. In the experiments to which we allude, the stamps worked at the rate of 110 strokes per minute, and one head crushed one hundred weight of hard tinstone in a little less than four minutes; hut the inventor claims that the stamps will work at the rate of 120 strokes per minute nnder ordinarily favorable circumstances, and crush twenty-four tons per head a day. The hammer-heads are much larger than the old stamps, measuring eighteen inches by eight, and the piston-rod and hammer together weigh about eight hundred weight. The force of the stroke, with medium pressure, is from thirty to thirty-five hundred weight

AN "INTERNATIONAL LABORATORY."—In connection with the grand Vienna Exposition to be held next year, Prof. Lielegg calls attention in the *Ill. Exposition Journal* (for copies of which we are indebted to C. J. Schultze of Pesth) to the so-called *Laboratoire international* of the Paris Exposition. The object of this institution, which did not attract the attention it merited, was to enable visitors to obtain a better knowledge and form a better judgement of the merits of exhibited articles than could be obtained by mere inspection. The object was most praiseworthy although not attained in the highest degree. Still it gave much precious teaching to the visitor. For example, the experiments in melting large amounts of platinnm by means of Deville's apparatns, and of gold, silver, copper and iron with the oxyhydric apparatns of Ibiesnegg, were o ten carried out; Girond'e preesure regulator for gas was pnt in operation; Dubosq made experiments with the spectroscope and the photometer; and Limousin explained and illustrated the harmless method of preparing oxygen for inhalation from chlorate of potash. It is to be hoped that at Vienna some snch plan may be carried ont on a large scale; for the "international laboratory" can be made one of the most interesting features, at least to men of science, of the Exposition.

THE topography of Vesnvius is reported to be completely changed since the eruption. A correspondent writing from Naples, says: "It is as though an earthqnake had altered everything. Hills have appeared where, but a few days ago, stones stood for visitors to rest npon. Precipices have been formed, which almost prevent further advance. All is altered; the very shape ot the monntain has lost its well-known ontlines, and the view is appalling.

TWENTY-FIVE miles an hour is shown hy signal service observation, to ho the average velocity of a storm; when it has twice that velocity it hecomes a tornado.

Scientific Progress.

A Waning Star.

In our last issue we made reference to the disappearance of the star, Eta Leonis [the printer made us say Mu Leouis]. Since that paragraph appeared we have seen a note from Geo. Madeira, of Santa Cruz, who, having examined this star with, probably, a more powerful telescope than the San Francisco observer, reports that on the 1st instant it was fast diminishing in brilliancy but had not at that time disappeared entirely. Mr. M. promises to continue his observations for a few weeks and give the public an account of the same.

Such phenomena as the disappearance of a star or any variation in a star which has hitherto maintained a permanent degree of luminosity, are of very rare occurrence and perhaps, a short reference to the more noted phenomena of this kind which have heretofore been noticed may be appropriate in connection with the one which is now attracting the attention of astronomers.

During the last 2,000 years there have been noticed some 20 "temporary stars," which have suddenly made their appearance in the heavens only to blaze out or flicker awhile and finally to disappear entirely.

Of the variable stars, which increase and diminish their light periodically, only about 24 have been thus far recorded.

The first variable star, Mira in the constellation, *Cetus*, was noticed in 1596. Subsequent observations have shown that this star has a periodicity of about 332 days, during which time it increases from total obscurity to a star of the second magnitude. When decreasing, it changes its color from white to red.

Seventy-three years afterwards, the noted star Argol (the demon star) was observed to be variable. It passes through its variations from the 2d to the 4th magnitude, and *vice versa*, every sixty-eight hours.

The star Cephas, makes its changes from 3d to 5th magnitude, in about 5½ days.

The most wonderful of the temporary stars, was seen in 1572. It appeared suddenly in the constellation, *Cassiopea*, and very soon reached the brightness of Sirius, after which it increased in brilliancy until it surpassed even Jupiter or Venus, and could even be seen in the day-time. Its period of increase was about one month; but its period of waning was very gradual—lasting about fifteen months. This star was first white, then red and finally white again.

Some astronomers think that this is a variable star of long period—about 313 years, from the fact that a similar appearance was observed in the same portion of the heavens in 945 and again in 1264. Its authentic appearance having been in 1572, if the surmise of its periodicity is correct its next appearance will be in 1885.

The most remarkable temporary star of recent times was the one which suddenly blazed out with a brilliancy of the 2d magnitude, on the 12th of May, 1866, in the constellation of the *Corona Borealis*. In its place, previously, had been recorded a telescopic star of the 10th magnitude. The sudden appearance of this star created quite an excitement in the scientific world. It was carefully investigated by Huggins with the spectroscope, who arrived at the conclusion that the star owed its sudden brightness to the evolution of flaming hydrogen. It was naturally supposed that such an active conflagration of that matter could not be of long continuance, and that its excessive brilliancy would soon fade away; a prediction which was fully verified, as the hydrogen lines disappeared in the spectrum in about eight days. It rapidly waned to the 6th magnitude, and more gradually from that to the 10th—its original record. Since 1868 it fluctuates slightly, but singularly, unlike the ordinary variable stars. In 1870 it was of the 7th magnitude, and now it shines with the 8th.

The variations of the periodically variable stars are generally thought to be due to the fact that they are double stars, revolving around a common center—one being brighter than the other. In cases of total temporary disappearance, one star may be totally devoid of light. Again "sun spots" may in some cases account for the phenomena of waxing and waning. In that sense the center of our solar system—the sun— is a periodically variable star of eleven years time—that being the period of its presentation of a greater or less number of "sun-spots."

With the later improvements and better understanding of the spectroscope, great advance is now being made in astronomical knowledge—particularly in relation to the physical condition of the heavenly bodies. Spectroscopic observations on the star Eta, which just now seems to be gradually flickering itself out of our view, will be looked for with much interest.

The Crystallization of Iron and Steel.—The various qualities of iron and steel may be compared by observing the forms of their crystals through a microscope. Cast steel of fine quality exhibits fine crystals of a needle-like shape parallel to each other; and the axes of these crystals are in the direction of the hammering to which the metal has been subjected. The surface of iron exhibits crystals of the shape of a double pyramid, the proportions varying with the quality of the metal. The pyramids more nearly approach a cubical form as the carbon in the metal is increased in quantity.

Measuring the Light of Stars.

Zoelner, of Berlin, has recently made an important addition to the means by which the astronomer seeks to measure the degree of light emitted from a star. The small quantity of light which reaches us from these distant bodies, renders the task of measuring the same by the instruments heretofore in use extremely difficult. The invention of Mr. Z., is a polariscope connected with a telescope. By this instrument, a ray of light is made to disappear and reappear alternately, by simply turning an eye-piece of Iceland spar around its axis, through an angle of 90°. This disappearance and reappearance is gradual, and the angle of rotation from 0° to 90°, may therefore be used as a measure of the intensity of the light—the stronger the light, the greater the rotation required to be toned down to a certain standard. Important results have already been obtained by the use of this instrument.

One of the most important results of this instrument, is the power which it gives of more accurately determining the periods of the variable stars. Heretofore it has been so difficult to measure the intensity of the light from a star, it was quite impossible to detect with even much approximate accuracy, the precise time occupied by a star in passing from its period of least light through its gradual increase and subsequent decrease of light, again to its point of least brilliancy.

Rosthornite, a New Fossil Resin.—A new fossil resin, named rosthornite, is described by Höfer as occuring in the coal of the Sonneberg, in Cariuthia. This has a fatty lustre, a brown color with garnet-red gloss, wine-yellow by transmitted light, and a light brown to orange yellow streak. When heated in the air it gives off white vapors having an aromatic odor, and burns with a smoky flame without leaving any residue. In chemical composition this mineral approaches most nearly to enosmite, and still more to the fossil resin of Girona, in New Grenada. This substance can not be properly assigned to any of the groups already established among the fossil resins, but seems rather to conform to the type of a solid resin, rich in carbon but poor in oxygen.

The spectrum of hydrogen has been recently made the subject of experiment by Prof. Angstrom; he states that it presents only four lines, and considers that the other spectra that have been given are in error from the presence of impurities. He also examined the spectra of atmospheric air under different degrees of rarefaction, and found that at first it was that of air; then of nitrogen; then of carbonic oxide; and when the exhaustion had reached its utmost limit the spectrum obtained was that of sodium and chlorine.

Coating Metals with Nickel by the Moist Way.—According to C. Mene, wrought and cast-iron, steel, copper, brass, zinc, and lead can be coated with nickel by putting these metals, or objects made of them, in a boiling neutral solution of chloride of zinc, to which a salt of nickel is added, and also zinc, in a granulated state or in sheets. If the solution be acid the coating will be dull. When, instead of a salt of nickel, one of cobalt be used, a coating of that metal may be obtained.

Marvels of the Microscope.—A beautiful and easily produced exhibition of crystal formation may be seen under the microscope as follows: Upon a slip of glass place a drop of liquid chloride of gold or nitrate of silver, with a particle of zinc in the gold and copper in the silver. A growth of exquisite gold or silver ferns will vegetate under the observer's eye.

A Society of Arts, Sciences and Letters, has just been started at Winona, Minn., in connection with the first State Normal School in that place, having for its object the collection of facts and materials looking toward the determination of the natural history, archæology, and general literature of the United States.

Another Singing Flame.—At a late session of the Philosophical Society of Glasgow, held lately, Dr. A. Irvine showed some experiments on a new variety of singing flame, and described and experimented with a new miner's safety-lamp, which involves the application of that flame. The experiments excited a great amount of interest among the members.

Artifical Musk.—Prof. Vander Weyde, at a late meeting of the Polytechnic Association of the American Institute exhibited an artificial musk, made by treating blood in a peculiar manner. By adding little hairs, such as are found in genuine musks, the deception is so complete that it cannot be detected even by the microscope.

Weather Predictions.—President Tillman, of the Polytechnic Association of the American Institute, says the weather predictions which are daily published in our newspapers have been verified to about 75 per cent.; that is, three-fourths of all the predictions which they have made have been found to be true.

The British Society for the Advancement of Art still offer the $5,000 reward for a pigment or covering which will perfectly protect iron from rust and fouling.

M. Champoulion avers that putrifaction is much more rapid in the dead bodies of those who have used alcohol to excess than in those of comparatively sober individuals.

Mechanical Progress.

Granite Works of the Ancients.

The following, from an exceedingly interesting account of the colossal granite structures of ancient Egypt, India and South America, appears in the current number of the *People's Magazine*:—

The art of carving in granite has never been carried to higher perfection than on the continent of India. At Chillambaram, also in the Carnatic, and on the Coromandel coast, is a congeries of temples, representing the sacred Mount of Meru. Here are seven lofty walls, one within the other, round the central quadrangle, and as many pyramidal gateways in the midst of each side, which form the limbs of a vast cross; consisting altogether of twenty-eight pyramids. There are consequently fourteen in a line, which extend more than a mile in one continuous direction! Nor are these the only wonders associated with this metropolis of pyramids. The interior ornaments are in harmony with the whole; from the nave of one of the principal structures there hang, on the tops of four buttresses, festoons of chains, in length about 548 feet. Each garland, consisting of twenty links, is made of one piece of granite, sixty feet long; the links themselves are monstrous rings, thirty-two inches in circumference, and polished as smooth as glass.

Compared with the monolith temples of granite at Mahabalipuram, which is likewise situated on the Coromandel coast, those in Egypt sink into insignificance. The rocks thereabouts are composed of a hard gray granite, containing quartz, mica, and feldspar, with a few crystals of hornblende interspersed. Many have been hollowed out by art, and sculptured into temples with spirited bas-reliefs, representing episodes in Hindoo history and mythology, and supported by graceful columns; all carved from the solid rock. Detached masses have been cut into shapes of elephants, tigers, lions, bulls, cats, monkeys, and various nondescript monsters, and colossal statues of gods, one of which; namely, that of Ganesa, being thirty feet high.

"The southernmost of the temples is about 40 ft. in hight, 27 ft. in breadth, and nearly the same in length; the exterior being covered with elaborate sculptures. The adjoining edifice is about 49 ft. in length, and in breadth 25 ft.; it is rent by natural causes from summit to base. According to the local Brahminical tradition, these wonderful sculptures were executed by 4,000 workmen, who had come from the north, and returned before their completion. From a careful examination, it is evident that almost all the enormous mass of sculpture and carving that adorns this city of monolith temples and colossi, must have been performed without the aid of fire—with the hammer, chisel, lever, and wedge alone; and this is one of the hardest rocks in the world?"

A Short Coal Supply.—A correspondent in *Engineering* says that almost any price can be had for coals in the north of England, by those who are fortunate enough to have any for sale. The demand is so heavy that the additions which are being made to pits, and the new pits which are being sunk, seem to go but a very little way in meeting the extra requirements of consumers. Everybody is crying out for more fuel, and, do what they will, they cannot get it quick enough. To meet this extraordinary increasing demand, hand labor is inadequate. Good coal-cutting machines must be forthcoming. The attention of a great many engineers are directed to this question of coal cutting, and, in this age of invention, it will be remarkable if suitable machines are not soon introduced. Unless machines are applied to coal-cutting, there is not the slightest doubt that the iron trade and other industries will be crippled in their development for want of fuel. Coal being scarcer, there is, of course, the greatest difficulty in obtaining coke.

Artificial Leather.—Among the different kinds of artificial leather lately introduced, is the following:—J. Charles, in London, and C. Taylor, in Manchester, England, take boiled linseed-oil, and boil it again with quicklime and borax, till they obtain a finid, which, by cooling, nearly solidifiss into a thick dough. To this they add pulverized cork, and some quicklime, and the paste obtained is rolled out into sheets, which, if desired to be very smooth, after being dried, and rubbed down by means of pumice-stone. The process is evidently a partial sponification, and reminds us of the artificial India rubber, which is also made of linseed-oil, without the addition of the powdered cork, which serves only to give the appearance of leather, and is a mere filling or adulteration of the tenacious chief ingredient, in the same way as India rubber is adulterated by similar fillings.

Puddling Furnaces in Great Britain.—There are about 7,800 puddling furnaces in Great Britain, employing 26,000 men, involving an investment of over $5,000,000. All these furnaces are now worked by hand, or at least with but trifling help from mechanical device. It is expected that a revolution will soon be wrought out with this immense industry, by use of the mechanical puddlers, which have already been proven successful in their application.

Improvement of the Steam Engine.

In a paper read before the Polytechnic Association of the American institute by Professor Thurston, on the above subject, he summed up his conclusions in the following statements:

The direction which improvement seems now to be taking, and the proper direction, as indicated by an examination of the principles of science, as well as by our review of the steps already taken, seem to be:

Steam must enter the machine at the highest possible temperature, must be protected from waste, and must retain, at the moment before exhaust, the least possible amount of heat. He whose inventive genius of mechanical skill contributes to effect either this use of highest steam with safety and without waste, or the reduction of the temperature of discharge, confers a boon upon mankind.

In detail: *In the engine*, the tendency is, and may probably be expected to continue, in the near future at least, toward higher steam pressure, greater expansion in more than one cylinder, steam jacketing, superheating, a careful use of non-conducting protectors against waste, and the adoption of higher piston speeds.

In the boiler, more complete combustion without success of air passing through the furnace and more thorough absorption of heat from the furnace gases. The latter, I am inclined to suppose, will be ultimately effected by the use of a mechanically produced draught, in place of the far more wasteful method of obtaining it by the expenditure of heat in the chimney.

In construction, we may anticipate the use of better materials and more careful workmanship especially in the boilsr, and much improvement in forms and proportions of details.

In management, there is a wide field for improvement, which improvement we may feel assured will rapidly take place, as it has now become well understood that great care, skill and intelligence are important essentials to the economical management of the steam engine and that they repay liberally all of the expense in time and money that are requisite to secure them.

A New Kind of Flint-Glass.—Dr. Benrath, Director of the glassworks at Dorpat, Russia, publishes an account of experiments made by him to produce a glass which has the good qualities of flint-glass without its defects. The good qualities of ordinary flint-glass are, that it is as clear as crystal; that it has a high specific gravity, (is heavy;) a low fusing point, so that it melts easily; and strong power of refraction and dispersing light. It is, therefore, invaluable for chemical and optical purposes. Its defects, however, are that it is easily acted on by chemical and mechanical influences—that means its surface cannot stand rain and sunshine, much less acids or boiling water, and it is so soft that it is most easily scratched.

The chemical difference between ordinary and flint-glass is that the former consists of silex, lime, and soda or potash, while oxide of lead is added to make flint-glass out of it. Chemically speaking, common glass is a silicate of lime and potash; while flint-glass contains also silicate of lead.

Cutting Marble.—A recently devised foreign apparatus for stone-cutting uses comprises a head that can be rapidly rotated and provided with diamond cutters, so arranged that while each cutter removes material and traces a path over the moulded surface to be produced, all the cutters produce wrought surfaces free from distinct scratches. For cutting mostly on a horizontal face, the head is solid in which the diamonds are mounted. For moulding on an edge, the cutterbead holds bits of steel studded with black diamonds. A rotary tool is shaped to finish the groove, and preferably formed of brass. For cutting as with a saw into marble a small round vertical spindle is used, the surface of which is studded with black diamonds or carbon points, so arranged in rows that the cutting points of the different rows merge their paths of action, so as to cut the whole length of the cutting plane of the shaft.

Imitation Leather.—For producing imitation morrocco or other leather, a foreign exchange recommends a composition consisting of one pound of glue to five liquid ounces of glycerine, boiled linseed oil being added for flexibility, or India rubber for elasticity, together with the coloring matter. The composition is spread while hot upon the fabric, and impressed with the design. The hardened impressed surface is treated with a solution of alum or chromo or other alum, or with a solution of sulphate of iron, copper or zinc. The alum or sulphates may be mixed with the composition before it is spread. The surface is protected by varnish or waterproof composition, and ornamented by gold, bronze, or other coloring material.

The Henderson Iron Process.—Samples of iron made by the Henderson fluorspar process have recently been tested in England. The breaking strength was found to be 28 tons per square inch, the Government Standard being 22 tons.

The unusual activity in the British iron market still continues. The proprietors of iron and coal mines are reaping a rich harvest.

MINING SUMMARY.

THE following is mostly condensed from journals published in the interior,in proximity to the mines mentioned.

California.

AMADOR COUNTY.

OLEAN-UP.— Jackson *Ledger*, June 8: The Kennedy has made a run of 16 days and cleaned up over $11,000. The rock heing taken out is improving in richness and the ledge is expanding.

PLYMOUTH.—Cor. same: The Phoenix is yielding very rich ore. On the 600 ft. level a ledge has heen opened 20 ft. thick. The Co. have 3,000 tons of rock ou their dump which is daily increasing. They have commenced work on a new 20-stamp mill to he propelled by water power.

The Alpine, idle for a week repairing machinery, started np on Saturday.

Work has been suspended on the Condo and Wilson mine near Enterprise. The last run of 100 tons, worked, paid aomething over $15 per ton.

The Philadelphia mine is rnnning on low grade ore.

A one-half interest in the Arastra mine has recently been sold and the owners will erect a 10-atamp mill npon it in a few weeks.

BUTTE COUNTY.

FORBESTOWN.—Cor. Oroville *Record*, June 8: The quartz mill is running.

Murch & Gwynn cleaned up 360 ozs. a few days since, among which they had many nuggets varying in size, from 27 ounces down to one.

Hunter & Co., in their drifting claim, are getting dirt in which the gold is distinctly seen.

CALAVERAS COUNTY.

THORN MINE.—San Andreas *Citizen*, June 8: The shaft is down about 260 ft. with a steady improvement in the character of the rock.

ANGELS.—Cor. same: Yesterday there was taken out from the 500 ft. level in the "Big mine," some of the richest rock ever found in that mine. The same day J. Mattison shoveled $1,500 out of his mine. Last week he found a lump of gold there that weighs 7 ounces, also dirt that prospected $5 to the pan.

THE GRASSHOPTER.—Calaveras *Chronicle*, June 8: New hoisting works are to be immediately erected on the mine at Mosquito Gulch.

SAN BRUNO.—The recent cave in the San Bruno mine Mosquito Gulch, was not so extensive as feared.

EL DORADO COUNTY.

EL DORADO.–Cor. Placerville *Republican*, June 6: A very rich porphyry lode has heen struck struck north-west of town ahout a mile. Several claims are being worked there, and all doing well. One party of two, took out last week nearly $1,000.

INYO COUNTY.

BULLION. — Inyo *Independent*, June 1: May 9th there were shipped from Hisky & Walker's mill 5 hars valued at $2,400. Also May 23, 9 hars valued at $4,700.

STARTEN. — The Eclipse mill is now nnder way.

CERRO GORDO.—A strike is reported in McDonough's mine. All the furnaces are in operation producing 300 tons of hullion per month.

LIDA VALLEY.—The Lida Belle is down 55 ft. Four tons of of this ore recently worked netted the owners $1,938.10 over all expenses. The Brown's Hope has a shaft of 45 ft. showing a widening vein of 14 inches of exceedingly rich ore. The Simon Pure shows a ledge 10 inches wide, from which a small lot of ore worked $1,103 in silver and $100 in gold per ton. The Lida Hill shows a ledge 4 ft. wide 10 inches heing of the highest grade; has heen sunk upon 15 ft. The Sewana produced rock which worked $1,100 per ton. Other locations are doing equally well.

KERN COUNTY.

WANTED.—Havilah *Miner*, June 1: Laborers and minera are iu great demand in this county.

STRIKE.—From information received from miners from the Pi Ute mountain, we learn that the owners of the Bright Star mine have struck the precious metal richer than they ever dreamed of. A hody of ore estimated at the lowest calculation to he worth $500,000 is in sight; 10 atampa will be added to the old mill, making 15 in all. It will be kept running day and night

MARIPOSA COUNTY.

RICH.—Mariposa *Gazeette*, June 7: The Poor Mine, is proapecting, hetter than ever. Ore was struck a few days ago, which is estimated to pay 500 per ton.

NEVADA COUNTY.

STRIKE.—Nevada *Transcript*, June 8: S. M. Timmons ahowed us a specimen of quartz yesterday. He aaw on the dumps about $2,000 worth of the same kind of rock. The ledge is ahout 4 ft. thick, and previous to the strike of the rich strata of gold, the ledge has heeu paying well.

CHALK BLUFF.—Duryea & Co., Hussey & Co., and a number of other Co's., are working day and night.

Chas. McElvy and J. Earl Brown, are working the Old King claims with splendid prospects.

At Yon Bet, the English Co. are cleaning up about $9,000 per month, above expenses.

WYOMING—The last crushing yielded over $27 per ton; the Co. have 125 tons of rock on the surface worth about $30 per ton.

PENNSYLVANIA.—G. V. *Union*, June 4: The mines are down 250 ft. in splendid ore. They have drifted 350 ft. on the fifth level. The ledge is ahout 2½ ft., and the rock will yield at least $50 per ton.

SAN LUIS OBISPO COUNTY.

THE QUICKSILVER MINES.—San Luis Obispo *Tribune*, June 1: In the Keystone they have 185 ft. stripped, exposing to view a ledge of cinnahar 18 ft. wide. They have sunk a shaft 30 ft., and as the depth increases so also the richness of the ore.

SIERRA COUNTY.

HOG CANYON.—Downieville *Messenger*, June 1st: Falk Bros. have recently struck a large hody of finc ore.

RICH CROPPINGS.—Parties working at the Reis Mine, stumbled upon the croppings of a quartz ledge which promises to he very rich. One man with a hand mortar makes $6 per day.

Nevada.

EUREKA DISTRICT.

RICH.—Eureka *Sentinel*, June 6: A splendid development has lately beeu made in the lower workings of the Wide West shaft of the Adams Hill mine.

RUNNING FINELY.—The Phenix hoisting works are running finely. Every part of the machinery works to perfection.

FOURTH OF JULY MINE.—The main incline is down 160 ft., showing a fine ledge, averaging ahout 4 ft. in width, for the entire depth. In the lower workings the ledge averages something near 7 ft. There are 500 tons of ore on the dump and there are not less than 5,000 tons in sight in the mine. The average assays throughout the mine are $160 per ton. From 40 to 50 tons of ore will then be taken out daily.

ROBT. EMMET.—A shaft is down about 50 ft., disclosing a ledge from 2 to 3 ft. wide. Seven tons lately worked yielded $327.52 in silver per ton, and $62.79 in gold. There are about 75 tons of the same character of ore on the dump.

ELY DISTRICT.

BULLION.—Ely *Record*, June 2: W., F. & Co. shipped for the week ending June 1st, bullion valued at $101,063.84, and from May 1st to June 1st, inclusive, $508,276.61.

CHIEF OF THE HILL.—The west drift is in 24 ft. from the winze with the ledge showing 5 ft. between the wall, carrying a heavy hody of fine mineral, free from quartz or waste of any kind. The east drift is in 46 ft., with ledge carrying 18 inches of good ore next the ft. wall. At present raising from first level to the surface for fresh air. On dumps at present about 225 tons of high grade ore, which will mill on au average $130 per ton.

MEANOW VALLEY.—Shipping nsual quantity of ore to mill, and mine looking well in the different workings.

LOUISE.—Anna Dickinson shaft down 45 ft. with a small vein of fine ore in the hottom. Ellen Goodspeed and Grattan shafts looking exceedingly well and showing fine mineral throughout. The Goodspeed shows 20 inches of good ore, which will prohahly average $125 per ton after milling.

EXCELSIOR. — Raising ore aud preparing to stope from the hottom level. On Weduesday last struck into a fine hody of ore in the upper drift.

SPRING MOUNTAIN TUNNEL.—Work has heen temporarily suspended on the drifts from the station in winze sunk on first ledge, owing to the air being very had.

NEWARK.—Shaft down 400 feet, with ledge showing 2 ft. in width on the hottom. Ore from the new strike assays from $153 to $1,100.

PARIAN.—Situate ahout half a mile west of the Court House, is 3 ft. in width. One shaft has heen sunk 40 ft., and four or five others, for proapectiug purposes, are from 8 to 12 feet. Asaays of ore from the ledge run from $50 to $125.

SETTING SUN.—Shaft down 55 ft. On Thursday night last, a hody of ore was struck in the hottom, 10 inches in width, and carrying yellow chlorides throughout.

SUNBEAM.—Shaft down 200 ft. On Friday night struck into casings in the face of the drift and have good indications of aoon tapping the ledge, which was passed through in sinking.

NORFOLK.—Shaft down 170 ft. Still sinking on ledge, which is 5¾ ft. wide in the bottom. Ore aaaays on average from $50 to $150.

REESE RIVER.

GROVE TUNNEL.— Reese River *Reveille*, June 1: Lookiug well in both east and west levels.

DOLLARHIDE INCLINE.—The cross-cut reached the ledge this week, hut found it in the hreak.

ISABELLA. —At the O'Connel ledge, Goldaworthy and Roherts have just got into an apparently extensive hody of rich ore.

WEST TROY.—The hody of ore atruck some two weeks ago, "petered out," hut the hoys are going ahead with their work.

SAYBROOK.—The 150-foot east level is in 45 ft.; considerable fair ore coming out, some of it first-clasa.

STAR OF NEVADA.—A crosa-cut which is being run from the Star of Nevada level to tap the Hazel Green ledge, exposed a hlind ledge last week, which is from 6 to 8 inches wide, and looks promising.

MORGAN AND MUNCEY.—Breasting at the 310-ft. east level in a big ledge of $300 ore; struck a ledge last week at the 200-ft. east level which carries four inchea of from $700 to $800 ore; ainking the incline; have a good deal of water.

FLORIDA.—Brcaating at the 300-ft. east level, and at the 200-ft east level; gettiug some average ore; work continues at the 500-ft. west level at which point the ledge is harren.

SARATOGA.—If anything, better than ever.

WHITLATCH UNION.—Reed and Co. are breasting out a large body of ore, of which there must be fully 100 tons.

IRONCLAD.—The incline is 120 ft. deep showing good rock at the hottom.

SAM BRANNAN.—The 150-ft west level is in 30 ft. in good ore; west level in 35 ft., getting high grade ore; nothing doing at present in the incline.

MANHATTAN.—This mill is still running night and day and has a large lot of ore on hand. The old hattery of 20 stamps will soon he replaced by one of 24,900 lb. stamps.

YANKEE BLADE ENSIGN.—Sinking the shaft; getting good ore; ledge one foot thick.

KLING AND KELLY.—raising a shute from the main shaft to the air shaft, for ventilation.

STONEWALL.—Bowen & Co. are running a level from their shaft at a depth of 69 ft.; taking out about $300 chloride.

PATRIOT.—McCann still taking out good ore; ledge about 6 inches wide.

VIRGINIA.—Getting good chloride from a point about a hundred feet down the incline.

OPLEY STEINACHER & CO.—$200 ore is coming from the tunnel of this Co; mine looks Well.

MORSE & CABLE.—The last lot of ore worked went $900 per ton; work is atill progressing on the tunnel.

SOUTHALL & Co. are getting good oro from the surface. Turner & Co. are also getting a good grade of surface ore.

WASHOE.

BULLION.—Reno *Crescent*, June 1: The crop passing through W. F. & Co's Reno office for the week ending Friday night last, amounted to 14,790 lbs.

LADY BRYAN.—Work is to be resumed. A new shaft is to be sunk further east, which will strike the ledge at its most favorable point for the advantageous extraction of already developed good paying ore bodies.

OCCIDENTAL MILL.—Virginia *Enterprise*, June 1: The Occidental mill is in full and successful operation. It is running ou Savage ore. The lower tunnel of the mine (Occidental) is being pushed northward in order to top the north hody of ore found in the upper levels.

THE Trench mill at Silver city shut down on the 1st, and will probaly not start up again this month.

SAPPHIRE MILL.—This mill, in Lower Gold Hill, is heing thoroughly overhauled and remodeled.

SILVER HILL WORKS.—The frame of the large new hoisting works of the Silver Hill M. Co. is now up.

LOCAL SUMMARY—MCMEANS.—Gold Hill *News*, June 8: The south tunnel is in 85 ft., and the ledge continues to improve in character, width aud assay value. The ledge is about 9 ft. in width.

IMPERIAL-EMPIRE.—Drifting into the ledge at the 1,500-ft. level was resumed ou Weduesday with encouraging indications. The drifts at the 1,650-ft. level are each in ahout 90 ft.

HALE ANN NORCROSS.—A winze is heing sunk between the 1,400 and 1,500-ft. levels, and until this winze shall have been completed the prospecting of the lowest level will he necessarily slow, on account of the imperect ventilation. On the 1,500-ft. level they are cross-cutting the vein at a point 150 ft. from the Savage line. They are also drilling northward on this level on the west side of the vein. This drift is in 116 ft. north of the incline. On the 1,400 ft. level a connection has heen made with the southern working of the Savage mine, securing an ahundance of pure air to the openings at that depth.

THE SAVAGE is yielding 200 tons of good milling ore per day, principally from the ore hodies on the 1,300 and 1,400-ft levels—these bodies of ore still holding out and developing finely. The south drift of the 1,400-ft. level has made connection with the Norcross works, giving a fine circulation of good air. They are atill driving the south drift and east cross-cut, on the 1,500 level.

WOONVILLE.—The daily yield is 30 tons of ore, showing improvement in quality, milling $33 per ton—$3 hetter than last week. In ainking deeper the ahaft has cut more good ore.

OPHIR.—Notwithstanding our report last week that the Ophir would commence sinking their shaft for another level, they have not yet made the commencement, owing to the hreaking of the pump and the delay in getting timber. The prospecting of the 1,100 and 1,200-ft. levels is still prosecuted with the utmost vigor, with no new developments.

In the Gould and Curry the incline is down 60 ft. and making much hetter headway than at our last report. Also driving the north, south and east drifts of the 1,500 ft level with all the force possihle.

BELCHER.—The daily yield of the Belcher is 280 tons, from the 1,100 and 1,000-ft. levels. The connection hetwcen the main incline and the west drift of the 1,100 ft. level will he made in four or five weeks. The new hoisting worka will be ready to start up to-morrow for the first time. Some very rich ore is developed in the 1,200-ft. level within the last few days.

CHOLLAR POTOSI—Daily yield has increased to 200 tons, all from the Blue Wing, Belvidere and other ore-producing sectiona of the old upper workings, the average assays being about $40 to the ton. No new developments.

KENTUCK.—The yield for the month of May was 1,326 tons, assaying about $22 per ton on an average.

CROWN POINT.—The daily yield is 325 tons.

YELLOW JACKET.—Daily yield 20 tons. No new developmenta aa yet.

SIERRA NEVADA.—Daily yield a little over 50 tons. The ore gives a poorer general yield and the main hreasts are not looking or assaying well. A body of ore assaying from $6 to $10 per ton has heen developed hy a drift from the raise above the lower tunnel.

BUCKEYE.—Daily yield 22 tons. The new slopes opened sonth of the incline, at the 400 ft. level, are opening out spleddily, and promise a ledge of good paying ore. Average car samples yield $46 to the ton.

WHITE PINE.

TREASURE HILL MINES—ORIGINAL HIDDEN TREASURE.—White Pine *News*, June 1: Thirty tons of ore are extracted per day. The ore hody in the big chamher has every appearance of proving extensive. The Bonner and Rathhuu chambers are looking well. It is estimated that there is 300 tons of good milliug ore on the dumps.

SOUTH SHEBOYGAN.—The tunnel is in 140 ft.

NORTH AURORA.—The ore hody in the De Pass chamher has increased in quantity since last report. The shaft in the hottom of the chamber, to prove the depth of the ore, is dowu 24 ft. in good ore.

PENNSYLVANIA.—This mine will start up soon.

SAN JUAN DEL RIO.—Work will be resumed soon.

EAST SHEBOYGAN.—The ore in the face of the drift is increasing in size, as work is pushed ahead.

SILVER WAVE.—Blocking out in Boston shaft, and hoisting to dump.

COPPER GLANCE.—An extensive body of fair milling ore in sight.

NOONDAY.—The lode averages about 6 ft. in width, of a fair milling grade.

WARN BEECHER.—Running ore from east end of Phillpotts chamher, to engine shaft.

EBERHARDT.—Shipping ore by tramway to mill.

Colorado.

CARIBOU.—Cor. Central *Register*, May 29: The Carihou, Silver Point, Seven Thirty and Grand View, are hoisting large quanties of rich ore.

Burger & Sons are driving a tunnel in the Boulder Co. Hill on a rich vein of ore.

Lesher & Shaw are working the No Name lode, east of the Caribou, and are taking out some very fine mineral.

Henry Burger has discovered a rich vein of mineral—it is thought to be the east extension of the Seven Thirty.

J. P. Jamison is working the Gentryville lode, ou Carihou Hill. It has every indicatiou of being a valuahle mine.

COLORADO GULCH.—Cor same: The Printer Boy is down in the main shaft about 280 ft., and looks well.

The Pilot and Lincoln Cos. are taking out fair pay. The American Flag looks as well as the hest of the lodes on the hill.

Paul & Co. are about to erect a 20-stamp mill in Iowa Gulch.

WILLIAMSBURG.—Caribou *Post*, June 1: The Washington Aveuue is a mammoth vein, carrying from 2 to 5 ft. of solid galena and zinchlende ore. Au average sample, taken from a pile of 4 tons of first-class ore, assayed at the rate of 260 ozs. of silver per ton. Eastward ahout a mile and a half, Welch & Co. have discovered a lode which they have named the Mayflowcr. At 14 ft. they have a crevice of solid ore 2 ft. in width, very similar in character to that of the Washington Avenue.

Idaho.

LOCAL RECORN.—Silver City *Avalanche*, June 1: The Ellmore and Mahogany are both showing well. The Ellmore hoisting works occasioned considerahle trouble during the past week, which retarded the sinking of the shaft.

THE South Chariot shaft has been repaired to the 4th level, and is in good shape.

J. H. THOMAS, foreman of the North Oro Fino, haa haled the water out of the north shaft, and is sinking to meet the winze coming up from the 3d level drift.

THE Illinois Central hoys have from 70 to 80 tons of fine looking ore on their dump.

WORK will shortly he resumed on the Vass mine.

SUP. PHEBY has commenced sinking the shaft on the Pauper, and is down ahout 8 ft. helow the old working. The ledge is 1 ft. wide and assays as high aa $170 per ton.

SOUTH MOUNTAIN.—Cor. same: The Golconda shaft is down 15 ft. There have heen 4 uew discoveries here within the past 10 days.

Montana.

VIPONN DIST.—Deer Lodge *Independent*, May 25: Vipond Bros. worked 5 hands all winter on the Miwanotoc shaft, which is down 150 ft. The Forest ahaft ia down 60 ft.; the Grey Jockey, 50 ft.; the Mammoth has heen suuk 25 ft. deeper this winter and shows 5 ft. of high grade ore all the way from the surface. Thia ore works $200 per ton. Next comes the famous Quartz Mountain, ahout 2 milea east of the Mammoth, where some 20 lodes have heen recorded. The Grey Eagle ia down 30 ft., and shows first class ore. The same Co. are sinking on the Humholdt and have a 5-ft. crevice of first class ore. The Aurora is down 50 ft., aud shows a well defined lode of high grade ore.

Dewey and Co. have been at work all winter on the Banner lode.

THE news from Ophir Gulch, Carpenter's Bar, and Pioner City is very encouragiug.

CLEAN-UP.—W. Stephens of Pioneer, informs us that Tom. Stuart and the Thomas Bros. cleaned up over $5,000 last week, the proceeds of 3 pipes for one week in Bratton's Bar.

BUTTE.—Mr. Humphreys reports every man

in that camp as working, and that there is a large quantity of water running to waste for want of men to use it.

PILGRIM BAR.—There are 10 Cos. mining on Pilgrim Bar and all who have their mines opened properly are doing well. The Rock Creek Ditch Co. are selling 1,800 inches of water daily and the Little Rock Creek Ditch furnishes 600 inches daily. Holcomb & Berry, for the week ending May 18th, cleaned up $4,-100.

BEARTOWN.—There is not an idle man in that camp. In the dry diggings the mines are paying well. The deep diggings are obstructed by high water. Clegg & McDonald, on Phelan gulch, are running two pipes.

SNOW SHOE GULCH.—Mining is being carried on from the valley to the summit of the mountain, a distance of 8 miles. Five Chinese Cos. are working on the lower part of the gulch. Rufus Johnson is running a crew of men on his big flume in main gulch, has a string of sluices going on the lower hill and is putting down a flume through which to work the upper hill. Moore, Trewhella, Otta & Co. are working half a mile above the mouth of the cañon. Kelly & Co., above, are running their hydraulic and will commence cleaning up bedrock in a few days.

FRENCH GULCH.—The Swamp Co. are running day and night. The claim pays about $20 per day to the hand. The Lucky Gulch Co. work six men, and take out about $40 per day. Lamay & Co. on First Chance, are taking out from $15 to $20 per day to the man. Orhini & Co., on the same gulch, make from $6 to $7 per day to the hand. Eccleston & Co., also on First Chance, have just opened their grounds. W. N. Allen, on Allen's Bar, is running two pipes with good results. Lynch, Dingle & Co., on Fenian gulch, will work 8 men this season. Their ground is good for $25 per day to the man; 3 or 4 other Coe. are working, but as yet, with not very favorable results.

HENDERSON GULCH.—Hennessy, McDermott & Co.. have run a cut back into the Bar over 700 ft., and find better pay than ever before. Their claim pays from $25 to $30 per day to the hand. Cooney & Co., are making about the same. Cartwright & Co., are also doing well on the same Bar.

PHILLIPSBURG.—One of the roasters at the Stuart Mill is already completed, and the other will be in a short time. Col. Lyons is roasting 3 tons every 24 hours. The Stuart Mill is being furnished with dry-crushing batteries which will be completed in about 8 days.

YIELD AT DEER LODGE.—*New North West*, June 1: At Pilgrim Bar, Holcomb, Berry & Co., cleaned up for the last week's work $4,-5,000. H. Rodgers cleaned up 100 ounces.

BLACKFOOT.—About 600 men—300 white and 300 Chinese—are at work at Blackfoot, Carpenter's Bar, and Snow Shoe. The ditchee are full, water plenty, and the mines working night and day. More men are wanted.

Utah.

BUTTERFIELD CANON.—S. L. *Tribune*, June 6: We hear of new discoveries in thie cañon almost every day. The Garland, a new location, has produced from the surface some very fine chloride ore assaying 93 ounces of silver to the ton.

TINTIC.—Crimson in his tunnel on the Mammoth lode, has struck a large body of copper ore of the richest quality; half of it is reported to be native copper. A large body of rich galena ore is said to have been found in the famous Copperopolis. Meader's Swansea still pans out, exceeding all expectations. The Chicago and other leads near Silver City are being worked. Mines around Diamond City are doing well.

THE Sultan works in American Fork, are turning out 8 tons of bullion per day.

MOUNT NEBO DIST.—The Olive Branch, which is down 100 ft., shows a very fine body of ore. John Hague is taking out from 9 to 10 tone of ore from one of the Co's., mines daily.

COAL.—W. D. Wilson, called at this office yesterday and left samples of eome of the finest coal we have yet seen in the Territory. The mine, recently opened, is on Chalk creek, and the workmen have already struck one vein of 6 ft. in thickness, with every prospect of having an immense deposit.

MORE DISCOVERIES SOUTH.—The Wah Wah dist. is about 75 miles due west of the town of Bover, Bever Co.

The mines discovered are in a quartzite belt and the ledgee are well defincd, of large eize, many of them having been traced for a mile in length. The rock assays from $15 to $396 per ton. and is free milling ore.

THE Rocky mine, in Rocky Dist., has boen sunk on 17 ft., having followed the ore down on the ledge, which appears 50 ft. wide.

THE Lawrence is about 20 ft. wide.

A NUMBER of ledges belonging to Hammond, Gray & Harkness, includiug the Champion and other good locations, are beiug worked vigorously.

THE Chamelon ie sunk 20 ft.; shows one of the fiuest bodies of mineral that has been seen in the country at that depth. The New Englaud, is about 6 ft. wide on the surface.

IN North Star, the Old Hickory mine showe 6 ft. of mineral at 70 ft. From tbis point the Co. ie running a level. There are over 100 tons of ore on the dumps.

THE Shenandoah and Mitus continue to proepect well.

WEST Camp, whicb lies over the divide west from North Star, has the temperance mine, the Lookout, and Lady of the Lake, all of which show remarkably well.

Corals and Coral Islands.

"Corals and Coral Islands" ie the title of a beautifully bound book of some 400 pages, by James D. Dana, Professor of Mineralogy and Geology in Yale College, and anthor of varions scieutific works, roports, etc. This work is profusely and most beautifully illustrated; and while the subject is one of much interest and importauce we havo an anthor fully competent to present it.

Prof. Dana is a man thoroughly versed in thie and kindred subjects, a close observer and a writer of high literary taste. Tho facts which he presents were obtained by persoual observations made as geologist, duriug the four years exploring expedition of Commodore Wilkce. Since making his official report he has further studied the subject of corals and coral polypi, collected other facts from later observers and brought a maturer judgment to bear upou the subject, whereby he has been euabled to throw much additioual light upon the habits of these singular organisms, the important past they have acted in the economy of nature, aud the wouderful assistance their remains have become to the geologist in his researches into changes which have taken place in the earth'e crust duriug the immeuse geological periods iu whicb they have lived aud multiplied.

This work may be cousidered as a special coutribution to *popular science*—to the diesemination of accurate and popular scientific information among the people. The Profeseor has therein, without any eacrifice of scientific precision, fairly entered the field as a missiouary of ecience in the world work of converting the people to a proper appreciation of the great truthe which God has written in the books of nature, and which sbould he as universally etudied and understood as His otber Book which has been handed down to ne as hie *revelation* to man. The author very properly observes in hie opening chapter that "a singular degree of obecurity has possessed the popular mind with regard to the growth of corals and coral reefs, in consequence of the readiness with which specnlations have been supplied and accepted in place of facts." It appears to be one of the objects of the present publication to disabuse the public miud of euch errors, and to give, in a manner readily comprehensible by all, and made still more clear by numerous illnstrations, a correct statement of all the facts connected with the subject.

The chapters on the structure of coral reefs and islands; their formation and the causes of their features; ohanges of level in the Pacific Ocean; geological conclusions, etc., are all valuable contributions to scieuce, and especially worthy the attention of the general reader.

So interesting is the character and habits of the coral polypi, that we propose to give a short resume thereof from the pages before us as soon as we can prepare the engravings necessary to illustrate the snbject. In the meantime we would refer our readers to the book itself which may be obtained of A. Roman & Co., the San Francisco publishers. Aside from its intrinsic merits, the book will be found an elegant ornament for the center table, and a most acceptable testimony of regard which one friend may wish to manifest for auother, in the way of a present.

CROPS IN SAN JOAQUIN—WHEAT NEARLY RIPE.—J. A. McCloud brought to this office yesterday a sample of his wheat orop on the south bank of the Tuolumne river, about three miles and a half from Modesto. Mr. McClond and R. Whitmore own jointly 2,360 acres, and they expect to harvest no less than fifty thousand bushels. They will commence harvesting in the course of about ten days. The sample brought here yesterday is nearly ripe, finely headed, and the grain plump and full. The stalks are over fifty-four inches in hight, and the whole is ripening equally. Mr. McCloud tells us that he has never seen any wheat field to surpass this in appearauce. The advantages of the late favorable weather to the wheat crop generally are almost beyond calculation. As harvest approaches the prosects brighten, and the farmers everywhere are full of spirit.

Republican, June 8: George W. Sperry brought to this office last evening samples of wheat, the product of his land on the west side of the San Joaquin river, abont four miles south from San Joaquin City. In that locality he has five hnndred and sixty acres in wheat and one hundred and sixty acres in barley. Mr. Sperry and brother, who own the land jointly, commenced sowing in the middle of February and completed the work on the 15th of March. The sample of the last sown, which he brought to this office, is a little over thirty inches in hight and finely headed.—*Independent.*

S. F. Stock and Exchange Board.

THURSDAY, June 13.

The sales at the Board for the week euding on the 5th inst. amounted to $2,014,000, an unusually small figure as compared with the weekly sales for the past few months. The shipments made from tho Raymond and Ely mine on the June account, amount to $129,600. Over 1,000 tons of ore were milled at the Eureka Consolidated mine last week. Tho Sierra Nevada mine yielded 400 tons of ore last week, and shipped $4,400 on the 8th, inst. The Hale and Norcross mine yielded 230 tons, leaving 1,370 tons on the dump. The Chollar Potosi yielded 1,100 tous during the same period; and the Savage 1,130 tons, assaying $31.90 per ton. The last weekly clean up of the Eureka mine of Grass Valley was 625 ounces of amalgam. The Pioche mine sent down $15,000 ou the 6th inst. and $12,341 on tho 12th. The yield of the Crown Point mine during the past week was 1,700 tons of ore, valued at $68,300. Water still retards the work.

Stocks have beeu both up aud down during the week to a eomewbat remarkablo degree. On Thursday, the 6th inst., in the afternoon the market was quite weak, and ou the Friday following, prices were etill lower. Saturday stocks were again quiet, witb very light ealee and weak prices. On Monday the market began irregular hnt firmer. Tuesday, stocks were up agaiu and a much firmer feeliug existed, ae nearly all descriptions ehowed a emall advance. Wedneeday, the upward tendency was checked and most kinds were a little lower. To-day the business wae very light and prices were weak, showing a general decline. The mining news from all over the coast is favorable.

Comparative Prices—Extremes. Advance and Decline.—S. F. Stock and Ex. Board.

	June 6.	*Highest.*	*Lowest.*	June 13.	*Adv.*	*Dc.*
Alpha	$ 53	53	34	37½	—	—
Amador Flag	20	21	18½	18½	—	—
Belcher	882½	882½	800	800	—	—
Buckoye	4½	4½	3⅜	—	—	—
Chollar-Potosi	102¾	117	89	107	—	—
Caledonia	43	43½	37	37	—	—
Cons. Virginia	23	24	16	21	—	—
Crown Point	131	133	117⅜	126	—	—
Daney	3¼	3½	2⅞	—	—	—
Eureka Cons	29	30	28	29½	—	—
Eureka	—	17	16	—	—	—
Exchequer	24	24	15	15	—	—
Gould & Curry	175	175	115	115	—	—
Golden Chariot	—	11	10	—	—	—
Hale & Norcross	74	74	63	68	—	—
Ida Elmore	18½	19½	18	18	—	—
Imperial	8	8	5	5¾	—	—
Kentuck	270	280	220	280	—	10
Mammoth	1¾	1¾	1¼	1¼	—	—
Meadow Valley	15¾	15¾	14½	15¾	¼	—
Mahogany	21	21	21	—	—	—
Ophir	37	37½	29	32½	—	—
Orig. Hid. Treas.	12	15	12	13	—	1
Overman	72	76½	60	70	2	—
Pioche	14¾	16	14	16	1¼	—
Raymond & Ely	122	128	105	122	—	—
Savage	175	175	135	145	—	—
Sierra Nevada	19	19	16	17	—	—
Succor	5	5	4	—	—	—
Wash. & Oreole	4¼	5	4	5	—	—
Yellow Jacket	125	128	100	117½	—	—
Justice	—	10	8	8½	—	—
Seg. Belcher	76	77	68	67	—	—

Latest Prices—Bid and Asked.

	BID.	ASKED.		BID.	ASKED.
Alpha Cone	37¼	37½	Ida Elmore	18	19
Amador	—	210	Imperial	5½	5¾
Belcher	800	820	Kentuck	225	230
Chollar-Potosi	107	108	Meadow Valley	14¾	15
Crown Point	125	125⅝	Ophir	32	32½
Daney	3	3¼	Orig. Hid. Treas	12½	13¼
Eureka Cons	29	30	Overman	69	70
Eureka	16	17	Savage	140	145
Golden Chariot	9	10	Raymond & Ely	120½	121
Gould & Curry	145	145	Sierra Nevada	16½	17
Hale & Norcross	65	68	Yellow Jacket	117½	118

San Francisco Metal Market.

PRICES FOR INVOICES

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

THURSDAY, June 13, 1872

IRON.—			
Scotch Pig Iron, ₱ ton	$80 00	@	85 00
White Pig, ₱ ton	70 00	@	75 00
Refined Bar, bad assortment, ₱ lb	— 04½	@	— —
Refined Bar, good assortment, ₱ lb	— 05	@	— —
Boiler, No. 1 to 4	— 05½	@	— —
Plate, No. 5 to 8	— 06	@	— —
Sheet, No. 10 to 13	— 08	@	— —
Sheet, No. 14 to 20	— 08	@	— —
Sheet, No. 24 to 27	— 09	@	— —
Horse Shoes	7 50	@	
Nail Rod	10		
Norway Iron	8		
Rolled Iron	5		
Other Irons for Blacksmiths, Miners, etc.	5	@	6
COPPER.—			
Sheathing, ₱ lb	— 40	@	— 45
Sheathing, Yellow	— 30	@	— 33
Sheathing, Old Yellow	— 12	@	— 12½
Composition Nails	— 28		— —
Composition Bolts	— 28		— —
TIN PLATES.—			
Platee, Charcoal, IX ₱ box	19 00		19 50
Plates, I O Charcoal	17 00		17 50
Roofing Plates	16 00		18 50
Banca Tin, Slabs, ₱ lb	— 45		— 50
STEEL.—English Cast, ₱ lb	— 15		— 16
Drill	— 15		— 16
Flat Bar	— 17		— 18
Plough Points	3 75		
Russia (for mould boards)	12½		
QUICKSILVER, ₱ lb	—		— 85
LEAD.—Pig, ₱ lb	— 05¾		— 06
Sheet	— 10		— —
Pipe	— 9		— 10
Bar	— 06½		— 07
ZINC.—Sheets, ₱ lb	— 11		— 11½
BORAX.—Refined	— 27		— 30
Borax, crude	— 5		— —

THE SCIENTIFIC PRESS is one of our very best exchanges. Not only in its reports of mining news, but also in first-class reading matter, useful and interesting, in scientific information, and in ite home department does it excel. We are glad to know that the PRESS has a good list of subscribers in these parts. It is deserving of more of both.—*Colorado Miner.*

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco Journals.]

ASSESSMENTS.

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT	DAY DELINQUENT.	DAY OF SALE.
Alleghany Consolidated, Cal. Ap. 20, 25c.	June 3	June 24*
Arizona & Utah M. Co., Nev., June 4, 50c.	July 10	July 31
Balto. M. Co., Storey Co., Nev., Ap'l 30, $1.	June 5	June 28
Cascade Blue G. M. Co. Cal. May 15, 20c.	June 18	July 9
Cherokee Flat B. G. Co. Cal. June 8, $1,	July 10	July 27
Crown Point Ravine M. Co., May 3, $5.	June 20	July 20
Defiance M. Co., Grass Valley, June 3, 50c,	July 5	July 22
Eagle Quicksilver May 8, $40	July 11	July 15*
Eckendorn M. Co., Calaveras Co., June 8, $3,	July 12	July 28
El Dorado M. Co., Cal., May 13, 25c.	June 16	July 10
Gen. Lee S. M. Co., W. Pine, Ap'l 27, 10c.	June 26	July 16
Dutch Flat B. G. Co., Cal., June 11, $1.25,	July 16	Aug 6
Golden Chariot, Idaho T., April 12, $1.50.	May 22	June 18
Hid. Treas. M. Co., W. P., May 11, 10c.	June 17	July 8
Hid. Treas. Cone. M. Co., W. P., May 11, 10c.	June 17	July e
Howard Hill M. Co., G. Valley, June 4, $5,	July 5	July 20
Huhn & Huut, Ely Dist., May 29, 50 cts.	July 5	July 26
Ida Elmore M. Co., Idaho, May 24, $3.	June 29	July 27
Imperatrice Eugenie, Cal., April 26, 25c.	June 2	June 17
Independent G. M. Co., Cal., May 16, 50c.	June 22	July 12
Ingomar M. Co., Ely Dist., June 5, 25c	July 15	August 9
Jacob Little M Co., Virginia, Nev. May 30, $3,	July 1	July 31
Julia G. & S. M. Co., Nev., April 22, $5.	May 25	June 15
Justice M. Co. Storey Co. Nev., $1	June 24	July 15
Kincaid Flat, Cal., April 23, $3	May 27	June 17*
Knickerbocker, Nov., May 30, $1	July 3	July 23
Lord Byron G. & S. M. Co., Nev., Apr. 29, 25c.	June 3	June 22
Lemon M. & M. Co., Nev., May 29, $1	July 6	Aug. 10
Lyon & Wheeler Arizona, May 18, 10c.	June 24	July 15*
Magnolia S. M. Co., Nev., April 22, 25c.	May 25	June 20
Mina Rica M. Co., May 8, 20c.	June 10	July 1*
Minuesota M. Co., I. T., May 12, $1.50.	June 22	July 20
Newton Boolh Cons. M. Co., Nev. June 6, 30c,	July 12	Aug 5
Ohio Cone. M. Co. Cal., May 21, 10c.	June 20	July 20
Pacific Borax Co., Nevada, May 4, 20c.	June 6	June 29
Page & Pansacn, Nev., April 12, 50c.	May 30	June 17*
Pea Vine S. M. Co., Ely Dist., May 14, 20c.	June 20	July 12
Piermont M. & M. Co., April 16, 40c.	May 20	June 19*
Potomac S. M. Co., Nye Co., Nev, June 6, 50c	July 15	Aug 12
Pride of Mt. M. Co. Nev., May 7, 25c.	June 17	July 10
Rising Star S. M. Co., Idaho, Ap'l 27, $1.	June 1	June 29
Roxby, Gold Hill, June 3, 50c	July 6	July 27
Silver Sprout M. Co., Cal., April 29, 50c.	June 1	June 22*
Sumner, Korn Co., April 11, $10	May 22	June 21
Tecumseh M. Co., Cal., April 24, $5.	May 29	June 17*
Union G. M. Co., Cal., May 20, $2.50.	June 22	July 9*
Washington M. Co., May 8, $3	June 11	June 29*
Wash. & Creole M. Co., Nev., May 13, 75c.	June 26	July 17
Woodland M. Co., Cal., May 21, 12½c.	June 25	July 16*

MEETINGS TO BE HELD.

Alpha Consolidated M. Co. ..... Annual Meeting, June 17
Altona No. 1 Gravel M. Co. ..... Annual Meeting, July 5
Belcher M. Co. ..... Special Meeting, June 25
Hardy Coal M. Co. ..... Special Meeting, July 9*
Hidden Treasure Consolidated. Annual Meeting, June 17
Imperial S. M. Co. ..... Annual Meeting, June 25
Independent Coal M. Co. ..... Annual Meeting, June 17
Julia M. Co. ..... Special Meeting, June 17
Mahogany G. & S. M. Co. ..... Annual Meeting, June 25
Morning Star M. Co. ..... Annual Meeting, June 10
Ponchoulas G. M. Co. ..... Special Meeting, June 18
Providence G. & S. M. Co. ..... Annual Meeting, June 20
Star Consolidated M. Co. ..... Annual Meeting, June 20
Washington and Creole M. Co. .. Annual Meeting, June 25
William Penu Cons. M. Co. ..... Special Meeting, June 15
Woodland G. M. Co. ..... Annual Meeting, July 17

LATEST DIVIDENDS—(Within Three Months).

Belcher M. Co., $30. ..... Payable May 10
Belcher, $30. ..... Payable June 10
Black Diamond Coal Co., ⅝ per cent. ..... Payable May 29
Crown Point G. & S. M. Co., $3. ..... Payable June 12
Eastport, Coos Bay, Coal M. Co., $5.00. ..... Payable June 11
Hale & Norcross G. M. Co., $1. ..... Payable March 11
Keystone M. Co., $7.50. ..... Payable April 10.
Meadow Valley M. Co., $1.00. ..... Payable May 15
North Star G. M. Co., $7. ..... Payable April 9
Raymond & Ely M. Co., $7. ..... Payable June 10

—*Advertised in this journal.

Leather Market Report.

[Corrected weekly by Dollver & Bro., No. 109 Post st.]

SAN FRANCISCO, Thursday, June 13, 1872.

SOLE LEATHER.—The Eastern market is higher and some tanners have advanced their prices here. We quote as below:

City Tannod Leather, ₱ lb			26@29
Santa Cruz Leather, ₱ lb			26@29
Country Leather, ₱ lb			22@28
Stockton Leather, ₱ lb			26@29

French ekine continue firm. All California ekins are scarce and bring full prices.

Jodot, 8 Kil., per doz	$80	00@	
Jodot, 9 Kil., per doz	72	00@	90 00
Jodot, second choice, 11 to 15 Kil. ₱ doz	60	00@	76 00
Lemoine, 16 to 18 Kil., ₱ doz	75	00@	77 50
Levin, 12 and 13 Kil., per doz	68	00@	70 00
Cornellian, 16 Kil., per doz	70	00@	
Cornellian, 12 to 14 Kil., per doz	60	00@	68 00
Ogeran Calf, ₱ doz	54	00@	
Simon, 18 Kil., ₱ doz	65	00	
Simon, 20 Kil. ₱ doz	68	00	
Simon, 24 Kil. ₱ doz	72	00	
Robert Calf, 7 and 8 Kil	35	00@	40 00
French Kips, ₱ lb	1	00@	1 30
California Kip, ₱ doz	60	00 to	80 00
French Sheep, all colors, ₱ doz	15	00	
Eastern Calf for Backs, ₱ lb	1	15@	1 25
Sheep Roans for Topping, all colors, ₱ doz	9	00@	13 00
Sheep Roane for Linings, ₱ doz	5	50@	10 50
California Basseett Sheep Linings	1	75@	5 50
Best Jodot Calf Boot Legs, ₱ pair	5	25	
Good French Calf Boot Legs, ₱ pair	4	50@	5 00
French Calf Boot Legs, ₱ pair	4	00	
Harness Leather, ₱ lb		30@	37½
Fair Bridle Leather, ₱ doz	48	00@	72 00
Skirting Leather, ₱ lb		34@	37½
Welt Leather, ₱ doz	30	00@	50 00
Buff Leather, ₱ foot		18@	21
Wax Side Leather, ₱ foot		20@	22

MINING ACCIDENTS.—H. L. Newton, foreman of the Robiuson mine, Prospect Flat, near Placerville, was instantly killed last week, by heing run over by a loaded car.

Francis Richarde, working in the lower level of the Idaho mine, wae eerionely hurt on the 6th inst., by a piece of rock which fell from above, breaking his leg, and otherwiee injuring him.

Wm. Fitzgerald, was instantly killed in the Adams & Farren shaft of the Phœnix mine on the 5th inst. He fell 100 ft., while attempting to get in the cage to aecend.

Peter Leonard was eeverly hurt by the premature explosion of a blast in the Hale & Norcrose mine on the 6th inst.

Peter Ohlsen, working at the Ophir hoisting works, had his band mangled last week, while oiling the machinery.

John McCabe, employed at the old Logg's Mill, Nevada City, came near being crushed to death recently, while putting on a new shoe in the battery, by the 1,000-pound stem falling on a crowbar which he held, and which gave him a pretty tight squeeze against the side of the battery.

[Written for the PRESS by G. KUSTEL.]

Vienna World's Fair.

To be opened May 1, and closed October 31, 1873.

Before refsrring to the programme of this fair, published already in many papers, it might be interssting to Californiens to heer a few words abont Vienna and otber parts of the Empire, with reference to visitors. It seems to bs an ebsurdity to make a comparison between Visnne and Californie; but, there is neverthelsss, at least, a similarity of social circumstances between this young State and that old empire city; a kind of relationsbip, inviting particnlarly California sn masse, and their—pursss. California attracted edvsnturers of all parts of ths world, and after many years of hard labor of purification, we see now that progressive indnstry, commerce and science ars beginning to take the lead in all pursuits.

This singular social development of a strangely mixsd community, imprsssed on California a noted cosmopolitan, polyglotic character, more so than any othsr State of ths Republic; and so is Visnna the most cosmopolitan city in Europe, owing this character, like California to the mixed socisty of natives and foreigners, by whom it was built np. Strangsrs visiting Vienna, feel at home in the shortest time. The wsll-known heartiness and hospitality of the Visnna psopls, the magnificent surroundings, the brilliant thsatre, exqnisite music, everything contributes to make foreigners comfortable and at homs, much more so than Paris, London or any othsr Enropean city. Rsfinsd Californians, who consider it insufficisnt to cultivate ons's mind only, knowing that thsre is also a physical part to be taken care of, will discover the snperiority of the Vienna tables, and Hungarian wines. Who delights in arts and sciencee, will find an inexhanetible supply to satisfy his desire, not to forget the immense imperial collection of mineral, logical and geological specimens. The Austro-Hnngarien Empire is exceedingly rich in various raw products, for it is eminently an agricultural State, and an extensive market for imports and exports. Being once in Vienna, it is worth while to make a trip to Hungary by rail or steamboat. The farmer will find there interesting instances of rural indnstry; wine, tobacco of excellent quality, flax, hamp, silkworms, sngar beets, etc.

Hungary, is, however, of much more interest to a Californian who has a taste for mining. In three daye he can reach the centre of mining in Banat, (eontheastern part of Hnngary). Iron, copper, lead and eilver ores, are treated here in varioue ways. The principal mining town is Oravitza. The next very extensive mining field of gold, silver and other ores is Transylvauia. Those who are fond of natnre and magnificent scenery, will not travel from the Banat mining district direct to Transylvania, but will make a sligth detour to Basias, and from here by steamer on the Danube to Orsowa. The river flows here with majestic quiet, winding slowly between exceedingly high perpendicular rocks, on the right hand side Servia, on the left Hungary. On the latter side is a splendid view of a modern wagon-road blasted ont in the perpendicular wall leading to Oreowa, in some parts beautifully ornamented with most luxuriant vegetation. On the other side is an old Roman trail, extending for some distance, partially destroyed by the ravages of time.

Ariving at Oreowa, the stranger is struck by the singular appearance of that friendly situated place. Wallachian women neatly dressed in peculiar style, may be seen walking carelessly along the street, on their heads a little wooden trongh with a sleeping baby in it, and they may sometimes be seen spinning their flax while walking. In the same way water-pitchere are carried on the head with ease and safety, as is done in Egypt or Mexico. Here you see Turks, Servians, Wallachians, Hungarians, Germans, Gypsies, etc. Here is also the point from where one can see four different territories; yon see Hungary, Servia, Wallachia and Turkey. The last being represented by a fort, "Orsowa," in the middle of the Danube, worth being visited by all strangers who come to Orsowa. A splendid road with cherry, plum and mulberry trees on both sides, leads yon to Caransebes, and from here, instead of going the regular route to Transylvania by way of Lugosh, you go north through the "Iron Gate" if you have a desire to see Roman antiquities. For instance, at Demsush an old Roman oracle temple with a kind of an altar, with the secret snail stairs in it, leading up to the speaking tube—through which the priests sent down their mysterious answers in an awful inhuman voice—all well preserved yet. Beyond the iron gate at Gredistye, (a Wallachian village) a floor has been discovered four feet below the ground, beautifully laid out with mosaic of different but natural colors, representing in life size, Paris with the golden apple before Venus, Minerva and Juno. In the same place one can see the ruins of an amphitheater of the once flourishing city of Ulpia Trajana. Further in the Hatzeg Valley is an old Roman, macadamized, tolerably well preserved road several miles long. It takes one day's travel from the iron gate through the Hatzeg Valley to Deva, wherefrom you get sight of the first Transylvanian gold mining town, Nagyak, where telluride of gold and of silver, etc., is the principle ore.

From this place, a great many gold and silver mining places of much interest may be visited, where primitive and modern means are employed to sxtrect tbs gold. A Californian will find thers a great field for improvements, especially at Veres-patak, Abrud-banya, etc., bnt he will ses, also, many other things there worthy of notice. Heving done with the principal mining places of Transylvanie, one cen turn to the northwest part of Hungary, which is also a very extensive mining region. The principal mining town is Schemnitz, with ths celebreted Royal Mining Academy, and deep mining. Tbe concentration of ores is here executed efter Rittinger's principle to a high perfection. It is neither in Hnngary nor in Anstria the custom to extol their mining improvements, nevetheless a grsat many metallurgical (and especielly concentrating) improvements and inventions which are ussd in other countries, originated there.

Ore Specimens at ths Fair.

The importance of having onr mines and mining interests represented at this World's Fair by a collection of ore specimens, etc., need not to be explained any further than to refer in this respect to the result of ths last Paris exhibition. The presentation of our mineral resources at ths Vienna fair may prove éven more bsneficial to our interest than tbe last one. Tbe gigantio preparations, started under judicious and thorongh scientific management, with the experisnce gained by observing the workings of the London and Paris exhibitions; with ths view of improving and snlarging ths field, not for the sake of multiplicity, or only, as was the principal aim of the formsr two great sxhibitions, to prodnce a zealous competition amongst men of industry and arts, but more for ths purposs of enabling the largest possible social circle to dsrive from a larger field a more extansive practical application of all branches of indnstry, art, science and human comfort. These preparations sesm to justify the expectation that ths Vienna fair will surpass the former two in its influence on the development and progress of industry and commerce of all nations, and attract more visitors from all parts of the world. The Municipal Court at Vienna, gratuitously ceded its valuable Prater ground, on which already an immense number of beautiful trees have been laid flat to make room for the giant palace. The industrial world favored this undertaking with such an enthnsiasm, that several millions have been snbscribed in a few days as a guarantee fund for exhibition purposes.

Programms of the Fair.

According to the programme, the following divisions were made for the exhibition: 1. Mining and Metallnrgy. 2. Agriculture, Arboriculture, and Horticulture. 3. Chemical Indnstry. 4. Aliment and Food. 5. Textiles and Clothing Industry. 6. Leather and Rubber Material. 7. Metals. 8. Wood. 9. Stone, Earth and Glass Ware. 10. Fancy Goode. 11. Paper Indnstry. 12. Graphic Arts and Drawings. 13. Machinery and Means of Transportation. 14. Scientific Iustrumente. 15. Musical Instruments. 16. Army. 17. Marine Matters. 18. Architectnral and Civil Engineering Appliances. 19. Civil or Middle-Class Dwelling Houses, with internal arrangements. 20. Peasant's house, with its arrangement and ntensils. 21. The National House Indnstry. 22. Representation of the efficency of Museums for Art purposes. 23. Ecclesiastic Arts. 24. Objects of art of olden times, exhibited by collectors. 25. Painting and Sculpture of the present time. 26. Matters relating to Education and Instruction.

Special Exhibitions.

I. Represents the ntiliation of the waste or refnse obtained in most branches of industry.

II. Exhibition of contributions to the history of industry and inventions.

Five medals will be distributed: *a*, Medel of Arts, for painting and sculptnre; *b*, Medal of Progress, for those who contributed to former World's Fairs, and can prove a progress since; c, of Merit, for first-time exhibitors; *d*, a Medal of Good Taste, for exhibitors whose articles show a refined taste, with reference to color, shape, and general outfit; and finally, one for workmen, for such as recommended by the exbibitor for a prize-article as having performed the most important part of it.

The object of No. 19, is not merely to make a collection for showing how family houees nsually look under different zones, but how they should be arrauged in order to serve best the national requirements and customs, with reference to local and climatic circumstances. They must show: *a*, a division of space with the greatest economy of the ground surface, offering the most comfort; *b*, architectural arrangement and decorations, combined with taste, and serving the purpose; c, a proper arrangement of ventilation, illumination, heating, etc.; *d*, a kitchen, pantry, cellar, bathing-rooms, and other departments necessary for cleanliness and comfort. Individuals of all nations have thns an opportunity to compare their arrangement with those of other countriee, and perhaps profit by it.

The group, No. 20 presents peasant's dwelling-houses. Group 21 exhibits national honse indnstry. It concerns principally pottery, weaving, needle work, ornamental work in metal, wood, etc.

Utilization of Refuse.

A very interesting and useful subject in the special exhibition, appears to be "the ntilization of refuse stuff." The programme eays: The consumption of soap, paper, the extent of letter intercourse, the number of public libraries, etc., is often pointed out as an indicator of the intellectual condition of the people, aud just so its industrial developement, scientific and speculetive genius might be measured by the extent of profitable utilization of the "refuss stuff." The rsalization of before nsslsss waste into a useful article, auguments the common wealth, not only by consumption of refuse, but also of such stuff that often appsars to be very obnoxions.

So for instance was the massive refuse of soda works a great nuisance; now they extract therefrom sulphur, and the remaining lime and gypsum makes a valuable materiel for agriculture. The sour mangenese solution from ths fabricetion of chlorate of lime, that was turned out before, prodnces now also a valuable material. Coal and wood ter become a very nseful article now-a-deys, many important ingredients are manufactured therefrom; benzine, paresine, creosote, carbolic acid, the splendid aniline colors, etc. The glycsrine in stearic acid production and the ammonie from light gas, were wested nntil 1850. Woolen rags, before partly used to tbe manufacture of cyanide of potasium, or of a low quelity of peper, but generally valuslsss, are now liks silk and cotton refuse, raw material for textile industry, etc.

The ntlization of refuss, that is the opening of nsw indnstrial sonrces, by which now millions ars realized, while formerly millions were expended to get rid of it, shows the deep infinence of science on the popular life.

1. Objects that are considered "refuse" will form the initial articles of this department. 2. With rsfersnce to the time, embracing this part, it corresponds with that fixed for other groups, that is ths year 1851 as the beginning. 3. In accordancs with the system adopted for the classification of the general exhibition, to this ons special articles are admitted. Refnss, occuring in each group of industry, and on the other hand, the products therefrom obtained either entirely new, better or cheaper, upwards from ths year 1851. The single number of this department comprises all intermediate articles or msmbers, from the refuss to the finshsd marketable article.

So far as possible the exhibition is effected by objects *in natura*, but where this should appear inadmisable, a graphic representation may be given in its place. The objects should be accompanied by a description of process, statistical representation of the production, the name of the discoverer or improver and all dates refering to history of the production. The exhibition of

II.—Contributions to the History of Industry and Invenlion

Is likewise of great interest. The special programme says: Amongst various characteristic appearances of the 19th century stands prominent the developmeut of indnstry and in the closest connection therewith the inventione following each other withont interruption. Owing to the animated intercourse between science and life, more so, than in any other period, a progress and change of unsnrpassed grandeur and wide-spreading influence is observed in the production generally, but especially in the exclusive industrial line. What surprising transformation has been effected from professional hand trades, into fabrics and manufactoriee with immense economical, political and social consequences, grand structures, breaking throngh and croesing of high mountains, nniting oceans, changing deeerts into flourishing eettlements, and a great many modern wonders, all achieved in the short time of a few decennariee, works that would have required centuries in olden times.

Theee brilliant results were achieved by the aid of many gifted men; but their names, not all are known to us, many are alienated from us, even if the time of their action is not far off yet. One might eay, witnessea of daily progress, we have lost the faculty of maintaining the claims of individuals who have a share in the great development.

It seems, therefore, that it should be considered the aim of a World's Fair to take cognizance not only of what is offered by the present bnt also of the past time, so as to revive the memory of men, to whose energy and skill we owe onr prodncing faculty. Being in itself the identity of common interests of all nations, a World's Fair should take np everything that may foster the personality of mankind, and what field in this respect is more qualified than that of inventions and industrial products? This concideration originated the idea of this additional exhibition. There are, however, some other considerations yet in favor of this addition. Fashion and industry are closely connected with each other. Indnstry has a great influence on the fashion and leads it in certain directions, but on the other hand a great many manufactured articles have to assnme to a great extent a character as dictated by the fashion.

Industry and inventions appear so intimately connected as to be considered inseparable. Indeed, now-a-days, it seems almost impossible to draw up a history of industry without taking notice of the respective inventions. As to the spaoe of time within which this exhibition extends, the time of the inventiou of the steam engine is calculated for the beginning; consequently for thie department a century is adopted. *a*, by machinery, tools, or preparation *in natura*; inmodels or drawings; and description of the manipulation, by which the gradual improvement of means, or of the way of working, is explained; *b*, by industrial productions, showing a prominent influence exerted on the fashion, or snstained by it; c, by a written information as to what individuals have accomplished by introducing a better economy, by adoption of a more proper working system, etc.; *d*, by exhibiting raw and crnde stuff *in nature*; such as have been introduced into the arena of industry dnring the lest century. The objects of each number should bs accompanied by a description, giving the name and biography of him who meds himself prominent in one of ths above four directions. This additional sxhibition offers a rare chence to

California

To show to the world, whet an intslligsnt, enterprising, go ahead people can accomplish on tbe field of industrial progress and in mining and metellurgy during, not a century, but in course of twenty yeers; or rsferring exclusively to metallurgy, in twelve years. A rspresentation of our development in the above brancbes would fall into the department under *a*, and should be represented by models of a size sufficient to show it psrfect in all details, although some parts may bs given in a largsr or natural sizs. Tbis exhibition should consist of four gronps. 1st. Extraction of gold in plecer mining. 2d. Crushing of ores. 3d. Extraction of gold from orss. 4tb. Extraction of silver from ores.

The Extraction of Gold in Placer Mining

Should represent the tools and machinss, used in the infancy of our mining, beginning with ths gold pan and cradle, showing thsn the gradnal development by means of the long tom, with its progressive improvements, sluicing, use of qnicksilver, riffles, ground river sluicing and so forth np to hydraulic opeiations. It would be very instrnctivs to add samples of gravel, black sand, cement and other material from which gold is extracted by washing; samples of different kinds of wash gold would be doubtless also be accepted with pleasure. All could bs arranged in a natural position repressnting also the ground from which ths stuff is ussd. A written comprehensive description of the way of working, including a short history, naming the inventors or improvers of importances, should be added.

The extraction of silver and gold can not be execnted nnless pulverized, for this reason the next number should be

Crushing of Ore.

In 1851 our principal means of crushing consisted in arastras, in the primitive Mexican style, consnming one week's time to pulverize one or two tons of quartz. Limited ae this institution is in its grinding faculty, it wae nevertheless considerably improved, not only in saving time while cleaning np by introducing iron bottoms that were lined with stone, bnt also its grinding capacity increased by enlarging the size, proper management of the grinders, increased speed, etc. The rapid discovery of gold qnartz ledges called quite a legion of all sorts of grinding and crushing contrivances into the field. The English rollers, and clumsy stampe after the English and German style, were the principal means of reduction. After a short strnggle all these numerous apparatue had to give way to stamps, as the most suitable and most effective cruehing contrivance A gradual but wonderful improvement was effected in this line, and now-a-days the California stamp batteriee are superior to all others. Represented by models in all its phases of development from the beginning to the present time, this exhibition would be admired by tbe whole mining world. Take only the original tappet and its troublesome way of fastening, and the stem preparcd for this purpose, the fastening of the dies, the construction and arrangement of cams, frame, foundation, etc., and compare it with batteries of the present time, the expression "wonderful" will be quite proper.

Extraction of Gold from Ores.

This part, although somewhat limited, in accordance with the uniform appearance of gold, confined principally to two conditions, either free, or combined with sulphnret of iron, will furnish a eeries of interesting improvements nevertheless. The different application of copper plates in and outeide the battery, amalgamating contrivances, blanket sluicee and the different means of treating the blanket stuff with all the improvements connected with the amalgamation, the improved contrivancee for chloridizing gold eulphurets permits a very instructive display of models.

Extraction of Silver from Silver Ores.

The beginning of this branch of mining indnstry on the Pacific coast, dates to the year 1861, based on amalgamation. The mode of extraction soon split in two directions, that is, with and without roasting; and in both ways a rapid progress crowned the unwearied exertions of talented men. The European barrel and the American heap amalgamation (Patio,) nearly disappeared, and gave way to the "home inetitution" pan amalgamation. The pan amalgamation was started with charges of 50 pounds, now we have charges from one to three tons, and exceptionally treating tailings, even eight tons make a single charge. But before this result was obtained, hnndreds of different plans combined with heavy expenses were carried out; numberless obstacles overpowered by preseverence and continual labor. The improvements and chenges in pan amalgamation have a mechanical and metallurgical character, and are very numeroue, The different kinds of pans of special merit with temporary changes, the mode of amalgamation, cleaning and amalgam, retorting, the mode of roasting with the principal furnaces should be presented by models and description, bnt a epecial interest would be to conclnde the exhibition a this part by a model of a complete mill, with all modern improvements.

To carry out this proposition, nothing ie in the way bnt want of funds. Where is a California Peabody?

Useful Information.

To Shave Scientifically.

Never fail to wash your beard with soap and water and to rub it dry, immediately before you apply the lather, of which the more you use, and the thicker it is, the easier you will shave.

Never use warm water, which makes a tender face. In cold weather, when it is inconvenient to warm your razor otherwise, place it, closed, in your pocket or under your arm to warm it. The moment you leave your bed (or bath) is the best time to shave.

Always wipe your razor clean, and strap it before putting it away; and always put your shaving brush away with the lather on it.

The razor (being only a very fine saw) should be moved in a sloping or sawing direction, and held nearly flat to your face, care being taken to draw the skin as tight as possible with the left hand, so as to present an even surface, and to throw out the beard.

The practice of pressing on the edge of a razor in stropping it soon rounds it; the pressure should be directed to the back, which should never be raised from the strop. If you shave from heel to point of the razor, strop it from point to heel; but if you begin with the point in shaving, then strop it from heel to point.

If you only once put away your razor without stropping it, or otherwise perfectly cleaning the edge, you must no longer expect to shave well and easy, the soap and damp so soon rust the fine teeth and edge.

A piece of soft plate leather should always be kept with razors, to wipe them with.

A Supposed Freak of Nature.—A Vicksburg paper furnishes the following as a freak of nature. The item is having a very general circulation through the newspapers:—Upon a spot where had been buried a soldier who fell at Champion Hill, who was buried in his blood, grew a peach tree that had reached maturity, while its roots steeped themselves in the martyr's blood. Singular to relate, the leaves and fruit of this tree are a blood-red color. The tree was transplanted, and is now in an orchard in this country. The propagations from the tree are of the same peculiar color. There is something very peculiar about this. We have seen the leaves, and must confess that they do look and even (to us) smell like blood. The fact can be witnessed by those taking the trouble."

There is a variety of the peach which very fully answers the above description, and it don't always grow on a soldier's or any other grave; although such a locality, especially if it was a mellow one, would most probably greatly improve the appearance of both tree and fruit, and especially its peculiarly distinctive character of redness.

What a Piano is Made of.—A writer has taken the trouble to give the actual material used in constructing a piano-forte. In every instrument there are fifteen kinds of wood, namely, pine, maple, spruce, cherry, walnut, whitewood, apple, basswood, and birch, all of which are indigenous, and mahogany, ebony, holly, cedar, ebeeb, and rosewood, from Honduras, Ceylon, England, South-America, and Germany. In this combination elasticity, strength, pliability, toughness, resonance, lightness, durability, and beauty are individual qualities, and the general result is voice.

There are also used of the metals, iron, steel, brass, white-metal, gun-metal, and lead. There are in the same instrument of seven and a half octaves, when completed, two hundred and fourteen strings, making a total length of seven hundred and eighty-seven feet of steel wire, and five hundred feet of white (covered) wire. The total number of strings, when properly stretched to produce the right tone, exert a pull of over ten tons; this represents the force with which one end of the piano is drawn towards the other end, and it explains the reason why good pianos are built so strong and so heavy. Such a piano will weigh from nine hundred to one thousand pounds, and will last, with constant use, (not abuse) twenty to twenty-five years.

For Re-Sharpening Files.—The following is given by an exchange as useful and effective; but we have not tried it:—Wash the files in a solution of warm water and potash until thoroughly cleansed, after which wash the files in warm water; then put one pint of warm water in a wooden dish, in which place as many files as the water will cover; add to this two ounces of borax and two of blue vitrol, finely pulverized together. Stir up the files well and add two ounces of sulphuric acid by weight; to this add one-quarter ounce of vinegar. The files will turn red. When they again resume their natural color, take them out and wash them in cold water, after which they must be thoroughly oiled with sweet oil, and wrapped singly in brown wrapping paper which will absorb the oil from the files.

A French economist says, in his opinion Egypt alone can hide away $20,000,000 of gold and silver annually, and the present Emperor of Morocco is so addicted to this avaricious mania that he has filled seventeen large chambers with the precious metal.

Prize Offer.—The Agricultural Society of France offers a prize of 2,000 francs and a medal for the best memoir "On the Theory and Practice of Irrigation." The papers are to be sent to the Secretary before the ending of this year.

How to Sharpen a Screw-Driver.

The screw-driver is found not only in the tool-chest of every mechanic, but in most houses, and offices. It ranks with the hammer, the saw, and the ax in general utility, and yet few persons know anything about how it should be sharpened so as to do its work most efficiently—that is, with the least expenditure of power, and the least injury to the heads of the screws.

In driving a screw into wood, the force used to press the screw-driver against the head of the screw, tends to aid the latter in penetrating the wood, but when we attempt to extract a screw, every pound of pressure that we apply tends to render it more difficult to get the screw out. It therefore becomes very important that the screw driver should be so formed that it may

Fig. 1. *Fig.* 2. *Fig.* 3.

be kept in the nick of the screw by the exertion of the very least degree of force, for if it has any tendency to slip out, we can keep it in place only by applying pressure, in which case we run great risk of injuring the nick and rendering it impossible to draw the screw.

If we examine a screw-driver in the condition in which it is so ordinarily found, we shall find that it presents a section like that shown in fig. 1, in which the sides of the wedge, in which all screw-drivers terminate, are curves with the convex sides outwards. Now, the effect of thus curving the sides of this wedge, is to render it greatly more obtuse. Moreover, when we turn the screw-driver, the tendency to slip out of the nick is just in proportion to the obtuseness or bluntness of the wedge, and therefore this form is the very worst that can be chosen. In the hands of good workmen, therefore, we find that the screw-driver ends in a wedge of which the sides are perfectly straight, like fig. 2. This is a very good form, but is not equal to fig. 3, in which the sides of the wedge are curves, but the *concave* sides turned outwards. In this way we lessen the obtuseness of the wedge at the extreme point and produce a turn-screw which may be kept in the nick by the least possible pressure endwise.

To grind a screw-driver into this form, it is necessary to use a very small grindstone, and many of the artificial stones found in market answer admirably. Many mechanics would find it to their advantage to keep one of these small grindstones for the purpose, as it could be run in the lathe with very little trouble.

Something About Tongues.—Nothing but the proboscis of an elephant compares in muscular flexibility with the tongue. It varies in length and size in reptiles, birds, and mammalia, according to the peculiar organic circumstance of each. A giraffe's tongue has the functions of a finger. It is hooked over a high branch, its strength being equal to breaking off large strong branches or trees, from which the tender leaves are then stripped. An ant-bears tongue is long and round, like a whip-lash. The animal tears open dry, clay walls of ant-hills, thrusts in his tongue, which sweeps round the apartments, and by its adhesive saliva brings out a yard of ants at a swoop. The mechanism by which it is protruded so far is both complicated and beautiful. A dog's tongue in lapping water takes a form by a mere act of volition that cannot be imitated by any ingenious mechanism. The human tongue in the articulation of language surpasses in variety of motions the wildest emotions of a poet. Even in swallowing food its office is so extraordinary that physiologists cannot explain the phenomena of deglutition without employing the aid of several sciences.—*Hall's Journal of Health.*

Brain Work.—Brain-work costs more food than hand-work. According to careful estimates and analysis of the excretions, three hours of hard study wear out the body more than a whole day of severe physical labor. Another evidence of the cost of brain-work is obtained from the fact that though the brain is only one-fortieth the weight of the body it receives about one-fifth of all the blood sent by the heart into the system. Brain-workers therefore require a more liberal supply of food, and richer food, than manual laborers.

Old Leather.—What becomes of all the old leather? The scraps and trimmings that fall from the shoemakers' bench are collected and sold for the purpose of being converted into "leather board" to give thickness, but not value, to the sole of cheap shoes. The uppers of old boots and shoes that are not too badly worn, are removed from the demoralized soles and made to do duty as shoes with new soles. Thousands of such uppers are sold in the various shoe marts of the country.

Potash from Corn Cobs.—Dr. Herbert Hazard suggests the use of corn cobs for supplying potash, the ordinary sources of which are rapidly failing. The average yield of corn cobs is 7.62 parts of carbonate of potash in 1,000 parts of the cobs, which is nearly twice as much as the best kinds of wood will furnish. The present supply of cobs would furnish nearly 58,000 tons of potash.

Good Health.

Nature of the Brain.

It is a law of organic life, traceable from the lowest specimens of the animal kingdom, through all the ascending series, to the highest type of the human being, that, in the ascending scale, the softer and more fluid tissues gain on the more dense and solid; and that the cerebro-spinal nerve tissue gains upon all other tissues. Thus man, the crowning work of organic creation (for the present at least) has a brain substance vastly disproportionate to that of any animal, and the brain is composed of only one part of solid matter to seven or eight of fluid.

A recognition of this law leads us to some very important practical considerations. The capability of any animal or person to enjoy or suffer is in the ratio of the cerebral development. Hence a large animal with powerful muscles may struggle violently yet suffer little pain; while a human being with weak muscles and large "vitativeness," may suffer excruciating pain without manifesting much muscular effort.

If this principle were understood, those praiseworthy "Societies for the Prevention of Cruelty to Animals," might establish a branch or department for the benefit of human beings; for there is in every large city in the world, more cruelty practiced on human beings every day in the year, than on all the animals in all creation during a whole year.

Another lesson deducible from these premises is the mistaken notion about overworked brains. They cannot be overworked. They suffer little "wear and tear," because of exercise. Being soft and almost fluid, and having no duties but thinking and feeling, their motions are almost as free and frictionless as the drops of water which may toss and tumble for ever without injury.

It is the nutritive system that is at fault—the assimilating and disintegrating functions—and not the brain, when a person complains of too much head work. Let him keep his vital machinery in order, and he may work his brain to the utmost without harming it.—*Science of Health.*

Sound Teeth.—Mushes, gruels, puddings, and soups, may be made hygienically. But they should also be eaten hygienically. They must be chewed, not bolted. The nursing infant masticates its mother's milk, for which purpose it takes it slowly, drop by drop. Mastication is for the purpose of insalivation. Unless food is properly insalivated, it cannot be well digested. The teeth are the finest, densest structure of the body, and this means that they are intended for hard work.

Eat solid food at every meal; and when you take semi-liquid, or very soft food of any kind, eat very slowly and take a bit of hard bread, cracker, a green apple, or something similar, with it. Then will your stomach please and be pleased, and your teeth, like your eyes and nose, and fingers and toes, will remain to bless and comfort you to the last. If all persons, after being weaned, would only chew their food enough, we should hear very little of aching and rotting teeth, and dentists would be nowhere.—*Science of Health.*

Sprains and Bruises.—These injuries are sometimes very distressing and their consequences very serious. The dense ligaments and membrance of the joints swell, and sometimes inflame, as the result of local injuries, and the pain is often extreme. But, simple water is about all the treatment needed. It should, however, be of a temperature adapted to the circumstances, the indication being to unload the congested vessels of the injured part as much as possible. If the part is hot and painful apply cold water or cold wet cloths, frequently renewed, until the heat becomes normal. If there is pain or tenderness without increased heat, apply fomentations until the pain is relieved. All the after dosing required in either case is a wet cloth covered with a dry one, and worn until all tenderness is gone. This simple treatment will do all that any medication can do, and is better than all the liniments and lotions, plasters and poultices, that were ever invented.

What is Insanity?—At a murder trial in Memphis, Ky., wherein an attempt to establish insanity was made on the part of the defence, Dr. J. R. Allen was called as an expert, and testified as follows: "I have been a practicing physician for nearly thirty years; I have had some experience in cases of insanity, having been for ten years medical superintendent of the Kentucky Lunatic Asylum, and during that time had over 2,000 crazy people under my charge; I have heard the hypothetical case read by Mr. Phelan; I am here as an expert, and before answering the question would like to say that the more I studied the qestion of insanity the less I understood it, and if you ask me where it begins and where it ends, neither I nor any physician in the world could tell you; in fact, on occasions like this, lawyers make fools of themselves in trying to make asses of doctors."

Absorption by Bones.—M. C. Robin states that matters injected into the spongy tissue of bones in the living subject are absorbed as rapidly as if they were introduced directly into the veins, from which he inferred that this spongy tissue is in direct connection with the veins.

Plant Life in Town.

The health of towns has become a hackneyed subject, but we seldom hear about the health of plants in towns. Yet the two are not only nearly correlated, but well-nigh identical. Were plants healthy, the inhabitants would probably be likewise, and the obverse is true. Towns in or near to which plants refuse to thrive are also those most fatal to man. The primary foundations of health in both are heat, light, food, cleanliness, pure air and suitable weather. With the single exception of heat, which, in the open air, may be assumed to be nearly equal in town and country, it must be admitted that large towns imperil the purity, lessen the quantity, and interrupt the constancy of most if not all the other essentials of health. In many large towns the light of the sun is obscured for more than one-half its shining hours. Therefore, who can wonder at the pale faces which one finds among men, women and children, and the shabby aspect of plants in towns? Heat is the great quickner, light the chief strengthener of plants. The reason so many die in dwelling-houses is that they have so little light. They linger, pine, and refuse to grow in many towns for the same reason. The pestilence that kills plants by thousands is bred of that semi-darkness which hangs as a death-pall over so many of our smoke-capped cities. When that darkness flies before the rigid enforcement of a smoke-prevention act applied to every fire, then will plants in towns rejoice, be clothed with new strength and adorned with fresh beauty.—*The Garden.*

Lead Poisoning.—Since attention has been directed to the subject, cases of lead poisoning, traceable to the use of hair-preparations containing lead, are found to be very frequent. A case of this sort was recently reported in the medical journals, which was at first mistaken for muscular rheumatism, and treated as such with but slight amendment. Paralysis of the extensor muscles of the fingers and hands, with "wrist-drop" coming on, the true nature of the affection was seen, and its cause readily found in the frequent use of a hair-renewer containing a large proportion of sugar of lead. No lines were seen upon the gums, but attacks of colic had been frequent. Discontinuance of the hair-dressing, and a resort to the ordinary remedies, soon affected a cure.

Bath Treatment for the Small-Pox.—An instance of the effect of the bath treatment for small-pox is thus described by Dr. Stokes, of Dublin: In a very severe case of confluent small-pox in which the patient was kept alive only by stimulants, the trial of the warm bath was suggested. The effect was instantaneous and marvellous. The delirium ceased as if by magic. It was the delirium of pain; and the patient exclaimed: "Thank God! thank God! I am in heaven! I am in heaven! Why did'nt you do this before?" The fetor immediately and completely disappeared, so that, on entering the ward, no one could suppose that there was a case of small-pox in it. He was kept at least seven hours in the bath.

How to Make a New Nose.—The method usually practiced is as follows: A small place is opened upon the arm, between the elbow and shoulder. The arm is then brought up to the stump of the nose, which is inserted in the cavity previously made. The arm is next tied to the head, and allowed to remain in that position until the nose and arm grows together, which ordinarily occurs in less than a month. Another amputation then takes place, which leaves plenty of good flesh sticking to the nose, and this, when trimmed, is a nose as good—sometimes better in a point of symmetry and beauty—than the individual ever possessed before.

Stimulants and Narcotics.—A recent German treatise on stimulants and narcotics estimates that infusion of coffee leaves is used by two million persons, Paraguay tea by ten million persons, chicory, either pure or mixed with coffee, by forty million persons, cocoa, either as chocolate or in some other form, by fifty million persons, and coffee by one hundred million persons. Betel is chewed by one hundred million persons, hasheesh is chewed or smoked by three hundred million persons, and opium is used by four hundred million persons. Chinese tea is drank by five hundred million persons, and tobacco is smoked, chewed or snuffed by the greater part of the inhabitants of the world.

For Reptile Bites.—One tablespoonful of gunpowder; one tablespoonful of salt; the yellow of one egg. Heat them altogether, so as to form a plaster, and apply to the wound. A yellow water will issue, and when the plaster becomes soaked with the poison it will fall off. Renew the plaster until it will adhere to the wound, which is evident that the poison has all been drawn. The above is said to be a very effective antidote.

For Stings of Insects.—A good, convenient and very effectual remedy for the stings of wasps, bees, etc., is simply to hold any hollow key, over the place stung, press it hard into the flesh for a minute or so, and when taken off, the poison will be on the surface of the flesh and do no harm. A thimble with a tight top will do but not quite as well.

Infallible Remedies.—For corns, easy shoes; for bile, exercise; for rheumatism, new flannel and patience; for gout, toast and water; for the toothache, a dentist; for debt, industry; and for love, matrimony.

Scientific Press.

W. B. EWER,.....SENIOR EDITOR.

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Illustrations and Reports of Mining Enterprises Wanted.—Drawings or photographs of mining works that are of general interest to our readers are solicited for publication in this journal. Official reports of Companies, and description of mines of importance, or of special interest, are also desired. Sketches of any new method and discoveries will be very acceptable.

San Francisco:

Saturday Morning, June 15, 1872.

Gold and Legal Tender Rates.

San Francisco, Wednesday, June 13, 1872.—Legal Tenders buying, 88⅝; selling, 89. Gold in New York to-day, 114.

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MECHANICAL PROGRES.—Granite Works of the Ancients; A Short Coal Supply; Artificial Leather; Improvement of the Steam Engine; A New Kind of Flint Glass; Cutting Marble, 371.

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GOOD HEALTH.—Nature of the Brain; Sound Teeth; Sprains and Bruises; What is Insanity; Absorption by Bones; Plant Life in Town; Lead Poisoning; Bath Treatment for the Small-Pox; How to Make A New Nose; Stimulents and Narcotics; For Reptile Bites, 375.

DOMESTIC ECONOMY.—Hints About House Cleaning; What Food is Most Wholsome; Premium Bread; Woman's Drudgery; Portable Kitchen; Extract of Coffee; 380.

MISCELLANEOUS.—James Davenport Whelpley; Mining Companies' Reports; The Institute of Mining Engineers; Important Mining Decision; An "International Laboratory," 370. Vienna World's Fair, 374. Patents and Inventions; New Incorporations; Increase of Capital Stock; Meetings and Elections, 380.

Heavy Blast.—Dispatches from Dutch Flat dated the 9th inst., state that a blast of 2,500 pounds of Hercules powder was exploded in the Gray Bro's. claim on that day. The entire hank, 77 feet high and containing 142,000 cubic yards of firmly cemented gravel was thrown down. The powder was from the California Powder Works. The drifts were under the superintendence of J. W. Millard, of the powder company, and the hlast was fired hy E. H McClure, hy electricity.

Alaska Coal.—The hill for the sale of coal lands has been amended so as to exclude Alaska; for what reason we are not informed. It is understood that there are extensive coal fields in our newly acquired Territory, and we see no reason why citizens might not purchase mines there as well as any where else in the United States. We import large quantities of coal, and new fields properly opened in our own country would he advantageous not only to the owners hut to consumers.

Libraries for the People.—Austria has decided (in her new school-law) to attach libraries to public schools, these libraries to he open not only to the scholars hut also to adults under certain conditions. In the country this will be of great importance, and in this educational measure Austria leads other nations. In order to aid in the formation of such libraries, societies and private individuals are subscribing considerable sums of money.

Nevada Foundry.—McCone's Foundry, near Silver City, Nev., which was destroyed hy fire a short time since, is not to be rehuilt, but the owner has purchased the Fulton Foundry on the Divide and will continue his business there. The establishment is in good order and contains first class machinery capahle of turning out all classes of work.

On File.—"Nevada State Mines."

Narrow Gauge vs. Wide Gauge.

It is becoming more apparent every day to the people of this Coast that we are in great need of cheaper railroads—railroads which, if bnilt by others for us, can be oonstructed without the necessity of enormous subsidies; best of all, railroads which can be built by the people for the people.

The cost of roads of the present common gauge cuts off without question many regions from the hope of railroad transportation for years to oome. To pay $50,000 to $70,000 per mile for construction is far beyond the ability of the inhabitants. Roads cannot be run thither nntil the population is far greater, and population will not go thither until the roads are built—which looks bad for the "rapidly growiug prosperity," of which we are so fond of talking, of those sections.

The question has often been mooted as to the possibility, in such cases, of constructing narrow gauge roads, and as to the economy of such over those of wide gauge. The controversyhas been actively carried on dnring the past two years. We all were very mnch interested when the people of Grass Valley and Nevada City undertook to investigate the matter practically, and we all were very much disappointed when they failed to reach a solution with which the public could feel satisfied.

In that discussion both roads projected, one of wide and one of narrow gauge, had the same location (made particularly for the wide gauge) and very much the same construction; of conrse no advantage was found for the narrow gauge. And so, only too often iu the controversy, the main argument adduced by the wide gauge upholders is in effect that if we build a narrow gauge road with the same location, road bed and superstructure, and essentially the same rolling stock as for the wide gauge, we shall have no ecouomy—"which nobody can deny." But then this is just the manner in which no one thinks of building a narrow gauge road.

We refer again for the hundredth time to this matter because we have the opportunity to give some figures in addition to those which we have already published. Notwithstanding opposition, we have already one road of importance constructed (and running) on the narrow gauge plan, and new facts are being ascertained continually, which put the question in a clearer light.

Gen. Geo. P. Buell, Chief Engineer of the Texas Pacific Railroad, in a report to the Directors of the road, spoke very favorably with regard to the narrow gauge. His report was attacked by Mr. S. Seymonr. To this gentleman's argument, which we have not seen, we may do injustice, but from what we have heard of it we may judge it to be in the old circular style:—Yon cannot economize by building a narrow gauge road, because it costs as mnch as it does to build a wide gauge road.

Mr. C. J. Quetil, Prin. Assist. Engineer nnder Gen. Buell, has written a reply which seems to give some very conclnsive reasoning in favor of the narrow gauge. We have not space to give his argument in full, for which we must refer those interested to *Van Nostrand's Mag.* for May, but we give for the benefit of many, some of his figures and deductions with the assurance that these appear to be fairly arrived at.

Cost of Road Beds.

For the purpose of a fair estimate between the two gauges of the cost of earthwork, we will take the average hight of embankments as 6 feet; slope, 1½ to 1; width at top, 14 feet (as generally built) for the 4 feet 8½ inch gauge, and 9 feet for the 3 or 3½ feet gauge; cuts as 5.4 feet high and 18 feet wide respectively; bridges 16 feet and 12 feet wide. We find then the following economy in narrow gauge roads in per ct. (A) of cost of narrow gaugue, or (B) of cost of wide gauge.

	A	B
Earthwork.....30 per ct.	or 22 per ct.
Clearing and Grubbing..... 8⅓	" " 8 "
Drain boxes.....19	" " 16 "
Bridges and culverts.....33	" " 25 "
Loose and solid rock, and hauling.30	" " 23 "

To apply these figures to the Texas Pacific R. R. The cost per mile, between Camp's Ferry and Tyler, of clearing and grubbing, earthwork, loose rocks, hauling, culverts and bridges was $16,506.77. The economy per mile with a narrow gauge would be $3,763.35. As it is calculated that the road will be at least 2,000 miles long, the economy for that length would be $7,526,700.

Even if we make the embankments 10 ft. wide, cuts, bridges and culverts 14 ft. wide, for the narrow gauge we shall have a great economy over the wide gauge, as follows:

Earthwork.....16	per ct. of wide gauge
Clearing and grubbing.....6⅔	" "
Bridges and culverts.....12⅔	" "
Loose rock, solid rock, hauling..16	" "

Consequently the economy per mile, would be $2,432.42, or $4,864,840 for the 2,000 miles of road.

The economy of construction of road-bed is, if the banks are 9 ft. and the cuts 12 ft. wide, equal to 23 per cent. of the cost of wide gauge roads; or, if the banks are 10 ft., and the cuts and bridges 14 ft. wide, equal to 15 per cent. of the cost of wide gauge roads.

Superstructure.

The rail used on the Denver and Rio Grande, and on most of the 3-ft. gauge roads is a 30 lb rail. Gen. Buell recommended a 36-lb rail for a 3 ft. 6 inch gauge. If the rails are lighter, spikes and bolts will also be lighter, and the ballast will be used in smaller quantities. We give here the comparative costs of superstructnre of two roads, one with a 4-ft. 8½ inch gauge, and 55-lb rail, the other with a 3-ft. 6 inch gauge, and 35-lb. rail.

WIDE OAUGE.

87 tons of rails at $70.....	$6,090.00
400 rail splices at $1.....	400,00
5,500 lb. spikes at 5 cts.....	275.00
2,640 cross ties at 80 cts.....	2,112.00
2,000 cu. yds, gravel hallast at 50 cts.....	1,000 00
Laying one mile of track.....	500.00
Total per mile.....	$10,017.00

NARROW GAUGE.

55 tons of rails at $75.....	$4,125.00
528 rail splices at 60 cts.....	316.00
3,520 lb. spikes at 6 cts.....	211.20
3,520 cross ties 5'x5"x6" at 50 cts.....	1,408.00
1,200 cu. yds. gravel ballast at 50cts.....	600.00
Laying one mile track.....	350.00
Total per mile.....	$7,011.00

Hence the ecouomy of the superstructure is $3,366 per mile, or nearly 45 per cent. of the cost of narrow gauge, and 32 per cent. of the cost of wide gauge for superstructure. This, for the 2,000 miles of the Texas-Pacifio, wonld amount to $6,732,000. Adding the economy in the road-bed, we have a total economy of $14,258,700, if the banks are 9 ft. wide, or $11,596-840 if the banks are made 10 ft. wide; and this, on ordinary railroad gronnd. *It is principally in countries like New Mexico, Arizona and California,* which the line will have to cross, that the company might make an *immense saving* by adopting the narrow gauge.

The adoption of a narrow gange allows sharper curves for the line, and saves, furthermore, mnch of the heavy expense of tunnelling.

Official Statements from other Roads.

J. P. Mersereau, Chief Engineer, submitted to Gen. Palmer, President D. & R. G. R. R. Co., the following estimate of cost for a broad and narrow gauge road from Golden City to Black Hawk, Colorado. On the wide gauge (4 ft. 8½ inches,) the maximum grade was 155 ft., maximum curve 12°; on the narrow gauge (3 ft.), maximum grade 175 ft., maximum curve 26°, distance, 20 miles.

	Wide Gauge.	Narrow Gauge.
Graduation, masonry bridging and ballasting.....	$46,425.....	$7,200
Superstructure, track, etc....	13,610.....	8,765
Depots, repair shops, tanks...	1,220.....	1,000
Engineering, superintendence and contingencies.....	4,500.....	1,500
Total cost per mile.....	$65,755.....	$18,465
Difference in cost per mile.....		$47,290
Difference in cost for 20 miles.....		$945,800

"These estimates are made from careful surveys, the most of the lines being actual locations; the covered lines having been run at all the most difficult points." The rails are estimated at 65 pounds, for broad gauge, and 40 pounds for narrow gauge. "There would appear to be a discrepancy in the engineering and contingenoy estimate (by comparison), bnt is accounted for by the difference in length of time to constrnct; there being unavoidably 3 tunnels on the broad gauge (if only 12° curves are used), which would keep up an organization for engineering 2 *years instead of* 6 *or* 8 *months*, in which the narrow gauge can be completed. The extension of line from Black Hawk to Central City can be made at the average cost for narrow gauge given, distance about 7 miles, but I think it *hardly possible* to build for broad gauge with 12° curves."

The Denver and Rio Grande Railway uses

Width of road bed in cuts.....	12 feet
" " banks.....	10 feet
Sharpest curve.....	6 deg
Maximum grade per mile.....	75 feet
Length of ties.....	6½ ft
Weight of rail per yard.....	30 lbs
Slope of earth cuttings.....	1 to 1
Slope of banks.....	1½ to 1
Slopo of solid rock cuttings.....	¼ to 1

After 5 miles had been graded on a road from Golden City to the forks of Clear Creek, Colorado, T. E. Sickes, Chief Engineer, Colorado Central R. R. (Gen. Supt Union Pacific R. R.) wrote: "The cost of grading a road-bed through the cañon for a 4 ft. 8½ in. track was estimated to be $90,000 *per mile.* The *actual cost* of grading a road-bed for a 3 ft. track *has not exceeded* $20,000 *per mile.*" When asked for explanation concerning this difference, which was "considered somewhat extraordinary," he wrote that the difference was due to the different locations of the two lines. The minimum radius of curvature adopted for the broad gauge was 955 ft; for the narrow gauge, 220 ft. "The cañon is about 3,000 ft. deep and has precipitous sides. Its course is so tortuous that the broad gauge location would have required in construction numerous tunnels and bridges, with high embankment aud deep opeu rock cuttings. The adoption of a narrow gauge admitted of an alignment conforming approximately to the windings of the cañon and enabled us to obtain a graded road-bed for less than ¼ of the estimated cost of a broad-gauge road bed, with the additional advantage that increase of distance secured more favorable grades.

This last has a great significance for those among the mountains of our coast.

Rolling Stock.

We must pass over the argument concerning the stability and gain in regard to dead weight of the narrow gauge cars, and the performances of the engine, etc., for want of space. Mr. Quetil wonders that, in view of its performances the Fairlie engine has not become more popular in this country. We give some dimensions of cars which have been built for the narrow gauge roads.

Passenger Cars:—35 ft. long, 7 ft. wide, 6½ ft. high, carrying 36 passengers. For wide gauge there are 54 ft. long, 9½ ft. wide, 10¼ ft. high at dome, carrying 60 passengers.

Platform Cars:—4-wheeled; 12½ and 16½ ft. long, 6 ft. wide.

Platform Cars:—8-wheeled; 23½ ft. long and 6 ft. wide. For wide gauge these are 32 ft. long and 9 ft. wide.

Box Cars:—4-wheeled; 10, 12 or 14 ft. long and 6 ft. wide.

Box Cars:—8-wheeled; 22 ft. long, 6½ ft. wide. For wide gauge, 29 ft. long and 9 ft. wide.

There is in favor of the narrow gauge an economy of dead weight of

For flat cars.....	42.4 per cent.
For 4-wheeled box cars.....	33.1 "
For 8- " "	25.4 "
For passenger cars.....	234 lbs. per passenger.

In regard to the inconvenience of breaking bulk, so often dwelt on by opponents of the narrow gauge, this is compensated for a hundred times by the other advantages, to say nothing of the great damage and inconvenience growing out of an interohange of cars upon thousands of miles of connecting, and often hostile or competing lines.

What the Country Would Save.

Gen. Rosecrans has made some interesting calculations tending to show that if the railroads in the United States, down to the end of 1867, had been bnilt on the narrow gauge plan, the saving in first cost would have been $480,000,000, the annual interest of which at 6 per cent. is 28,800,000; that the annual saving on haulage would be $100,800,000; in all an annual saving to the people of the United States of $129,600,000.

He shows frnther that a much greater saving is in question for the future; for,

he reasons, provided the whole country is to be as well furnished with railroads as is the State of Ohio, there will be a total length of 165,800 miles of roads, the annual saving on which with the narrow gauge system would be $547,544,515—enough to pay the national debt in 5 years.

Moreover, he shows that railroads, on the average, add $10 per acre to the value of lands within 10 miles of them. The narrow gauge roads can be afforded in districts where broad gauge roads could not, to an extent which it is moderate to call 30,000 miles; which would add to the value of the land bordering on these roads $3,000,000.

Mechanics' Institute.

The regular annual meeting of the Mechanics' Institute was held on the 6th inst. The annual report of the President, A. S. Hallidie, was read after the transaction of some business of minor importance. He said that at the time of his annual report the year previous that the liabilities of the Society were $40,013.48; the largest item being $37,000, due the Union Insurance Co., for which they held a mortgage on the Society's property. This mortgage has been reduced by the transactions of the year to $5,000, and still further reduced by money received from life memberships, amounting to $2,000. He urged the propriety of getting 60 more life members, so as to clear the institution of debt. He also urged the idea of increasing their mineralogical cabinet from its present size. He thought the Trustees would do right to continue to keep open the library on Sundays, the experiment having been a success. The matter of future Industrial Exhibitions had been considered by the Trustees at different times, and they were unanimously of the opinion that a permanent structure should be obtained, but as yet no plans had been offered which met their approval. The library now contains 17,239 volumes. The number of new members during the year was 375.

Finances.

The financial statement of the Society for the year ending May 31st, 1872, was as follows:— Institute Fund: Total receipts, $14,844.33; disbursements, $15,164.17; due Treasurer, $319.84. Sinking Fund: Receipts, $2,820.89; disbursements, $1,214.73; balance on hand, $1,606.16. Pavilion Account: Receipts, $20,753.96; disbursements, $19,025.87; transferred to Institute balance, $1,728.09. The assets of the Society are stated at $146,628.81; liabilities, $6,424.28; net assets, $140,204.53; monthly revenue, $1,091; expenses, $995.

Installation of Trustees.

The new Trustees were duly installed by the Installation Committee, Mayor Alvord Chairman, after a few remarks by Irving Scott. The Trustees are: A. S. Hallidie, Henry L. Davis, Asa R. Wells, R. B. Woodward, A. S. Iredale, Geo. Spaulding and Samuel H. Wheeler.

The Trustees elected A. S. Hallidie President; J. C. Patrick, Vice President; H. L. Davis, Treasurer; H. W. Joncs, Corresponding Secretary, and S. H. Wheeler, Recording Secretary.

The re-election of Mr. Hallidie as President continues him as an *ex officio* member of the Board of Regents of the State University.

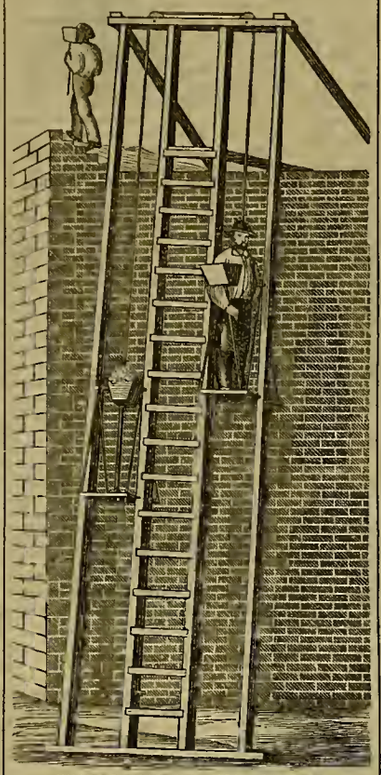
Miner's Lamp.—A Londoner has recent patented a lamp, more particularly for coal miner's use, which is so constructed that it can not be opened without first extinguishing the light. This is effected by adapting to the body of the lamp a locking pin which will prevent the lower part from being unscrewed or detached from the upper part until the pin is drawn back.

Fire.—On the 30th ult. the buildings surrounding the galmadore of the Cerro Gordo Smelting Works was totally destroyed by fire. This is the second time, these building have been burnt. The loss amounts to about $4,000.

Knapp's Hod Carrier.

The illustration shown herewith represents a device which is intended to facilitate the hoisting of bricks, mortar, and other materials to the top of buildings, in the course of construction. The invention is a simple one and can be easily understood by referring to the cut. An ordinary ladder is used with a timber on each side, and secured at top and bottom, by cross beams. The ladder and side pieces are mortised into the cross beams, but not fastened, so that the machine can easily be taken apart for transportation or when it is desired to use the ladder separately.

In the top beam are two pulleys over which passes the rope to which the cages are suspended. The cages are made with a board or plank bottom, and a short piece of scantling at the top, connected with hoop iron and held in their places by small iron guides which run in front and back of the timbers. One of the cages being loaded, it is raised to the top of the building by a workman who steps into the opposite cage and rides to the bottom. The machine can be used by one man, but two or more men can use it to better advantage. It will be seen that the operator is obliged to climb the ladder once for every load that he raises, but having no burden to carry, he ascends in much



KNAPP'S PATENT HOD CARRIER.

less time, and the labor is comparatively light. It requires but a few seconds to descend, and the workman regulates his speed by placing his hand upon the side timber. By the old method nearly as much time is consumed in descending the ladder as in carrying up the load. The first device constructed of this kind is now in use at the new depots of the Central Pacific Railroad Company on Fourth street. These buildings are being roofed with asphaltum, and the contracter, Mr. N. P. Perine, who has procured this machine, formerly used a block and tackle for the same purpose. We are informed that by the use of the block and tackle three men raised seventy-five pounds per minute, and by the use of this new device two men raised 150 pounds per minute.

For buildings of one or two stories the machine can be used as represented in the cut, but for higher buildings, four ropes are used in place of the timbers and the cages are provided with eye holds on each side through which the ropes pass, and keep them in position. The men can then ascend in the usual way by ladders from one scaffold to another.

It is the intention of the inventor to manufacture small sizes for the use of farmers and warehousemen. Full particulars regarding the machine and its uses can be obtained of Wiester & Co., 17 New Montgomery street, in this city.

Paying Mine.—The shipments from the Raymond & Ely mine for June, up to the 12th inst., amount to over $10,000 per day.

Tule Plowing—A New Invention.

The tule gang plow of Mr. McCall, of Santa Clara Co., has been practically at work at the upper end of Puget Slough, Old River, west side of the San Joaquin, some sixteen miles east of Antioch.

There are six plows formed of sheet iron or steel, gouge shaped, and set so as to hold themselves down to the work, while the wheels of the machine prevents them from going too deep. The plows cut the soil in continuous ribbons, about two inches deep and several wide, turning some wholly, and some only partially over.

The wheat seeds are dropped so as to be covered by this process. There is no question about its springing up, the cut sods acting as a protecting mulch. The possible difficulty anticipated, if any, in this mode of culture, will be the springing up of the grass also through the sod, and its disputing the possession of the ground with the grain.

Mr. Sherman Day, our witness of this information, said the plow seemed to do the work intended very well, cutting and turning down a growth of tules, in some places some four feet high, without previous preparation. The grass sod cut forms a sort of peat.

Two four horse teams were worked, plowing two and one-half acres each a day, as estimated, the cuts being one-half mile long.

A patent has been applied for by Mr. McCall on his plow through the Scientific Press office. With improved implements, and a more thorough knowledge of our tule lands, and the capacities of the soil and climate, they are constantly gaining in fame and importance in our community.

An Adjustable Gearing.

The accompanying cut represents a device of Dr. A. Blatchley's, of San Francisco, for an adjustable gearing. So far as he is informed it is an original mechanical movement. The shafts to which it is attached may be turned in different directions and the gearing will

A NEW MOVABLE GEAR.

still run regularly. We judge that it may prove a very useful device, from its great simplicity, for some special purposes. The Doctor, who has taken out many patents, originated this idea in connection with his researches in perfecting his drilling machines, and its connected devices for transmitting power at different angles.

Railroad Improvements.—The Central Pacific Railroad Company have recently completed two freight depots in this city, between King and Townsend and Fourth and Fifth streets. One of the buildings is 500 feet long and seventy-five feet wide, with a shed on each side. The other depot is 500x50 feet. When entirely completed the building will be 800 feet long. The business office is in the second story of one of the buildings. The space between the buildings for the tracks is 120 feet. A new depot is now being constructed at the Yatch Club house near the long pier, and the drawbridge across Channel street is completed so that as soon as the filling in between the latter depot and the bridge is done the tracks will be laid. All freight over the C. P. R. R. line will hereafter be handled at the new depots.

Iron.—The scarcity and high price of iron has had the effect to make the collection of "scrap" quite an object, and the up country towns are sending all the available old iron to this city for the Rolling mills. Old pieces of agricultural and mining implements hitherto thought useless, are now finding their way to the city at some profit to their owners.

Sutro Tunnel.—The House Mining Committee have recommended that the Government guarantee the interest of the company's bonds; and also make an absolute lien of $2,000,000 at the rate of $50,000 for each 500 lineal feet completed, provided that an equal amount has been expended by the company on the same work.

The Paul Process—An Important Practical Test.

Mr. Almarin B. Paul, inventor of the new dry amalgamating process, known by his name, has been for the past five years perfecting his system of working ores, and has at last succeeded in giving it a practical test as compared with the copper-plate system of working gold ore. The process has been introduced into the mill of the Calaveras Gold Mining Co., whose property is near Murphy's Calaveras County, Cal. In order to be thoroughly satisfied as to the merits of the invention they concluded to make a practical test of it in comparison with the workings of a 10-stamp California mill with copper plates, etc.

With this object in view they took from the same place in the mine, just as it came, 37½ tons of rock. The battery was cleaned up thoroughly, and 19½ tons put through dry for the new process, when it was again cleaned up and the remaining 18 tons run through in the usual way. The result was as follows:

Paul Process	58.44½ per ton
Wet working battery, copper plates, etc.	$23.33½ " "
Difference in favor of Paul process	$35.11 " "
Amount of bullion by Paul process	$1,139.70
" " " Copper plate process	420.21

The latter figures show a greater proportion in favor of the new process than the small amount of 1½ tons more could make, while the former figures show a gain of over 111 per cent. The machinery of the new system which we described some time since, is arranged to take the ore and dispose of it as fast as the stamps reduce it—all working of course together. One man can attend to it after rock is fed into the batteries. The capacity of the mill which made this run is 6 tons in 24 hours. The expense of working is less than by the pan, and not quite $2 per ton more than by the copper plate system.

As to original cost of machinery, etc., the following estimate will be found sufficiently accurate for all purposes. Cost of machinery for pan working mill, as per foundry estimate to reduce ten tons per twenty-four hours, not including cost of motive power, etc.

10 stamps with pullies, etc	$1,800
6 pans—$400 each	2,400
3 settlers—$400 each	1,200
Belting, pipes, etc	600
Wood work and extras	2,000
Total	$8,000

This will require about eighteen-horse power.

Cost of machinery of a "Californian" ten-stamp mill with copper plates, (no pans) to reduce ten tons per day through No. 7 screen, or No. 60 wire cloth, with 3,600 holes to square inch.

10-stamp battery	$18,000
Wood work	2,000
Extras, say	1,000
Total	$4,800

Expense of machinery for Paul's process, based on five stamps, reducing two tons per stamp in twenty-four hours, through No. 14 wire cloth:

5-stamp battery	$900.00
Pulverizing, preparing and amalgamating barrels, settlers, vibrating tables, belting, pipes, etc., as furnished with mills	4,000.00
Wood-work, etc., (about)	750.00
Total	$5,650 00

This would require 14-horse power to run it. The reduction by the latter system is not less than through *No.* 80 wire cloth, or 6,400 openings per square inch, being about 100 per cent. finer than ore worked the usual way in a battery.

Any miner will readily see that Paul with his five-stamps and *No.* 14 wire cloth, can reduce as much as a 10-stamp mill washing through *No.* 60 wire cloth. The pulverizing and preparing barrel intervening between the stamps and amalgamater, is made of such power and dimensions as to reduce the quartz as fast as delivered to it from the stamps, and down to not coarser than, *No.* 80 wire cloth, with 6,400 openings to the square inch; while a large proportion of it will pass through *No.* 100 mesh, or 10,000 openings to the square inch. The *No.* 14 wire cloth is of course where the ore passes from the battery before it goes to the revolving barrel, and the ore passes from the barrel through not less than *No.* 80 wire cloth.

DOMESTIC ECONOMY.

Hints about House Cleaning.

In a general house cleaning, carpets that do not require to be taken up should be loosened at the edges, and the dust removed therefrom, and a good lookout made for moths. If there are any traces of moths wash the floor with benzine or sp. of turpentine, and put the carpet down quickly, and the insects will get their quietus.

Straw matting should be washed with a cloth dampened in salt water. Take care to wet it but little, for if the matting is soaked through it is liable to become brittle and soon give out. If Indian meal is sprinkled over it, or damp sand, and then thoroughly swept off, it will operate with good effect.

In washing windows, a narrow-bladed wooden knife, sharply pointed, is the best thing with which to take out the dust that harbors in the corners of the sash. Dry whitening will polish the glass nicely, and a weak black tea, with some alcohol is the best liquid with which to *wash* the glass. For a few days before the cleansing takes place, save all the tea grounds; then when needed, boil them in a tin pail with two quarts of water, and use the liquid on the windows. It takes off all the dust and fly specks. If applied with a newspapaer, and rubbed off with another paper, they look far better than if cloth is used.

If there are old feather beds in the house, and no machine renovator at hand, put them out in the first heavy, drenching rain that falls. Let them become thoroughly wet and then turn the bed several times; then dry them in the sun, and when one side is perfectly dry, beat it with sticks to lighten up the feathers, and turn up the other side to dry; either placing boards under it or putting the beds on the piazza roof, if one is at hand.

To take out stains from either mattresses or feather beds, make a paste of soft soap and starch, and spread over the spots: when dry, scrape off with a knife, washing it with a damp sponge, as it falls off; if not clean, put on another paste. This application, if repeated frequently, until all discolorations are gone, will purify any bedding. Cockroaches can be kept away with powdered borax. Keep it in a tin pepper box and sprinkle it wherever they go. Paris green is recommended, but it is a poison; while borax is harmless. Sprigs of wintergreen, or ground ivy, will drive away small red ants, and branches of wormwood will make black ants "vamose the ranch."

Scald your bedsteads in the hottest soapsuds you can apply; if there are traces of bugs apply kerosene with a small paint brush. It is a sure cure. Tenants of city houses are often annoyed by buge, and can not tell whence they came. Perhaps the border of the wall-paper might divulge their source, or the cornices of the windowe disclose their haunts. Again apply kerosene and they will no longer trouble you. Carbolic acid may be applied. If pure, the odor is not as disagreeable as that of coal oil.

Papering and painting are best done in cold weather, especially the latter, for the wood absorbs the oil or paint much more than in warm weather, while in cold weather it hardens on the outside, making a coat, which will protect the wood instead of soaking into it.

In papering walls, be sure to remove all the old paper and paste, and scrape them perfectly smooth. The best paste is made of rye flour, with two ounces of glue dissolved in each quart of paste; half an ounce of powdered borax will make the paste better. People now generally understand how dangerous it is to paper a wall over old paper and paste. Many deaths have arisen from this cause; the air of many sleeping-rooms has been thus poisoned.

In whitewashing, a pound of glue dissolved in hot water and diluted with four gallons of cold water, to which is added six pounds of whiting, will be found to answer a better purpose than common lime. Wood-work can be washed with this glue size, and one coat of paint on it would last for years. A little chrome yellow will give a light lemon-colored tint to the wash.

A cheap paint for the floor can be made, which a strong, smart woman could apply to any floor: five pounds of French ochre; one-fourth of a pound of glue, and a gallon of hot water. Dissolve the glue in a small quantity of hot water; when wholly melted add the rest of it, stirring it slowly until well mixed. Then stir in the ochre, and apply while hot, with a good-sized paint-brush. When well dried apply one or two coats of boiled linseed oil. This paint dries very quickly, hardening in fifteen to twenty-four hours. It is very cheap. An oaken hue can be given to new pine floors and tables, by washing them in a solution of copperas dissolved in strong lye, a pound of the former to a gallon of the latter. When dry this should be oiled, and it will look well for a year or two; then renew the oiling.

Grease can be extracted from floors by applying a paste of wood ashes and quicklime, to be kept on several days and then washed off. Stains on wall paper can be cut out with a sharp pen knife, and a piece of paper so nicely inserted than no one can see the patch.

Ink stains on wood can be removed by a solution of oxalic acid. Cover the spots with bits of the acid, turn on a spoonful of water and place a heated flat-iron over it; when the hissing ceases the ink will have disappeared.

Kerosene and powdered lime whiting, or wood ashes, will scour tin with the least labor. Kerosene and whiting will also clean silver-ware, door-knobs, hinges, etc. Wet the flannel slightly in oil, dip in the whiting, and rub hard; wash off with a chamois skin or newspaper. Spots can be taken out of marble with finely powdered pumice-stone. Mix it with verjuice, cover the spots with it, and let it remain for twelve hours; then rub clean with a damp sponge; rinse with clean water and wipe dry, with a cloth. Soapstone hearths should be first washed in pure water and then rubbed with powdered marble or soapstone, put on with a piece of the same stone. Gray marble hearths can be rubbed with linseed oil and no spot will show. If gilt frames are varnished with copal varnish, they can be washed with cold water without injury. Lace curtains should never be ironed. Wash and starch them, using in the rinsing water a tablespoonful of powdered borax. This makes them very stiff. When wet spread on a sheet, either on the floor or bed, and pin down every two or three inches. Let them dry for several days and they will look very nice.—*Country Gentleman.*

What Food is Most Wholesome?

Dio Lewis is probably the best doctor in the country for advising people how not to get sick and need other doctors. This is his conclusion as to food:

For Breakfast.—Oatmeal porridge with milk and sugar.

Or, Graham mush, with a little good syrup.

Or, cracked wheat with milk and sugar.

Or, baked potatoes with bread and butter.

Or, beefsteak or mutton chop, with baked potatoes and bread and butter.

If you are thin and need fat, use the first three; if you are too fat use the last named two.

Drink cold water or a little weak coffee.

Dinner.—Beef or mutton, roasted or stewed, with any vegetables you may like (though tomatoes should be used sparingly) good bread and butter, and close the meal with a glass of weak lemonade. Eat no desert unless it be a little fruit, and eat nothing more until the next morning.

There is no rule in regard to diet about which I am so fixed in my convictions, as that nothing should be eaten after dinner, and I think that the dinner should be taken early in the day, not later, if it can be so managed, than 2 o'clock. In regard to the precise hour of the dinner I am not so clear, though for myself 1 o'clock is the best hour; but in reference to the omission of the third meal, I have, after long observation, no doubt whatever.

Hundreds of persons have come to me with indigestion, in some of its many forms, and have experienced such relief in a single week from omitting the supper that I have, for a number of years, depended upon this point in the diet as the best item in my prescriptions for indigestione. I have never met one person suffering from indigestion, who was not greatly relieved at once, by omiting the third meal.

Eat nothing between meals, not even an apple or peach. If you eat fruit let it be with the breakfast and dinner.

Cooked fruit is best for persons with weak digestion. I have met hundreds of people who would digest a large beefsteak without a pang, but could not manage a single uncooked apple.

I think certain dietetic reformere have somewhat overrated the value of fruit.

Avoid cake, pie, all sweetmeats, nuts, raisins and candies.

Manage your stomach as above, and at the end of ten years you will look back upon these table habits as the source of a great advantage and happiness.

For thirty years I have been a constant and careful observer, (I have no hobbies about diet) and in the light of my own experience and these long observations, I assure you the table habits I advise are vital to health and happiness.

PREMIUM BREAD.—At a National Health Reform Association held not long since in New York, a premium of $100 was awarded to Mrs. R. T. Thrall. The bread was made as follows:—Mix unbolted wheat meal (freshly ground) with pure *cold* water, to make a stiff dough; knead the dough thoroughly, working in as much as possible; cut into small pieces and bake in a quick oven. It will bake quicker and keep longer if made into rolls a little larger than the finger; or into cakes one-half or three-fourths of an inch in thickness, two inches wide, and three inches long. This bread may be dried as hard as a brick and kept sweet and good for weeks. You have only to dip it in water a minute, and let it stand five minutes to have as tender, wholesome and delicious bread as need be eaten.

WOMAN'S DRUDGERY.—The general introduction of a more simple and wholesome plan of cooking would greatly relieve woman of her present hard toil and drudgery, while it would promote the health of every member of her household. At least four-fifths of all the money expended for medicines and medical advice, are paid because of the diseases of women and children. And, nine-tenths of all the care, nursing, night-watching, and privation of sleep and rest because of sick children, are performed and suffered by women. The Medical Society in New York, which, on one of its festive occasions toasted women in the following words, had truth if not poetry as the basis of the sentiment.

"*Woman,*—God's best gift to man, *and the chief support of the doctors.*"

Portable Kitchen.

A very useful device is extensively used in some parts of northern Europe, by workmen and others who have occasion to carry their meals with them to their places of work. This device consists of two parts, one a pot of tin, intended to receive the principal portion of the food, and a box, lined inside with non-conducing material, in which the pot is placed, so as to be protected against loss of heat.

It is used as follows: The food to be cooked is placed in No. 1,—meat, vegetables, water, salt etc.; some portions may also be placed in a smaller pot, which may be placed inside of the larger one. The two pots should then be placed on the fire till the water boils, the boiling being kept up for 20 to 30 minutes in accordance with the character of the food. The pot is then taken from the fire, closed with a cover, and at once introduced into the box. The cover of which is then closed and the box set aside, or taken with laborer to his work. After six hours the cooking is finished, and the food in proper condition to be eaten; but there is no objection to leaving it longer, as it cooks exceedingly slow, and retains all its flavor. Numerous experiments have demonstrated that after twelve and even 18 hours beef and soup were sufficiently warm, and had lost nothing in regard to their quality.

All kinds of food which do not require roasting or frying may be prepared in this apparatus; dry vegetables, potatoes, rice and milk, mutton, or veal pie, beef *a la mode*, leg of mutton, chicken stew, etc., may be prepared with economy of fire and of time. As there is no evaporation, the food thus prepared is of better flavor than that cooked in the customary way.

The advantages of this portable apparatus are: 1st. Economy of fuel, saving from 50 to 70 per cent. 2d. Economy of time and trouble, as after the food is placed in the box it needs no more looking after, as the whole operation completes itself by the heat retained. The laborer's wife may in the morning at six, while she prepares breakfast, cook the dinner, and after 30 minutes' cooking put it all in the box. The husband carries the box with him to his shop, or any other place, and is sure of a warm well-cooked dinner a 12. 3d. The dinner can never be burned or taste of smoke, dangers which housewives and cooks have to look out for, and which occasionally befall the best-regulated households. 4th. The taste is better than that of meals prepared in open vessels, where the flavor is continually escaping with the steam. 5th. The convenience of transporting such an arrangement to the factories, shops, or on the railroad cars, or even to picnics. 6th. The certainty of a warm meal, which is much more healthier than the cold food, with which so many laboring people have to satisfy themselves.

Some hardware manufacturer should take hold of these ideas, and furnish such arrangements at such reasonable prices that all our workmen may procure them. We feel confident that with the progressive ideas of our population, their introduction would soon be appreciated, and secure at the same time a profit to the manufacturer and dealer, and a practical benefit to our workmen, whose health and comfort we are all in duty bound to promote as much as is in our power.

Extract of Coffee.

This may be made in two ways. The first way gives less, but a very highly and very pleasant aromatic extract; the second gives more and of greater strength, but of less pleasant flavor. The difference is found on the fact that cold water dissolves the more agreeable ingredients, while boiling water takes all the bitter principles of less agreeable flavor.

The first extract is made by placing the coffee in a deep narrow filter, and passing cold or tepid water through. For greater economy the coffee may be divided into a series of filters, and treated in succession with the same liquid. To understand this, call them *a, b, c, d, e;* the liquid from *a* goes to *b*, then in *c*, etc.; *a* receiving always the clean water, is first exhausted and rejected, when *b* becomes No. 1, and a fresh filter, *f*, is added, to receive the liquid from the others; after a while *b* is rejected, and *c* becomes No. 1, while we add again a last freshly-filled filter, *g*, and so we go on. The liquid obtained is condensed by evaporation, and may be sweetened with sugar, but if sufficiently condensed to the thickness of syrup, it will keep without sugar, and is a most desirable thing when traveling. It may be mixed with the sugared condensed milk, prepared in tin cans, and then will keep any length of time, and always be ready to make a most delicious cup of hot or cold coffee, with hot or cold water.

The second method is to boil one pound of good coffee with a half a gallon of water, till reduced to a pint; let it cool, and filter, and then boil again, and add enough sugar to make a thick syrup; cool it, pour in a bottle, and cork up. Two teaspoonfuls of either of these extracts will, with a cup of boiling water, make a good cup of coffee.

It is evident that with the second method we have much fine flavor carried off by evaporation during the boiling, and have this compensated for by ingredients dissolved by heat. In order to become satisfied about the inferiority of the second method, take the grounds left from the cold filtering process, and boil them to make a coffee extract according to the second method, and a syrup is obtained, which is not only inferior, but when mixed with water, makes an absolutely disagreeable beverage.

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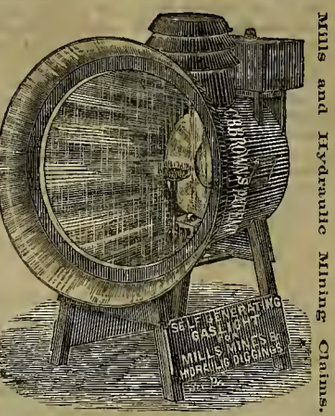

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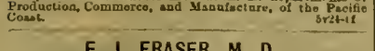
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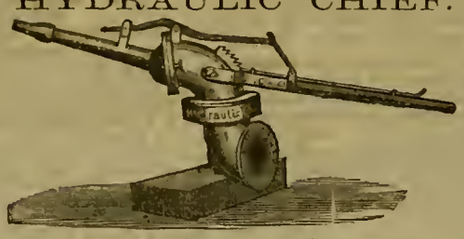
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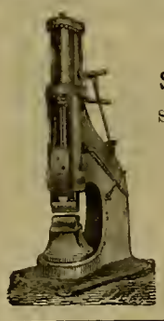
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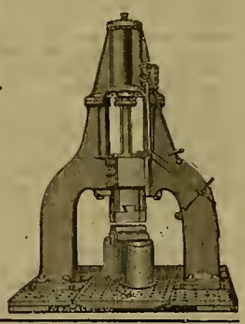
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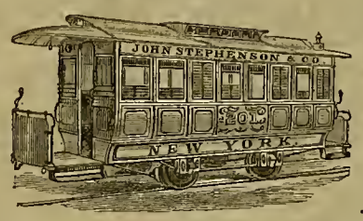

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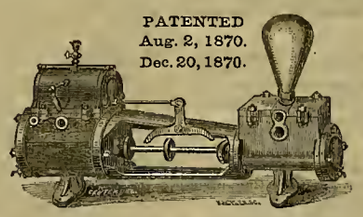
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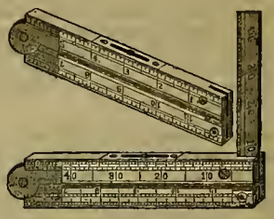
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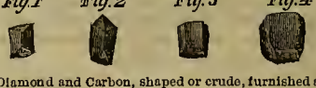
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PATENTS & INVENTIONS.

Full List of U. S. Patents Issued to Pacific Coast Inventors.

[From Official Reports to DEWEY & CO., U. S. and Foreign Patent Agents, and Publishers of the Scientific Press.]

For the Week Endino May 21st, 1872.

Process for Preserving Iron.—William H. Sterling, New York, N. Y.

Apparatus for Lighting Gas by Electrical Sparks.—John Vansant, San Francisco. Cal.

Tunneling Machine.—Allexey W. Von Schmidt, San Francisco, Cal.

For the Week Ending May 28th, 1872.

Manufacture of Ice and Refrigerating Machines.—Samuel B. Martin and John M. Beath, San Francisco, Cal.

Hose-Cart.—William E. Shaw and Charles A. Ashley, Stockton, Cal.

Note.—Copies of U. S. and Foreign Patents furnished by Dewey & Co., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency

Notices of Recent Patents.

Among the patents recently obtained through Dewey & Co's Scientific Press American and Foreign Patent Agency, the following are worthy of mention:

Stave Working Machine.—Lamartine R. Fulda, San Francisco, Cal. This is a machine for working or manufacturiug cask, tank, and barrel staves, and completes them ready for use, from the rough bolts of lumber. It consists in the use of a movable carriage provided with clamps for holding the rough bolt of wood. This carriage being made to pass the shaping saw guided by an adjustable curved gauge so that the proper shape shall be given to the stave. The stave is then laid upon an adjustable table, and made to pass a cutter, which gives the proper bevel to the edges. From there it is placed on another curved table and passed under a cutter which does the crozing, forming the grooves for the head. The first meutioned carriage has also a device for getting the center line transversely to the staves for the pnrpose of setting up correctly.

Grape Crusher and Stemmer.—Geo. Johnston, Sacramento, and Wm. A. Johnston, of Folsom, Cal. This improvement relates to that class of grape stemmers and crushers in which a series of heaters are revolved inside of a box or case, the lower portion of which is formed of parallel slabs. In this class of machines, as ordinarily made, the grapes are crushed in separate charges, and the stems thrown out of the caso after the grapes are crushed, by opening one side of the case so as to permit the revolving arms to hurl them out. This improvement consists in a peculiar construction of the case and revolving beaters, by which the grapes can be continuously fed into the machine at one end, while the stems are automatically discharged from it at the other end.

Clothes Dryer.—Anson C. Stowe, San José, Cal. This is an improvement in extension racks for drying clothes, which are hung upon a wall, and are so constructed as to permit of their being partially closed so as to throw the main portion out from the wall. It consists in the employment of ropes or cords for supporting the parts of the frame in the cramped position when they are being used, and connecting these cords by means of rods, which also serve to hang small clothes upon.

Clasp for Side Arms.—F. A. Will aud Julius Finck, San Francisco, Cal. This is an improved clasp such as is used in attaching or suspending the scabbard or holsters of side arms from the belt or waistband of the person carrying them. By means of this device the attachment can be quickly made and the scabbard or holster is not liable to become unfastened or lost.

Tool-Holder.—F. A. Will, and Julius Finck, San Francisco, Cal. This invention is an improved handle or holder for small tools, such as are used by dentists, etc. This handle is capable of serving for any number of small tools, such as excavators, burr-holders, and like instruments. This and the foregoiug invention, are iu the line of the practical work of the inventors, Messrs. Will & Finck, and seem to be decided improvements.

Hydraulic Nozzle.—R. R. and Joseph Craig, Nevada City, Cal. This is an improvement in hydraulic nozzles which has for its object prevention of the stream from bursting or assuming a rotary motion as is the case in ordinary nozzles. This is accomplished by constructing the nozzle, or one portion of it, with three sides or of a triangular section so that the body of water will be carried through it in a direct line, the angles and peculiar form of the nozzle preventing the stream from twisting.

The Text of Interesting Decisions in Patent Cases.

COMMISSIONER'S DECISIONS.

GEORGE W. MORSE—Extension.—In the matter of the Application of George W. Morse for the extension of his patent, No. 20,214, granted May 11, 1858, for an Improvement in Cartridge-Cases. Decided May 11, 1872.

Loyalty or Disloyalty of an Applicant during the late War as Affecting the Question of want of due Diligence in Producing an Invention—Want of Diligence—Novelty.

It is a settled rule that loyalty or disloyalty during the late war does not affect the status of an applicant in the Patent Office, except as it may pertain to the matter of "due diligence." The Office can make no discrimination hetween parties in the Union and Confederate services, respectively.

As hetween two cartridge cases—hoth of which are gas-tight, central fire, capable of heing recharged and recapped, and made of substantially the same parts—it does not constitute a patentable difference to place on the outside of the shell the sliding cup which was formerly on the inside of the shell.

Leggett, Commissioner.

W. T. MUNGER vs. J. P. CONNELL.—Appeal from the Examiners-in-Chief.— Invention, Improvement in Door-Bells. Decided May 14, 1872.

Diligence in Reducing an Invention to Practice.

An inventor is not required, in order to preserve his rights, to devote all his energies to the development of his invention to the exclusion of all other matters. The law only demands of him reasonable diligence.

Where an inventor, who has embodied his invention in a model which he deemed too rude in workmanship to he sent to the Patent Office, delayed his application for the twofold purpose of completing a hetter model and of hearing from a pending application upon a kindred invention, and at the end of two months and a half was prostrated hy discase, and during his illness another originated the same invention and obtained a patent: *Held*, that the first party was not fairly chargeable with lack of reasonable diligence in perfecting and adaptiug his invention. Duncan, Acting Commissioner.

DECISIONS OF THE COURT.

Supreme Court of the United States.

ALBERT L. MOWRY vs. ASA WHITNEY.—In Equity—Appeal from the Circuit Court of the United States for the Southern District of Ohio. Decision rendered April 22, 1872.

Construction of Whitney's Patent for Car-Wheels—Specification—Damages for Infringement, how Estimated—Rule as to Interest upon Liquidated Damages.

An infringer of a patented process is to account for the additional advantage derived therefrom heyond what he would have had without it; and he is not liahle to the extent of his entire profits in the manufacture.

In estimating an infringer's profits the question to he determined is what advantage has he derived from nsiug the patented process over what he had in using other processes then open to the public, and adequate to enahle him to ohtein an equally heneficial resnlt.

The profits recoverahle against an infringer are really damages, and unliquidated until the decree is made; and upon unliquidated damages interest generally is not allowed.

Where the defendant's infringement was not wanton, hnt consisted in the use of a process secured to him hy a patent: Held, that while this did not protect him against responsibility for damages, it ought to relieve him from liability for interest on profits.

Reform in English Patent Laws.—The "Committee of London Patent Agents" are still active in endeavoring to hring about some much needed reforms in the English patent laws, and we hope they will meet with ultimate success—indeed as light is being thrown on the subject, we do not see how they can fail. Patentees, engineers, manufactnrers, and others, are invited to forward suggestions for the improvement of the patent laws to 8, Southampton Buildings, London. George Haseltine, Chairman of the Committee.

Sowing and Harvesting in June.—While the gathering and threshing of wheat is now briskly going on in the valleys and plains of many parts of California—the tule lands are yet being sown with the same kinds of grain. Oats and barley will continue to he put in still later on the reclaimed tule lands; and corn, for green corn or roasting ears, as late as the first of August.

New Incorporations.

The following have filed certificates with the County Clerk, San Francisco.

Florence S. M. Co.—June 7. Location: Ely District, Lincoln county, Nev. Capital stock, $3,000,000, in 30,000 shares. Trustees—Joseph Clark, A. E. Head, Ernst Huhn, M. C. Hillyer and D. B. Hunt.

Last Chance M. Co.—Jnne 7. Location: State of Nevada. Capital stock, 3,000,000, in 30,000 shares. Trustees—J. J. Schofield, A. L. Page, L. A. Booth, George D. Roberts and S. Heydenfeldt.

Beach & Paxton G. and S. M. Co.—June 6. Location: Virginia M. District, Nevada. Capital stock, $2,000,000, in 20,000 shares. Trustees—Wm. Bnrling, S. P. Middleton, James L. King, John Landers and A. C. Deitz.

San Francisco Abend Post Co.—June 6: The object of the company is the transactiou of a printing and puhlishing husiness. Capital stock, $25,000. Trustees—W. F. R. Schindler, Hugo Herzer, Lonis George Koehler, Stephen Ruf and D. Klintworth.

California G. and S. M. Co.—June 11: Location: Owyhee county, Idaho Territority. Capital stock, $435,000, in 21,750 shares. Trnstees—D. Edgerton, James Graham, W. H. Townsend, O. R. Johnston and R. S. Miles.

Gray Eagle S. M. Co.—June 12. Location: State of Nevada. Capital stock, $3,000,000. Trustees—Robert Sherwood, Joseph Klopenstine, Isaac Lohman, Ralph H. Rogers and C. F. Hamilton.

Meetings and Elections.

The Trustees of the Crown Point Mining Company were elected June 3d as follows: J. D. Fry (President) B. Peart, Wm. Kohl, R. H. Sherwood and J. A. Pritchard. J. P. Jones was elected Superiutendent, C. E. Elliot. Secretary, and A. Hayward Treasurer.

The Yule Gravel Co. held their annual meeting May 30th. The election of officers resulted as follows: L. S. Cutter (President) W. H. Sears, Henry Baker, Benjamine Dore (Treasurer) aud A. J. Bryant. W. H. Watson was elected Secretary and John Yule, Superintendent.

The annual meeting of the Mechanics Institute was held on the 3d inst., and the following Trustees elected: A. S. Hallidie, H. L. Davis, George Spaulding, Asa R. Wells, R. B. Woodward, A. S. Iredale and S. H. Wheeler.

At a meeting of the stockholders of the Union Pacific Silk Manufacturing Co. on the 30th ult. James L. Blaikie was elected Presidcnt, Geo. C. Bode, Vice-President, W. C. Ralston, Treasurer, J. D. Stewart, Secretary, and Joseph Warhurton, Snperintendent.

The Wellington Mining and Smelting Company have elected the following Trustees: G. W. Beaver (President), Richard Chenery, C. W. Kellogg, G. W. Prescott, and J. E. de la Montagnie. R. Wegener was continued as Secretary; W. C. Ralston, Treasurer, and G. W. Terrell, Superintendent.

The Mammoth Mining Company met on the 3d inst. and elected the following Trustees: S. Linkton, Rohert Sherwood, J. P. Jones, R. R. Gihens, F. G. Berry, C. W. Fox and J. H. Crocker.

The Minnesota G. & S. M. Co. elected the following Trustees, on the 3d inst.: William M. Lent, Geo. D. Roherts, J. W. Gashwiler, Geo. Hearst and G. W. Grayson.

The Highland S. M. Co. elected trustees for the eusuing year on the 4th inst., as follows: Henry Williams, (President,) Thomas Bell, S. W. Lee, Alfred Mallet and John W. Shaw. David Wilder was continued as Secretary.

The Mount Jefferson Milling and Mining Co. elected the following Trustees, on the 4th inst.: S. D. Boswell, (President,) Roht. Sherwood, D. D. Shattuck, C. Deane and E. B. Pond. J. W. Clark was retained as Secretary.

The Alaska Consolidated Mining Co., elected the following Trustees on the 8th, inst: J. H. H. Williams, H. P. Wakclee, H. C. Kibbe, H. T. Wheeler, and C. Deane.

The Maxim Gas Company have elected the following Trustees: W. H. Ladd, James, H. Deering, Fred. Openheim, James H. Clark, and Jacob Bacon, (President). J. Openheim was elected Treasurer, and Robert Day Secretary.

The Front Street, Mission and Ocean Railroad (or Sutter Street line) Company, held their annual meeting on the 10th, inst. The following Directors were elected for the ensuing year. H. H. Haight, Milton S. Latham, Geo. C. Bode, H. Caseholt, Wm. Blackwood, A. Dohle, and T. H. King.

At the first annual meeting of the Schell Creek Mining Company, held Juue 11th, the following gentlemen were elected Trustees, to serve for the ensuing year: F. Vassault, W. T. O'Neil, E. J. Moore, H. Dutton, Benj. Dore.

Increase of Capital Stock.

The Senator Mining Company met on May 31st, and resolved to increase their capital stock from $600,000 in 6,000 of the par valne of $100, to $2,400,000 in 24,000 of $100 each.

The Hale & Norcross Company held a special meeting on the 30th ult. and increased their capital stock from $3,200,000, in 16,000 shares of $200 each, to $9,600,000 in 48,000 shares of the value of $200. This is the second time within two months that this company have increased their stock, the original amount being $1,600,000, in 8,000 shares of $200 each. There are 400 feet in the mine.

The Green G. & S. M. Co., of Gold Hill, held a special meeting on the 3d inst. and increased their capital stock from $600,000 in 24,000 shares of $250 each to $2,400,000 in 24,000 of $100 each.

The Golden Age and Empire G. & S. M. Co. have increased their capital stock from $650,000 in 2,600 shares of $250 each, to $2,600,000 in 26,000 shares of $100 each.

The Imperial S. M. Co. met on the 3d inst. and increased their stock from $2,000,000 in 4,000 shares of $500 each, $10,000,000 in 100,000 of $100 each. The claim amounts to 184 feet of ground.

The Alamo G. & S. M. Co. met on the 4th inst and increased their capital stock from $300,000 in 3,000 shares of $100 each to $30,000,000 in 30,000 shares of $100 each.

The Confidence Silver Mining Co. held a meeting on the 4th inst. and increased their capital stock from $780,000 in 1,560 shares of $500 each, to $2,960,000 in 24,960 shares of $100 each. There are 130 feet in the mine.

The Empire Mill and Mining Co. at a meeting held Jnne 10, increased their capital stock from $1,000,000, in 1,200 shares, to $5,000,000, in 50,000 shares.

The North Bloomfield Gravel Mining Company filed a certificate of the increase of its capital stock on the 12th inst. The stock of the company is now $5,000,000, in 50,000 shares.

Wool Product of the World.

In the following table will he found a near approximate estimate of the numher of pounds of wool annually produced in the different countries of the world, from the most reliable information ohtainable:

	POUNDS OF WOOL.
Asia, including Russia in Asia	320,000,000
Great Britain and Ireland	260 000,000
Germany, Netherlands and Belgium	198,000,000
United States	130,000,000
Australia	130,000,000
France	125,000,000
European Russia	125.000,000
South America	110,000,000
Asiatic Turkey	100,000,000
Spain	62,000,000
Persia	50,000,000
North Africa	50,000,000
European Turkey	42,000,000
Italy	40,000,000
Cape of Good Hope	20,000,000
Portugal	17,000,000
Canada	12,000,000
Sweden and Norway	11,000,090
Greece	8,000,000
Denmark	3,800,000
Switzerland	3,000,000
New Mexico	500,000
Total	1,818,300,000

There are other countries that produce considerahle quantities of wool, hut as they export little or none, it is not brought into the account. We present the grand aggregate of the world's annual clip, more for the pnrpose of showing how entirely insignificant is the quantity produced by any one State of the Union, towards affecting very materially the prices of wool under any circumstances.

The eight to ten million pounds of California wool, the aggregate clip of the present year, though of large importance to our producers, is but a small part of the world's wool that finds its way into the markets of manufacturing countries. Hence we should never put so much stress upon its importance as to helieve its presence or not in those markets, will work any material changes in its value.

Wool is an article that keeps, and when prices rule low, producers who are not obliged to realize hold hack, and the aggregate of these, when brought out hy hetter prices, has always proved to he very large. Hence the difficulty of maintaining panic prices for any great length of time. Onr wool producers and speculators have this year learned the truth of this statement, which will douhtless he heeded in coming years.

Mining Sales.—The Humbug and New York Tunnel, near Jamestown, has heen sold to a San Francisco Company for $16,000.

A one-third interest in the Holcomh, Berry & Co.'s claim at Pilgrim Bar, Montana, has been sold to Wm. Roe for $6,000.

Philadelphia Agency.—W. H. Daffin, formerly of San Francisco, is our correspondent and business agent, Frankford, Philadelphia, Pa.

H. Barlen & Bro., formerly of Havilah, Kern county, will please communicate with this office.

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These Governors have now been sold in this market for several years, and wherever once introduced and made known, are invariably sought after. They are in the Eastern States fast displacing all other Steam Governors, and are regarded as *the perfect regulator*. They are manufactured by Messrs. Corchur & Robertson, practical engineers, who have given many years time exclusively to their manufacture and perfection. The manufacturers say: After an experience of eleven years in the manufacture of the above Governor, during which time several important improvements have been made and two additional patents obtained, we feel justified in recommending it to all parties using Steam power, and warranting it to be the most perfect regulator in the market.

The Gardner Governor is so well known that we think it unnecessary to enter into a detailed explanation of the principles involved, or details in its construction, merely giving the leading objects realized by this important invention. The Governor combines with the greatest simplicity of construction, accurate regulation of speed, POSITIVE INSURANCE AGAINST ALL ACCIDENTS LIABLE TO OCCUR FROM SLIPPING OR PARTING THE GOVERNOR ON DRIVING BELTS, and a convenient arrangement for ADJUSTING THE SPEED OF THE ENGINE WHILE IN MOTION, without change of pullies.

The construction of the Governor is extremely simple, having no springs, inside joints, swivels, or parts liable to disarrangement, all the several parts are duplicates of each other in the same series; the most skillful workmen are employed, the best material used and the machinery employed especially adapted to their manufacture. The valve is most PERFECTLY BALANCED, and the Governor is built with a view of securing the quickest and most sensitive action possibly attainable in a steam regulator. Thus with accurate machinery, and skilled labor, and devoting our WHOLE ATTENTION to the manufacture of THIS ONE ARTICLE, we are able to produce a perfect and reliable Governor at a low price.

We do not publish any letters of recommendations, but can give references to upwards of 5,000 PARTIES THROUGHOUT THE UNITED STATES, who are using the Gardner Governor.

We would especially invite the attention of steam Engine Builders to this Governor, feeling assured that they can purchase for less than they can make an inferior article, and thereby increase the value and sales of their Engines.

We respectfully refer to the following parties using the GARDNER GOVERNOR, and can speak understandingly of its merits: Oakland Cotton Mills, the Selby Lead and Silver Smelting Works, L. & E. Emanuel, Vulcan Iron Works, Fulton Foundry, Levison Bros., Cal. Jewelry Co., Pioneer Woolen Factory, D. A. McDonald & Co., and others in San Francisco; Ophir Co., Lady Bryan, and Sacramento and Meredith Mills, John McCone, Virginia, Nev.; Globe Iron Works, Stockton; A. F. Chury, Albany, Oregon, and many others.

☞ WE WARRANT these Governors to give perfect regulation of speed under all circumstances; and if there is one within one thousand miles of San Francisco, that is not giving perfect satisfaction, it may be returned to us at our expense, and we will exchange it for any other Governor in the country, or refund its price.

☞ When ordering please state whether THROTTLE-VALVE is wanted or not; and whether BLOCK or FINISHED Governor is desired. ☞ THE RATE OF SPEED FOR GOVERNOR IS FULLY STAMPED ON THE REVOLVING HEAD OF EVERY GOVERNOR. Send for circular and price list to

TREADWELL & CO.,
Agents for Pacific States, San Francisco.

☞ At Treadwell & Co.'s (late BERRY & PLACE'S) Machinery and Supply Depot may be found in stock the above Governors, together with all sizes of HOADLEY'S PORTABLE ENGINES, BLAKE'S STEAM PUMPS, STURTEVANT BLOWERS, PORTABLE DRILLS, TAPS AND DIES, DREYFUS'S CYLINDER LUBRICATORS, Etc. Also a heavy stock of HARDWARE AND MINING TOOLS, LEATHER BELTING, LINEN HOSE, BOILER FELT (saves 25 per cent. of fuel), SELF-OILERS, LACE LEATHER, STEAM PACKING (all kinds), BELT STUDS, Etc., Etc., embracing every description of Engineers' and Machinists' supplies and Millmen's findings. 7v24-tf

P. J. POTTER. J. W. HOFFMAN.
POTTER & HOFFMAN,
Railway, Engineer and Machinists' Supplies,
19 and 21 South Fourth Street,
PHILADELPHIA.

Have a large stock of all leading articles constantly on hand at lowest market rates.
☞ Send for Price List. 24v24-eow12t

GAS LIGHT FOR EVERYBODY!

Coil Oil Lamps Changed to Gas Lamps at a Trifling Cost, by merely Changing the Burner and Using Different Oil.

This valuable little invention can be attached to any coal oil lamp by any one in half a minute. It makes its own gas just as fast as it is required, and when the light is blown out, the gas ceases to be generated.
NO CHIMNEY IS REQUIRED.
The flame is as white as city gas, and produces no smell or smoke.
One Burner is equal to Six Candles, and COSTS ONLY ONE CENT PER HOUR.
This burner uses Petroleum Fluid, Danforth's Oil, Gasoline or Taylor's Safety Fluid. One burner sent to any address, postage free, on receipt of 50 cents currency or stamps. WIESTER & CO.,
No. 17 New Montgomery street, S. F.

The Pacific Glue Manufacturing Co.
MANUFACTURERS, IMPORTERS AND DEALERS IN
GLUE, CURLED HAIR,
—AND—
NEATS-FOOT OIL.
Store.....408 Market Street,
Between Battery and Sansome, San Francisco.
24v24-3m

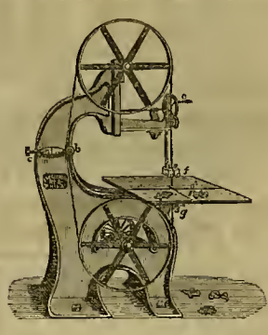
ALL KINDS OF
Office Desks and Book Cases
On hand and Manufactured to Order, by
JOHNSON & BEST,
No. 311 Pine street, opposite the Pacific Bank,
18v24-6m SAN FRANCISCO.

Betts's Capsule Patents.
To prevent infringements, notice is hereby given, that *Betts's name is on every Capsule he makes for the principal manufacturing chemists in England and France*, thus enabling vendor, purchaser, and consumer not only to identify the genuineness of the capsule, but likewise the contents of the vessel to which it is applied.
The LORD CHANCELLOR, in his judgment, said that the capsules are not used merely for the purpose of the ornament, but that they are serviceable in protecting the wine from injury, and insuring its genuineness.
MANUFACTORIES:—1, WARE-ROAD, CITY-ROAD, LONDON, AND BORDEAUX, FRANCE.

C. J. COLLINS,
HATTER,
No. 321 Montgomery street, near California street, under I. O. O. F. Hall.
Masonic, Army and Navy Goods a Specialty.
22v24-3m

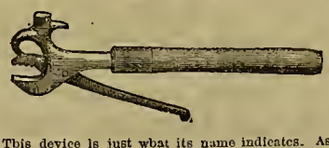
THE NEW U. S. MINING LAWS.
The new Laws of 1872, governing the location and purchase of Placer and Quartz Mines, and Agricultural Lands in Mining Districts, of the U. S., printed in circular sheet, for sale at this office. Single copies 10 cts. Usual discount to the trade.

GLEASON'S IMPROVED
BAND SAW.



E. & F. GLEASON,
Manufacturers of Improved Wood Tools,
No. 27 Haydock Street, PHILADELPHIA, PA.
24v24-eow6m

LONGSHORE'S COMBINATION TOOL.



This device is just what its name indicates. As a KITCHEN TOOL it is indispensable. It will fit and lift with perfect safety, any Stove Lid, Frying Pan, Pie Pan, Pot, Kettle, or any other vessel or dish used about a stove. It is a complete tool for stretching carpets, driving tacks, pulling tacks, &c., &c. It answers the double purpose of hammer and pincers, and is also a good Nut Cracker. It is made of the best malleable iron, and the Hammer, Pincers and tack puller are all hardened so as to stand the roughest usage. An Agent is wanted in every town on the Pacific Coast to sell this valuable little implement. Retail price fifty cents. Special inducements to agents.
WIESTER & CO.,
17 New Montgomery st. (under Grand Hotel), S. F.

Blowers, Steam Pumps, Hair Felt. Mining Tools
PORTABLE ENGINES, TURBINE WATER WHEELS, Wood and Iron Lahor-Saving Machinery, Hardware, Belting, Lacing, Packing, and a general stock of Engineers', Miners', Farmers' and Mechanics' Tools and Mill Supplies.
TREADWELL & CO.,
At the Old Stand, } Cor. Market and Fremont Sts., SAN FRANCISCO.
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J. S. PHILLIPS, M. E.,
Examiner of Mines, Consulting Engineer, Assaying Taught.
MINERAL ASSAYER AND METALLURGIST,
423 Washington street, San Francisco.

Author of the "Explorers', Miners' and Metallurgists' Companion." (The very Comprehensive Work of 639 pages and 81 Illustrations.
Inventor of the Patented "Prospector's Wee Pet Assaying Machine." Price, with tools, etc., $100.

Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the Scientific Press we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

Alleghany Consolidated Gold Mining Company.—Location of Works: Alleghany, Sierra County, Cal.

NOTICE.—There are delinquent upon the following described stock, on account of assessment (No. 11) levied on the twenty-sixth day of April, A. D. 1872, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No Certificate.	No. Shares.	Amt.
J. J. Roche	4	15	$ 3.00
Geo. Treat	54	500	100.00
Geo. Treat	58	35	7.00

And in accordance with law, and an order of the Board of Trustees, made on the 26th day of April, 1872, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the office of the Company, Room 37, New Merchants' Exchange, California street, San Francisco, California, on the 24th day of June, 1872, at the hour of 12 o'clock M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.
J. M. BUFFINGTON, Secretary.
Office, Room 37, New Merchants' Exchange, California street, San Francisco, California. June 8—3t

Eagle Quicksilver Mining Company---Location of works, Santa Barbara County, California.

Notice is hereby given that at a meeting of the Board of Trustees of said company, held on the 8th day of May, 1872, an assessment of $40 per share was levied upon the mines of said company, payable immediately in gold coin of the United States, to the Secretary at his office, room 5, No. 302 Montgomery street, San Francisco, California.
Any shares upon which said assessment shall remain unpaid, on Thursday, July 11th, 1872, shall be deemed delinquent, and will be duly advertised on Saturday, July 13th, 1872, for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 15th day of July, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. WM. H. WATSON, Secretary.
Office—Room 5, No. 302 Montgomery street, San Francisco California. ma11.

Lyons & Wheeler Mining Company—Location of works, Maynard Mining District, Mohave County, Arizona Territory.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 18th day of May, 1872, an assessment of Ten Cents per share was levied upon the capital stock of said Company, payable immediately, in United States coin, to the Secretary, at the office of the company, Room 3, No. 419 California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on Monday, the 24th day of June, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 15th day of July, 1872, to pay the delinquent assessment, together with the costs of advertising and expenses of sale. By order of the Board of Trustees. T. W. COLBURN, Secretary.
Office, Room 3, No. 419 California street, San Francisco, California my25-td

Mina Rica Mining Company—Location of Works, Auburn Mining District, Placer County, Cal.

There are delinquent upon the following described stock, on account of assessment levied May 8th, 1872, the several amounts set opposite the names of the respective shareholders, as follows:

Name.	No. Certificate.	Shares.	Amount.
Slosson, R. D.	7	550	$110

And in accordance with law, and an order of the Board of Trustees, made on the 8th day of May, 1872, so many shares of each parcel of stock, as may be necessary, will be sold at public auction, at the office of the Company, No. 320 California street, room No. 5, San Francisco, California, on Monday, the first day of July, 1872, at two o'clock, P. M., of that day, to pay said delinquent assessments thereon, together with cost of advertising and expenses of sale.
GEO. R. SPINNEY, Secretary.
San Francisco, June 13, 1872.

Stockholders' Meeting—Office of the Hardy Coal Mining Company, San Francisco, June 4, 1872.

In accordance with a resolution adopted at a meeting of the Trustees of the Hardy Coal Mining Company, held this day, a special meeting of the stockholders of said company is hereby called, the same to be held at the office of the company, 338 Montgomery street, San Francisco, California, on Tuesday, the 9th day of July, at 11 o'clock A. M., to take into consideration and decide upon the proposition to increase the capital stock of the said company, from two hundred thousand dollars, divided into four hundred shares of five hundred dollars each, the present capital stock of the company, to five hundred thousand dollars, divided into five thousand shares of one hundred dollars each.
I. BARTLETT,
EDWARD McLEAN, } Trustees
JACOB HARDY,

Stockholders Meeting.—Office of the Silver Sprout Mining Company, No. 318 California street, San Francisco, May 25, 1872.

NOTICE is hereby given that the annual meeting of the stockholders in the above named company will be held at their office, No. 318 California street, (Room No. 1, second floor,) San Francisco, on Tuesday, the 25th day of June, 1872, at the hour of 1 o'clock P. M.
may25-4t T. B. WINGARD, Secretary.

Piermont Milling and Mining Company—Location of works, Piermont Mining District, White Pine County, Nevada.

NOTICE.—There are delinquent upon the following described stock, on account of assessment (No. 3) levied on the 16th day of April, 1872, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Briggs, Charles A.	15	583½	$233.33
Briggs, Charles A.	47	111	44.40
Perkins, J E, Trustee.	21	1000	400.00
Perkins, J E, Trustee.	23	1000	400.00
Perkins, J E, Trustee.	41	381	152.40

And in accordance with law, and an order of the Board of Trustees, made on the 16th day of April, 1872, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the company, on the 19th day of June, 1872, at the hour of 2 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale. J. W. CLARK, Secretary.
Office, 418 California street, San Francisco, Cal. m25

Woodland Gold Mining Company—Location of works, West Point Mining District, Calaveras County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 21st day of May, 1872, an assessment of 12½ cents per share was levied upon the capital stock of said company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, Room 64, Merchants' Exchange, California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the 25th day of June, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 16th day of July, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. F. MADGE, Secretary.
Office, No. 64 Merchants' Exchange, California street, San Francisco, California. may25-td

Machinists and Foundries.

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO

IRA P. RANKIN, A. P. BRAYTON,
GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS

Mining Machinery of Every Description,

And all other classes of work gensrally done at first-class establishments, manufactursd by us at the lowest prices, and of the best quality.

☞ Particular attention paid to Jobbing Work and Repairs.

N. B.—Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR.

18v20-3m GODDARD & CO.

FULTON
Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

E. corner of Tehama and Fremont streets, above Howard street, San Francisco. 3-qy

GEORGE T. PRACY,
MACHINE WORKS,

109 and 111 Mission Street,

SAN FRANCISCO.

These Works have lately been increased, by additional Tools, and we are now able to turn out any kind of work, equal to and cheaper than any establishment in the State; that is to say:—

STEAM ENGINES,
Flour and Saw Mills,
QUARTZ MACHINERY
Printing Presses,

AND MACHINERY MADE OF EVERY DESCRIPTION.

Improved Safety Store Hoists,

Fitted with Cutting's Patent Cams, unequaled for safety, convenience and cheapness. This Hoist can be built for about half the price of any other in use. To be seen at HAWLEY & CO.'S.

ALSO, MANUFACTURER AND SOLE AGENT FOR

Pracy's Celebrated Governor.

TURNING LATHES, Etc., constantly on hand.

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UNION IRON WORKS,

Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR

WILCOX'S PATENT WATER LIFTERS.

Dunbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,

SACRAMENTO CITY

PACIFIC
Rolling Mill Company,

SAN FRANCISCO, CAL.

Established for the Manufacture of

RAILROAD AND OTHER IRON

—AND—

Every Variety of Shafting,

Embracing ALL SIZES of

Steamboat Shafts, Cranks, Pistons and Connecting Rods, Car and Locomotive Axles and Frames

—ALSO—

HAMMERED IRON

Of every description and size.

☞ Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention

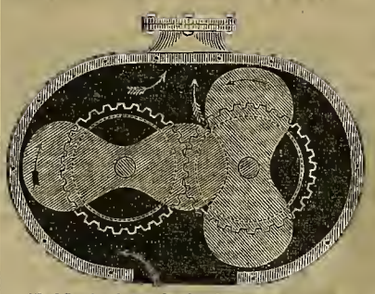
☞ The highest price paid for Scrap Iron 9v143m

ROOT'S PATENT FORCE BLAST ROTARY BLOWER,

MANUFACTURED AT THE

GLOBE IRON WORKS,

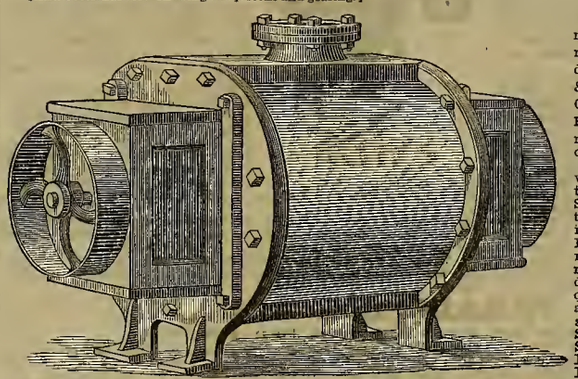
Stockton, Cal.



[End Sectional view showing the pistons and gearing.]

Awarded the First Premium at the Paris Exposition.—Patented November 1, 1864; July 24, 1866; and October 9, 1866.

Adapted for Smelting, Foundry, Mining and Steamships. Requires 50 Per Cent. less power than any Blower now in use.



One of these Blowers may be seen at W. T. Garratt & Co.'s Brass Foundry, San Francisco; Gould & Curry and Savage S. M. Co.'s, Nevada; and at C. P. R. R. Co.'s Works, Sacramento; and other places on this coast.

CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article. Quartz, Saw and Grist Mill, Iron, Stationary and Steamboat Engines, Horse-Power and Pumps, of all Sizes.

For Circulars and further information, Address

4v24tf GLOBE IRON WORKS, STOCKTON, CAL.

CAMERON'S

STEAM PUMPS.

PICKERING'S

Engine Regulators.

GIFFARD'S

INJECTORS.

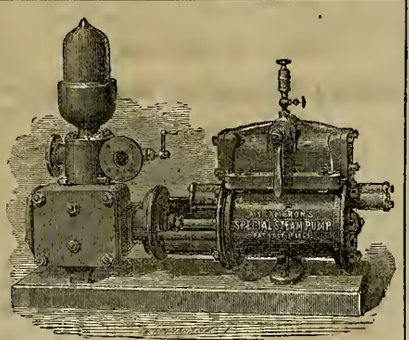
BARTOL'S

STEAM TRAP.

Surface Condensers.

DAVID STODDART,

114 BEALE STREET, S. F.



San Francisco Boiler Works, 123 and 125 Beale Street, San Francisco.

F. I. CURRY (late Foreman of the Vulcan Iron Works), Proprietor.

High and Low Pressure

BOILERS

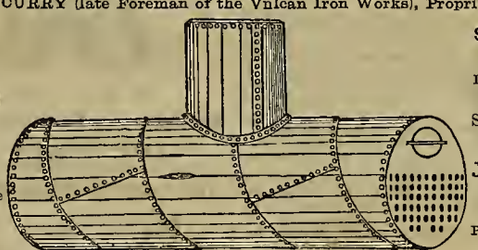
of all descriptions.

SOLE

Manufacturers of the

CELEBRATED

SPIRAL BOILER.



Sheet Iron Work of every DESCRIPTION done at the Shortest Notice.

All kinds of

JOBBING

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Repairing

Promptly Attended to.

22v22-3m

THE RISDON
Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1868.
CAPITAL.....$1,000,000.

LOCATION OF WORKS:
Corner of Beale and Howard Streets,
SAN FRANCISCO.

Manufacturers of Steam Engines, Quartz and Flour Mill Machinery, Steam Boilers (Marine, Locomotive and Stationary), Marine Engines (High and Low Pressure). All kinds of light and heavy Castings at lowest prices. Cams and Tappets, with chilled faces, guaranteed 40 per cent. more durable than ordinary iron.

Directors:

Wm. Alvord, C. J. Brenham, C. E. McLane,
Wm. Norris, Wm. H. Taylor, Lloyd Tevis,
James D. Walker.

WM. H. TAYLOR.....President.
C. E. McLANE.....Vice President.
JOSEPH MOORE.....Superintendent.
LEWIS R. MEAD.....Secretary.

24v17-qy

OCCIDENTAL FOUNDRY,

137 and 139 First st., near the Gas Works, San Francisco.

STEIGER & BOLAND,

IRON FOUNDERS.

IRON CASTINGS of all descriptions at short notice.

NOTICE.—Particular attention paid to the making of Superior Shoes and Dies. 3v24-3m

Miners' Foundry and Machine Works,

CO-OPERATIVE,

First Street, bet. Howard and Folsom, SAN FRANCISCO.

Machinery and Castings of all kinds.

COPARTNERSHIP NOTICE.

We have this day admitted Mr. William R. Eckart as a member of our firm, the business of which will be hereafter conducted under the firm name of Prescott, Scheidel & Co. PRESCOTT & SCHEIDEL.

Marysville, Jan. 8, 1872.

MARYSVILLE FOUNDRY.

Referring to the above, we respectfully solicit the patronage which has for the past twenty years been enjoyed by our predecessors, pledging our best attention to the wants of all who may so favor us.

Quartz and Amalgamating Machinery,

SAW AND GRIST MILLS,
STEAM ENGINES,
HYDRAULIC MACHINES,
HOUSE FRONTS, ETC.

Repairs upon all kinds of machinery promptly made and at moderate charges. Having unrivalled facilities, we are prepared to make to order, at short notice, everything required in our line.

Specimens of our work may be seen in all the mining regions on this coast.

5v24-3m PRESCOTT, SCHEIDEL & CO.

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,

SAN FRANCISCO.

ALL KINDS of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch

☞ PRICES MODERATE. ☜

J. H. WEED. V. KINGWELL.

H. J. BOOTH & CO.,
UNION IRON WORKS,

(The Oldest and most Extensive Foundry on the Pacific Coast).

Cor. First and Mission Sts.,

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Marine, Locomotive and Stationary Engines Quartz Crushing and Amalgamating Machines, Mill Irons and Brass and Iron Castings, of every description, made to order.

Steamboat Repairing, Boiler Making, Turning and Finishing,

EXECUTED WITH DISPATCH.

Beet Sugar Machinery complete in every part—made a specialty.

OIL MACHINERY.

A complete set of Machinery of our own design and patent for extracting oil from Castor Bean, dispensing with Hair Cloth. Also Machinery for Flax Seed Oil, Mustard Seed Oil, and Sun Flower Seed Oil.

MARBLE MACHINERY

For sawing Marble of any thickness or size.

Irrigating Pumps. Steam Pumps.

Plans, Estimates, and Advice promptly supplied.

H. J. BOOTH. GEO. W. PRESCOTT. IRVING M. SCOTT

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SCREW BOLT WORKS,

PHELPS BROTHERS, Proprietors,

MANUFACTURERS OF ALL KINDS OF

Machine Bolts, Bridge Bolts, and Ship or Band Bolts.

13 and 15 Drumm Street, San Francisco. 4v24ly

THOMPSON BROTHERS,
EUREKA FOUNDRY,

129 and 131 Beals street, between Mission and Howard, San Francisco.

LIGHT AND HEAVY CASTINGS,

of every description, manufactured 24v16qr

FERRACUTE MACHINE WORKS,

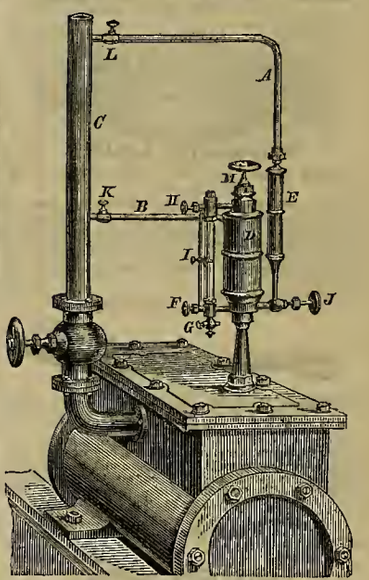
Bridgeton, N. J.

PRESSES, DIES and all FRUIT CANNERS TOOLS a specialty.

Improved 3-lb. Can Press for $65; Rotary Solder Cutter, $15, etc. 13v24-13t

Machinery.

N. Seibert's Eureka Lubricators.



THE HIGHEST PREMIUM

Awarded by the Mechanics' Institute Fair, San Francisco, and State Fair, Sacramento, 1871.

These Lubricators are acknowledged by all engineers to be superior to any they have ever used; feed constantly by pressure of condensed water, supplied by pipe A, regulated under the oil by valve J, and forced out through check valve and pipe B into the steam pipe C; it then becomes greasy steam, passes to all the valves and cylinder at every stroke of the engine; glass tube I indicates amount used per hour. Packing on rods and stems lasts longer, and the rings on the piston will not corrode. One pint of oil will last from three to six days, according to speed and size of engine; I, sliding gauge; K, valve to shut off when engine stopps; H, F, valves to shut off in case of frost; steam does not enter the cup; it is always cool; warranted to give satisfaction. Patented February 14, 1871. Manufactured by California Brass Works, 125 First street, S. F. 24v23tf

Notice is hereby given, that the copartnership heretofore existing between A. J. Severance, Charles W. Randall and J. Gus. Burt, under the firm name of "Severance, Holt & Co.," is this day dissolved by mutual consent. A. J. Severance, having purchased all the interest of his late partners, will continue the business of manufacturing and selling Diamond Drills, as before, under the style of A. J. Severance & Co.

Dated San Francisco, Nov. 24, 1871.

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This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the apperture and between the grinding surfaces.—Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

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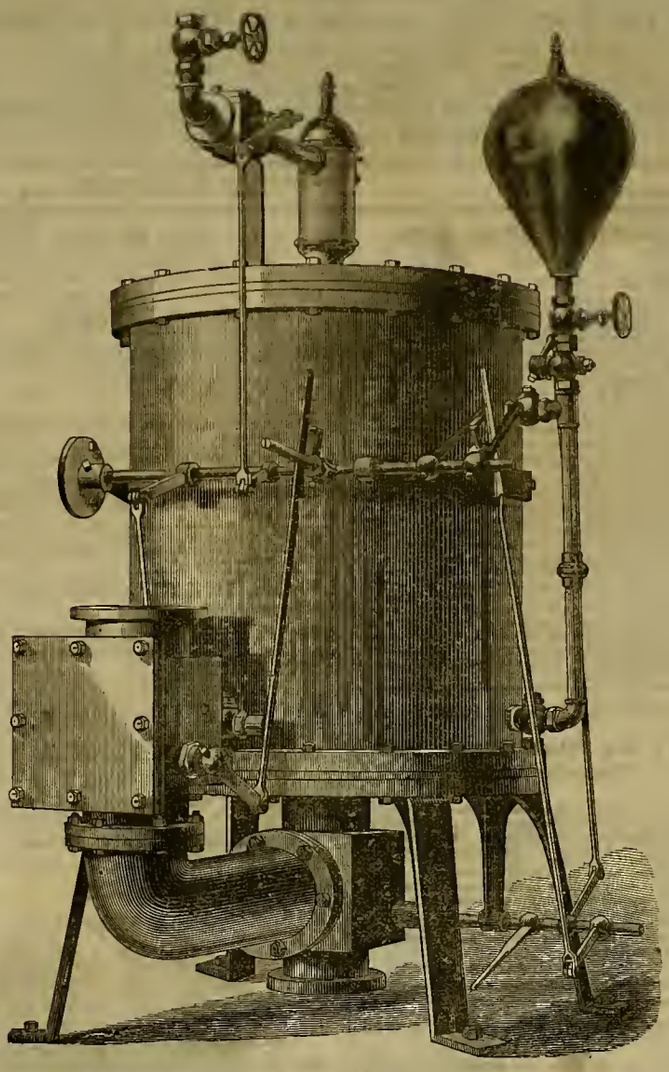

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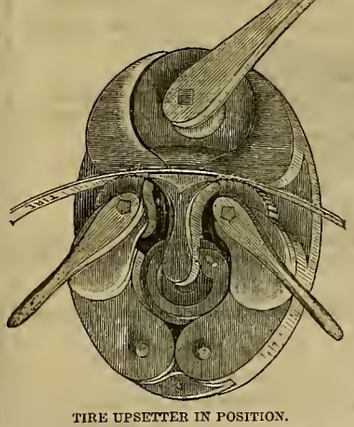

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This volume will scarcely need to be recommended to those who are acquainted with the "Mines of the West," "American Mines and Mining," and other professional publications of its author. The present work is in no sense a repetition of Mr. Raymond's former ones. It contains a full and comprehensive account of the condition of the gold and silver mining industry of the United States, with practical recommendations of great importance to those engaged in it. The chapter on the treatment of auriferous ores in Colorado is the best account of the stamp-mill process ever published in this country; and the general discussion of smelting processes for silver ores supplies an instant want. The series of volumes, of which this forms the third, which bave proceeded from the rapid but careful pen of Commissioner Raymond, are recognized in this country and in Europe as professionally authoritative and popularly interesting to a remarkable degree. To be technically accurate, but not technically abstruse, is their salient and acknowledged merit.

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4.00 P. M.* Passenger Train for Stockton, Merced and Sacramento.

6.30 P. M. Overland Emigrant Train, Through Freight and Accommodation.

7.30 A. M. Steamer New World (from Broadway Wharf) —Connecting at Vallejo with Trains of California Pacific Railroad.

4.00 P. M.* Sacramento Steamer (from Broadway Wharf). Connecting at Vallejo with trains of California Pacific Railroad.

2.00 P. M.* Steamer Antelope, from Broadway Wharf, connecting at Donahue with Trains of S. F. and North Pacific Railroad.

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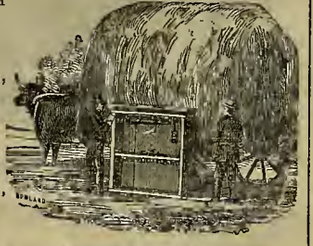

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SCIENTIFIC PRESS.

AN ILLUSTRATED JOURNAL OF SCIENTIFIC AND INDUSTRIAL PROGRESS,

Mining, Mechanic Arts and Inventions.

BY DEWEY & CO., Patent Solicitors.

SAN FRANCISCO, SATURDAY, JUNE 22, 1872.

VOLUME XXIV. Number 25.

The Flying Fish.

There are several varieties of the flying fish; all similar in appearance to the one herewith illustrated. They are all characterized by an excessive development of the pectorals, which assume the form of wings, and are used as such. Their length and power is sufficient to enable the possessors to support themselves in the air for a moment only. Fishes of this family are found in all warm and temperate seas. They are all small, varying in length from four to about twelve inches.

An Unexpected Disappointment.

At the last meeting of the California Academy of Sciences, the proceedings of which will be found in another column, the President as Chairman of the Joint Committeee of the Chamber of Commerce and California Academy of Sciences, announced that the American Association for the Advncement of Science, who had intended to meet in San Francisco, in August, had notified the Committee of a change in their arrangements, and that they would meet at Dubuque, Iowa, instead of in this city. All the correspondence in relation to the matter was read, and as some misunderstanding may exist as to the reasons for the change, we append the report of the above mentioned committee who had charge of the preparations, since it explains the whole affair.

SAN FRANCISCO, June 13th, 1872.

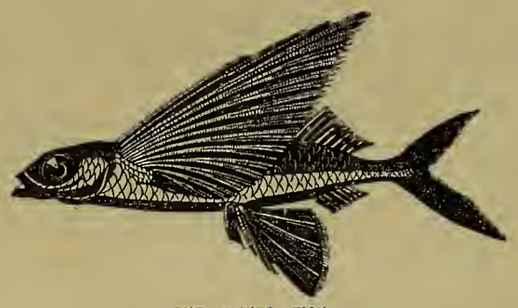
At a meeting of the Committees of the Chamber of Commerce and the California Academy of Sciences, held this afternoon—present Messrs. Eldridge, Wise, J. Henston and Davidson, the latter acting as Secretary, Professor Davidson reported that since the last meeting of the committees he had received a telegram from Professor Lovering, permanent Secretary of the American Association for the Advancement of Science, stating that the Association would meet in Dubuque, Iowa. The committee desire briefly to state a history of the correspondence with the American Association.

One year since the California Academy of Sciences ascertained from some of our prominent citizens that they could raise sufficient funds by subcription to entertain the members of the American Association and their expected European guests, and asked the President of the Chamber of Commerce to join in the invitation. This was acceeded to, and the invitation extended in July, 1871. At the last August meeting of the Association in Indianapolis, the invitation was accepted, provided the railroad fares could be secured at sufficienly low rates. The President of the Central Pacific Railroad had already procured to the Academy of Sciences reduced rates for their guests on the Central Pacific and Union Pacific railroads, with the assurance that he would do better. In the East, the President of the American Association undertook the whole arrangement of the matter of fares over all lines, and having succeeded to his satisfaction, announced that the next annual meeting would be held in San Francisco, in August. Subsequently under date of May 17th, the permanent Secretary of the Association stated to us in writing, that the terms of the fare were much less favorable than they had supposed, and asked if the scientific men and citizens of San Francisco desired the meeting here. We responded by letter of June 3d, that we meant all we expressed in the invitation, and continued it, promising all the assistance and courtesies usually extended on similar occasions; that we had already secured the use of halls, etc., but if they would not come now, we would renew the invitation at another time. On the 8th inst, a telegram was received asking whether the Association was expected to meet in San Francisco, and an answer telegraphed that we had written for their decision. On the 12th inst, the permanent Secretary of the Association telegraphed that our letter was received and the Association would meet at Dubuque, Iowa. We have acknowledged the telegram, expressing our regrets.

This letter was signed by Prof. Davidson, Chairman of the Joint Committee of the Chamber of Commerce and the California Academy of Sciences.

Low Heat Evaporators.

In all large sugar-making or sugar-refining establishments, one of the most important appliances that make up the grand total of their machinery, is the vacuum pan. All manner of saccharine juices as they are obtained from cane, beet, maple or sorghum are, or can be, easily evaporated without danger of injury from burning, to the consistency of heavy syrup, by almost any of the various open air evaporations now in use, under the ordinary pressure of the atmosphere. But when it becomes necessary to further concentrate the syrup to the point of crystallization and conversion into sugar, there is great danger of burning the same on account of its greatly increased density.



THE FLYING FISH.

It is when in this condition, that the utility of the vacuum pan is brought prominently out; for by its use, instead of requiring a heat of 212° Fah. and over to produce ebullition and evaporation, by exhausting the air from the pan the syrup is concentrated by a rapid evaporation of the water it contains at a heat ranging from 150° to 180° Fah. which precludes the possibility of injuring the syrup by burning.

The objection to the vacuum pan for common use among farmers who would otherwise make their own sugar in many more instances than now, is its great cost, ranging from $2,500 to $8,000, depending upon size, and whether made of copper or iron.

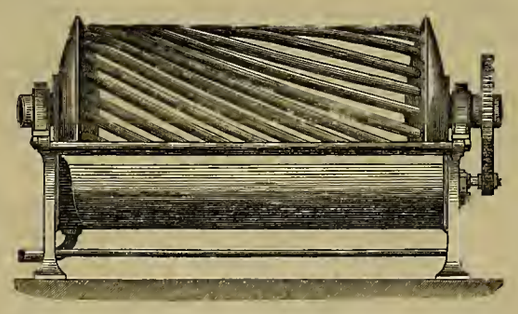
To supply the want so seriously felt, a great many attempts have been made to construct apparatus that would concentrate syrupe under the ordinary pressure of the atmosphere. The result has been, a number of contrivances more or less well adapted to the purpose.

One of the very best of these is figured in our illustration, and consists of an iron or copper pan in the form of a half of a hollow cylinder, in which is placed an open ribbed cylinder composed of a hollow disk at each end, connected by a number of copper tubes, two inches in diameter; these are brazed at each end perfectly tight.

The hollow disks and the pipes connecting them are heated by steam, usually the exhaust steam of an engine, or the heated air and gases from the furnace before passing into the chimney. Either of these is made to pass through the disk and tubes, entering at one end of the shaft which is hollow, and passing out at the other.

The juice or syrup being placed in the pan, and the cylinder made to revolve, a rapid evaporation ensues at a temperature quite below 212° or the boiling point of water. The same apparatus is equally applicable to the concentration of saline waters, or those containing any of the mineral salts.

From the principles upon which this method of concentration is based, it is evident that its successful working will depend upon the degree of dryness of the atmosphere and upon the rapidity with which the air passes over the surface of the syrup. The apparatus should therefore always, when it is practicable, be placed at the windward side of the house; at all events it should be beyond the influence of the vapors which arise from other evaporating vessels.



LOW HEAT EVAPORATOR.

In this pan it will be observed in the illustration that the pipes are curved into a spiral instead of being straight, this curvature avoiding the beating action in entering the syrup, which causes frothing, affords greater facility for the removal of the condensed water, and enables a greater quantity of heating surface to be got within a given space.

We might mention other arrangements of low temperature pans, but all are constructed upon the same principles and we believe that none are superior to the one we have described.

It can be used with great economy where the atmosphere is dry and has a brisk motion.

An Invention Wanted.

The "Committee on Railroad Improvements" write to the Boston *Daily Advertiser*, offering to pay the sum of $10,000 to any one who shall within two years from January 1st, 1873, invent a system of signals which shall supplant the use of steam whistles on railroads and which shall be pronounced by competent judges to be free from the evils of the present system, attended with no discomfort to passengers on the trains, or the highways, or to residents along the line of the railroads. The idea of doing away with steam-whistles on railroads may seem somewhat preposterous to many, but the committee bring many objections against its use, stating that thousands of persons, sick and well, are disturbed by it day and night, etc. They think that some substitute for it may be found suitable not only for locomotives but for manufacturing establishments, steamboats, etc., and with this view offer the above reward through the columns of the *Advertiser*. One fifth of the amount thus pledged shall be paid to the author of the improved invention at any time within the period specified whenever its claims shall have been substantiated by the appointed judges and the balance whenever the invention shall be adopted and used by a majority of the railroad companies in New England, provided such adoption be previous to January 1st, 1877. The letter says the judges shall be:" the chairman of the Masachusetts Board of Railway Commissioners: the President of the Boston and Albany and Boston and Marine railroad companies: the Professor of Civil Engineering in the Massachusetts Institute of Technology, and the chief locomotive engineer on the Boston and Albany railroad. If any of these gentlemen decline serving, the donors reserve the right of appointing substitutes.

At present railway whistles are a necessity for calling the attention of switchmen or when approaching stations or crossings, etc., and it would be unsafe to rely entirely upon a bell, since it can not be heard for any great distance. It can not be done away with unless some suitable substitute is at hand, and this reward is offered to stimulate the inventive faculty of the people in that direction. We hope that some of our California inventors will turn their attention to the matter and try their chances in securing the reward.

Japanese Advancement.

The Japanese Government has recently shown a laudable disposition to encourage and develo in their own country the improvements of modern civilization, and to this end it has within the past few years imported from the United States and various parts of Europe, skilled workmen n almost every branch of industry. It seems that among other valuable lessons gathered by their liberal policy of sending out Ambassadors to the various civilized countries of the world in order to learn the most practicable plan for the encouragement of home industries, they have learned that the best way to encourage improvements and consequently advancements in the various branches of science and art, it ie necessary to have a law protecting and rewarding inventors.

To this end we see that a patent law has recently been enacted which will not only protect their home inventions, but induce foreign inventors to bring their new ideas to the Japanese country. Many of our American patentees could secure a patent in Japan, with great profit to themselves, and we do not doubt but that it will in the course of a few years be one of the best fields for the successful inventor. Now that the doors have just been opened we expect to do a lively business in Japanese patents, as the chances are that the first patents introduced into that country will be the most profitable.

CORRESPONDENCE.

Mines of Humboldt County, Nevada.

[Written for the SCIENTIFIC PRESS.]

Wrecks Everywhere—Renewing the Struggle.

In no part of Nevada, perhaps, has the business of mining experienced such vicissitudes as here in the Humboldt country, passing during its brief period that has elapsed since its inauguration twelve years ago, from the most active and hopeful to the most abject condition; which point it reached some seven or eight years ago. Remaining at this low ebb for several years, things took a turn, and have since been slowly but steadily mending. First and last, there have been put up within the limits of this county not less than eighteen or twenty mills, of one kind and another. Of this number six or seven have been destroyed or removed elsewhere; about an equal number ie standing idle and the balance are now ruuning, with one, the Genaca, at Winnemucca, nearly ready for operations. This is a poor record of Humboldt milliug and miuiug industry, though not worse than that of such minor callings as happened meantime to engage a portion of her population. Every class and pursuit suffered alike; her towns as well as her mills have gone to decay or been swept wholly out of existence; go where you will and you see deserted villages and cabins, as well as dilapidated mills and half completed shafts and tunnele, all telling of the blight and decay that fell with such terrible effect upou this unfortunate section of country.

In passing, however, through the principal mining districts here, one sees now many signs of returning vitality and hears again the note of preparation to renew the struggle, so long since nearly suspended. Here and there small parties are at work, some getting out such small quantities of high grade ore as can be most easily reached, and a few engaged in work looking to a thorough opening up of their claims, a number of which have already been developed into productive and valuable mines or are rapidly being brought to that condition. In this category we have, near here, the Arizona and Sheba, with the Lang Syne and Tallulah, over in Dun Glen, and the Winnemucca Chief, and the Pride of the Mountain, lying uear the railroad in the Wiunemucca range of mountains. On the Arizona a large force of men are at present employed, the quantity of ore daily extracted amounting to sixty or seveuty tons. From the Henning, eituate near the Arizona, and from the Peru one mile south of the town, considerable quantities of high grade ore are being constantly takeu, both mines beiug in the moautime thoroughly explored. The Sheba, at Star City, is yielding its usual complement of shipping ores, the value of which ranges from three to eight hundred dollars per ton.

On the West Side of the Humboldt Range

There is more animation than iu this immediate neighborhood. The new mill at Ryo Patch, and tho smelting works at Oreana are at work, and, accordiug to report, doing well. Arrangements have also been mado for starting up the mill on the Humboldt Slough, which for a long time has been etanding idle. From the Alpha, Starlight, and other mines on that slope of the range we have cheerful reports, and there is little doubt but the balance, which has hitherto beon on the debit, will before the year ends he ehifted to the credit side of the ledger with the most of these companies.

From Battle Mountain, Golconda, Dun Glen, Central and Sierra Districts

Equally encouraging accounts come to hand, there being more men now at work in these several localities than for seven or eight years before; and there is no queetion but they will turn out this season twice the amount of bullion ever sent from there any preceding year; and this with very little increaee of milling capacity, or aid from capitalists abroad. Neither has there been much addition to the population of these districts of late, the results having been mostly achieved by the old residents who have stuck by the country through its long season of decadence and inaction.

Winnemucca District

Having enjoyed the advantage of liheral pecuniary assistance, lately supplied hy San Francisco capitalists, ie now in a fair way to advauce rapidly, and it is generally thought will soou eclipse every other section of Humholdt county. The mines there, or at least a portion of them, are in themseves very fine. The Winnemucca Chief and the Pride of the Mountain have always enjoyed a high local reputation and even attained some distinction abroad. From the first they have taken precedence of all other claims in the district, and always been recognized hy mining experts as standard properties. Having recently passed into the hands of moneyed men, these miues are to he thoroughly exploited; prelimiuary labors looking to that end having already been entered upon.

Having passed through them a few days since I was surprised, not more at the amount of exploratory work done, than to see such remarkable bodies of ore as have here heen developed in their lower levels. In the Pride of the Mountain the lode at a depth of 200 feet stands full 30 inches hetween its walls, every pound of the veinmatter being high grade milling ore. The same lode, carryiug its full strength, passes into the Winnemucca Chief, which, though less opened up, showe the same evidences of large and permanent wealth. The work heretofore done on these mines was mostly carried on iu an irregular and desultory way. Since changing owuership they are to be opeued up with system and energy, a large workiug shaft being now in course of excavation on each. As soon as these are sunk to the proper depth the business of raising ore will be commeuced, which will be in the course of the next 30 days, by which time the new mill, now being orected uear hy to run on these ores, will ho complcted aud ready for operations. This ore it is expected will mill, taken *en masse*, at the rate of $100 per ton, about a thousand tons of it already disposed of having averaged over $200 por ton. I consider those two of the most valuable mines in this part of the State; the manner in which they are held aud the fine administration under which they have heen placed, adding greatly to their intrinsic merit. Refore the seasou is ended they will increase in a marked manner.

The Bullion Product of Humboldt County.

Which competent authorities set down at $200,000 for the current year, of this sum the Arizona and Sheba mines alone will turu out nearly one-half, and there is no question but the balauce of the county will make up the other, and perhape do a great deal more.

HENRY DEGROOT.

Unionville, Humboldt Co., Nev., June 8th, 1872.

[Written for the PRESS.]

Mismanagement in Milling.

That many Eastern and English capitalists are shy of investing in our mines, is by no means surprising, wheu the manner in which numbers of these are managed is considered.

Some weeks ago a trenchant article by a practical millman and chemist, appeared in the *Inyo Independent* on the absurdity of superiutendents and others undertaking to conduct a business of which they were wholly ignorant. In fact, it would appear that sometimes a decided preference is given to men of little, or no knowledge of the reduction of oros. The notion seems to have obtained in somo quartors, that any fool can run a mill, and that a superintendent's position is an excelleut method of providing for some relative, or impecuuious friend, whose brains have hitherto been insufficient wherewith to earn his salt at anything else.

It is not strange that in a mill under such amanagement that most of the preoious metals obtained is extracted from the pockets of the shareholders, and not from the ore which may be worked, or rathor which they have vainly attemped to work. Nevertholess, such men frequently hold their posts for a considerable time, for the most of them have a *Cacoethes loquendi* (freely translated by Mr. Sam Weller iuto "the gift of gab—wery galloping," which enables them to talk directors into the belief that no one else could have done better than they.

The writer has met a London stock broker, and a New York bootmaker, afterwards an insolvent grocer, each placed in the responsible position of superintendent, when neither of them had ever seen a mill, or reduction works before his appointment. Men of this stamp, as the assay proves the value of the ore, blame the machinery, the management of which they do not understand, or which their own stupidity has imperfectly arranged, for the uusatisfactory results which they ohtain. Such men are alike prejudicial to the mine, to the engineer who constructs, or to the inventor who may perfect any valuahle improvements.

Numerous instances might be mentioned whieh would prove this, but one may snffice. There is a mill, not a hundred miles from Monitor, Alpine County, which has probahly cost from 70 to 100 thousand dollars in construction. A revolving furnace has recently been erected there and put in operation. The patentee guaranteed it to roast and chloridize a ton of crushed ore per hour, and during three days that he was there it performed the duty required of it, the furnace being properly fed and attended to by himself. A eample of the chloridized ore he gave to the assistant superintendent and a similar sample he had assayed for his own satisfaction, and it proved that 78⅓ per cent. of the eilver was chloridized, As it was a low grade ore, this is better than the operation of any other furnace. Now comes the assietant superintendent into court and says:—

"We cauuot get over 50 per cent. of the guaranteed results." Very probably not, ths only wonder is that they got so much, but having got it, they naturally want to get more and the patentee is written to, to know if he can "*remedy*" matters. The remedy lies in their owu hands. They have not worked the furnace properly. It appears that in the plentitude of their wisdom *they failed to supply salt to their ore* wherewith to obtain the chloridizing element—and likewise cut off the water from the cooler by which the fine and the richer particles, which might otherwise escape, are precipitated, and saved. What other neglect in feeding, or in permitting frequent stoppages, etc., they may have been guilty of—or what new theories their muddled brains may have developed it is hard to say; but the simple advice that should be givon to them is to have qualified practical men, not tyros to manage the reductiou works, see that everything is in proper order, and that every employee attends faithfully to the details committod to his charge, and they will fiud that tho revolving furnace, will work as perfectly with them, as it has done with others, aud will fully establish the undouhted merits and euperiority of the invention.

METALLURGIST.

A Surface View.

We yestorday took a stroll aloug the liue of the Comstock so far as that great lead is enveloped within the limits of Virginia. Where we fouud tho foreman at the works, we obtained all the information in regard to their respective mines that we asked, and where we did not we merely looked about, as the workmen do not much like being questioned about the affairs of the mine in which they are working; besides, we we did uot eet out with the intention of prying into the underground mysteries of any mine. We first visited the

Gould and Curry.

We found the brick walls of the additiou latoly erected for the receptiou of their large, new hoisting engine up, but the roof has uot yet been put on, nor is any of the wood work completed. This delay is occasioned, we believe, by the difficulty experienced in getting timber. The new engine is in place and ready to run as soon as the building shall have been completed. Meantime they are hoisting from the incline to the perpendicular shaft hy hand. In the hoisting compartments of the shaft they run douhle or two-story cages. The pump was not going at the time of our visit, the wrist-piu having broken—a break which would be very soou mended. We arrived at

The Savage

At the time they were changing the ten-hour shifts (1 o'clock), and remained to see the men brought up and sent down. The men who are on ten-hour shifts are those who work in the npper levels and dry and comfortable parts of the mine, whilo those who have oight-hour shifts are thoso who work down about the 1,500-foot level, where it poure water from every seam in the rock, and where it is hot as —well never mind. Both classes receive the same wages, but those who have hard places have ehorter hours as a compensation. There are at present over 300 men at work in the Savage, 50 of whom are up at the old mine. Counting the wages of these men at $4 per day, it amounts to $1,200, or the snug snm of $8,400 per week; hut many of them, as engineers and others, get $5 and $6 per day. By figuring up the wages item for a month, and then for a year, some slight idea will be ohtained of what it costs to run a mine. As we said above, we remained awhile to see them.

Hoisting the Men.

At the Savage the cages nsed are larger than in most of our minee, as their shaft is a very large one, and in a single car they are ahle to hoist 2,200 pounds of ore, about as much as they can hoist in two cars on their double cages, and can also hoist as many men; for twelve men can safely stand on the platform of one cage. The men take their places in three rows, four in a row, packed like sardines in a box, the signal is given and down they drop. Observing the exact manner in which the meu were packed upon the cage, we asked the foreman what he would do in case he had a few miners of the size of Beany Irwin, K. B. Brown or Billy Shephard. He smiled and said: "That would rather spoil the arrangement." An official, who fills the same place that is filled by a conductor on a traiu of cars goes up and down with the men when shifts are being changed. This is the station tender. It is his duty to ring the signal bells when the cage is to stop or start. The foreman explained to us that, but for this, there would be always be some heedless fellow taking it upon himself to ring signals, and death and destruction would he the result. "All business," said he, "is conducted as strictly as on board of a man-of-war." A lantern is hung in the top of the cage when men are being lowered and hoisted. The reason for this, the foreman said was that in case of any accident the men would not hecomo frightened—an accident in the dark always demoralized tho men, and made matters ten times worse than they would otherwise have been. Their pump was not running at the time of our visit. They only run six hours out of the tweuty-four. They have four lifts, and have some wa-er to pump from the bottom of tho incline, most of which is from leakage above, however.

The Hale and Norcross

Afforded ue but few items. There are abcut 150 men at work at the mine at present, as they have been discharging a great many of late. They are not trouhled with water, and pump only occasionally. We observed here the curious fact that, instead of there being hot air or steam arising from the mouth of the shaft, there is a strong downward draught. This is accounted for by the fact that the Savage shaft is considerably higher than the Norcross, and there being a connection hetween the two, the draught is naturally through the former. This is good for the Norcross folks, but bad for the Savageites, though not so bad as it would be without the circulation of air meutioned.

The Chollar

Folks are having a good time just now at cleaning out oue of the compartmeuts of their shaft, which was filled iu with waste at the time their former hoisting works were destroyed by fire. This is at a depth of 500 feet below the surface, and the waste dirt extends down about 200 feet to where there is a platform. A platform was put in and this dirt thrown down to save the shaft, as there is for a certain space, a epecies of clay liable to swell and crush in the timbers. This waste now comes out in the shape of slum, and as thcy cannot load a car in this blackened compartment, they send the cage down the adjoining compartment, cut holes through the partition and let the slum run out into the car. It is a very nasty job, but one necessary to be done. We observed nothing else worthy of note, and asked no questions in regard to the lower regions, further than to learn that all was goiug on about as usual.

The Ophir

Is pumpiug, hoisting and drifting as usual. There ie but little water, and nothing to prevent the vigorous prosecution of work in all parts of the mine. They are well supplied with wood aud stores of all kinds. We saw nothing further worthy of mentiou, and will here conclude our survey.—*Virginia Enterprise*, June 7.

STEAMSHIP BUSINESS AT PANAMA.—Six regular steamship lines from Europe and the Uuited States run vessels to Aspinwall every month, while fourteen steamships ruu every month to Panama on the Pacific sids, exclusive of the casual and coastwiss trade.

SCIENTIFIC PROGRESS.

Effects of Electricity on Milk, Etc.

The *Milk Journal* states that, in an address before the North Western Dairyman's Association, Mr. X. A. Willard stated the following interesting facts:

Mr. Andrew Cross, the celebrated English experimenter, considered that the roots and leaves of plants were in opposite states of electricity; some of his experiments in this direction are very interesting. He cut two branches from a rose tree. They were as nearly alike as possible with the same number of buds, and both equally blown. An arrangement was made by which a negative current of electricity was passed through one, a positive current through the other. In a few hours the negative rose drooped and died, but the positive continued its freshness for nearly a fortnight; the rose itself became full blown and the buds expanded, and survived an unusual length of time. Again, he was able to keep milk sweet for three weeks in the hottest weather of summer, by the application of a current of positive electricity.

On one occasion, he kept fishes under the electric action for three months, and at the end of that time they were sent to a friend, whose domestic knew nothing of the experiment. Before the cook dressed them, her master asked her whether she thought they were fresh, as he had some doubts. She replied, that she was sure they were fresh, indeed, she said, she would swear they were alive yesterday. When served at table, they appeared like ordinary fish, but when the family attempted to eat them, they were found to be perfectly tasteless; the electrical action had taken away all the essential oil, leaving the fish unfit for food.

However, the process is exceedingly useful for keeping fish, meats, etc., fresh and good for ten days or a fortnight. Now this is consistent with our observations and the facts known to every one in the habit of handling milk. When the condition of the atmosphere is in a negative electrical state, or shows a deficiency of positive electricity a state of weather which we designate as sultry, close, muggy, and the like, there is always difficulty in keeping milk sound. Even in good, healthy milk, the fungus germs common to all milk increase and multiply with great rapidity, producing the common lactic acid fermentation or souring of the fluid; but in case fungi from decomposing animal or vegetable matter comes in contact with the milk, rapid decomposition takes place, and we have rotten milk, putrid odors, and floating curds. The exposing of such curds to the atmosphere, as well as the aeration of milk to improve its condition, are both philosophical, because these minute organisms of fungi are affected by the oxygen of the air, which checks their development and multiplication.

The influence of electrical action is a question entirely new to the dairy public, but is one concerning which I think some useful suggestions present themselves for our consideration. When the electrical equilibrium is disturbed, or when the state of the atmosphere indicates a preponderance of negative electricity, we are all made aware of the fact by its depressing influences. At such times it is important that we take more than ordinary care in the handling of milk; that it be kept out of harmful odors; that attention be given to its aeration, and such treatment be given it as shall be inimical to the growth and development of the fungi. And again, the fact that milk may be kept sweet a long time in hot weather by electrical action will offer a very important suggestion to inventors in the preservation of milk, and perhaps to the improvement of cheese at the factories. I believe that we are only on the threshold of the cheese making art, and that as we become better acquainted with the laws of Nature and their application, great progress is yet to be made in every branch of dairy husbandry.

Combustibility of Iron.

Prof. Magnus of Berlin, with a view to determining the combustibility of iron, has devised for that purpose a magnet, to which iron filings readily attach themselves like a beard, all radiating from the poles in such a manner as to leave small interstices. On igniting these with an alcohol lamp, or gas burner, they continue to burn most brilliantly; and if the experimenter stands on some elevation, like a step ladder, and wave the magnet, a most magnificent rain of fire is produced. When this experiment was first performed in Berlin, it was received with applause by the king and court of Prussia.

It is well known to physicists that a magnet of some strength may be made by placing a bar of iron or steel in the magnetic meridian, and striking it a few sharp blows with a hammer. If no magnet can be procured for the experiment, a bunch of cotton wool is saturated with alcohol, placed on some support, and the alcohol ignited.

Some fine iron filings, placed on a sheet of paper, are allowed to fall in a fine stream on the burning mass, when they burn with brilliant scintillations, showing that iron is combustible, if only the supply of air is sufficient.

Still more remarkable is the experiment showing that iron is more combustible than gunpowder. A mixture of fine iron filings and coarse gunpowder is thrown on a small quantity of burning alcohol. As the iron falls through the flame, it takes fire and burns with its characteristic color and scintillations. The gunpowder falls through the flame without taking fire, and lies quietly in the bottom of the saucer until the alcohol is nearly consumed, and the flame is brought into contact with it, when it flashes, showing that it was the powder, not the iron, that passed through the flame without taking fire.

The influences which the minute size of the particles, by which a large surface is exposed to the air, has on the combustibility of a substance is well illustrated in pyromorphic iron. If the oxide of iron be reduced, by passing over it a current of hydrogen, the heat employed being less than that of boiling mercury, the metallic iron is left in such a fine state of subdivision as to take fire spontaneously when allowed to fall through the air.

Light and Radiant Heat.

In a recent lecture on the "Identity of Light and Radiant Heat," Professor Tyndall said that heat is sometimes associated with ordinary matter, through which it creeps by the process of conduction; at other times it is not associated with matter but flies through space from the sun, entangled with beams of light, with great velocity, and is then called "radiant heat." When the combined solar beam falls on bodies, heat is developed only as light is absorbed, and the amount of the former is an exact equivalent for the amount of the latter. A red ribbon held in the red part of the spectrum appears of a brilliant red color; when held in the yellow, green, blue, or violet bands it looks black. A green ribbon looks green in the green portion, but black in all other parts of the spectrum. The red ribbon is not heated by the red rays, nor is the green one by the green rays; but when placed where they look black they are warmed by the rays falling on them, because they absorb these rays and wherever there is absorption there is increase of temperature. Black absorbs all rays, or because all rays are absorbed the substance is black; and if a black ribbon be carried from the blue end of the spectrum toward the red, it would grow warmer as it advanced, and become warmest of all quite beyond the red, where nothing is to be seen by the eye. Past the portion of the spectrum competent to excite vision, rays exist which, measured by the force they are capable of exerting, are a thousand times more powerful than the luminous ones, as indicated by the movements of the needle of a galvanometer when all visible rays are cut off.

Radiant heat is reflected from plane surfaces, just like light; also from curved mirrors, by which it may be brought to a focus. It behaves like light also with lenses. Moreover, a ray of heat may be divided, as a ray of light, into two—the ordinary and extraordinary rays, by means of a crystal of Iceland spar.

Waves of radiant heat vibrate transversely, polarization having no meaning with respect to longitudinal vibrations.

The lecturer concluded that the thing called radiant heat was part and parcel of the radiations from luminous bodies. At the other end of the spectrum, beyond the violet rays, there were some feeble rays of radiant heat; but in the short range of the visible spectrum lay all that wealth of color which is the chief source of beauty in nature and in art. If he were to be asked how the light came to be thus composed, and how it is that external nature so sifts this light as to give to the flowers of the field and the leaves of the forest trees their wealth of beauty, and how it comes to pass that we have a sense of the beautiful which has grown up in the midst of these agencies, and how it is that man derives perfection and elevation of mind from the contemplation of this beauty, he would answer that the cause must be left for philosophers to discover. He thought that, if successful at all, they would be able to give only an approximate solution, and that the real root of the matter would forever lie beyond them.—*The Week.*

The Agassiz Expedition.

Few scientific investigations of late years have attracted so much interest, as the one in which professor Agassiz is now engaged. Though there is perhaps little or nothing of pecuniary value expected to come out of the explorations in progress by this party, the sum of human knowledge will no doubt be largely increased by the facts which they will bring out from districts and depths, which have heretofore been enveloped in profound obscurity.

One of the questions which will be studied, will be the depth to which light penetrates the ocean. It has heretofore been held that the extent of penetration was very limited, and that the greater depths were in absolute darkness. Professor Agassiz believes differently, and will pursue the study with apparatus of the party's own invention.

The latest news from the expedition is under date of March 18th, from off Sandy Point, Patagonia.

Agassiz's glacial theory has already received final verification by the realization of his prediction, that in the Southern hemisphere there would be found traces of a glacial movement northward from the South Pole. He found near Mount Aymond erratic boulders polished, scratched, and grooved, all tending to prove the passage of a sheet of ice in a northward direction over this portion of the country. An important discovery was also made by Count Pourtales that many of the Patagonian mountains are extinct volcanoes, it having been hitherto claimed that none existed in the South American continent except on the line of the Andes.

Among the curiosities of science noted are immense quantities of kelp, or *macrocystis pyrifera*, the largest known algæ, which grows about those coasts in from six to twenty fathoms of water in vast beds which warn the mariner to avoid the dangerous neighborhood. Its stems grow to be of immense length, having been estimated at from seven hundred to one thousand feet, thus probably constituting the most elongated of all organized beings, and dwarfing in comparison the redwood of California or the eucalyptus of Australia. One day in the open sea they passed patches of floating sea-weed with large sea lions lying on them, apparently navigating in that manner with much satisfaction.

The Professor expects to reach San Francisco in time to attend the National Convention of Scientists which meets in this city in August next, to which body he will make an official report of what he has seen and learned on the trip.

SENSATION IN PLANTS.—M. Figuer believes that a plant has the sensation of pleasure and of pain. Cold, for instance, he says, affects it painfully. We see it contract, or, so to speak, shiver under a sudden or violent depression of temperature. An abnormal elevation of temperature evidently causes it to suffer, for in many vegetables, when the heat is excessive, the leaves droop on the stalk, fold themselves together and wither; when the cool of evening comes, the leaves straighten, and the plant resumes a serene and undisturbed appearance. Drought causes evident suffering to plants, for when they are watered after a prolonged drought they show signs of satisfaction.

The sensitive plant, touched by the finger, or only visited by a current of unwelcome air, folds its petals and contracts itself. The botanist Desfontaines saw one which he was conveying in a carriage fold its leaves while the vehicle was in motion and expand them when it stopped—a proof that it was the motion that disturbed it.

Sensation in plants is of the same kind as in animals, since electricity kills and crushes them as it does animals. Plants may be also put to sleep by washing them in opium dissolved in water, and hydrocyanic acid destroys their vitality as quickly as it does that of animals.

MECHANICAL PROGRESS.

Faults in the Plans of Dwellings.

How frequently it happens that in the most elegant houses there is often to be met, somewhere, a want of comfort or accommodation! The hall is either too wide or too narrow; the stairs communicate to close to the hall door, or have the leading flight too long, making the ascent tiresome. This latter is a serious fault, and yet one that is too general. The parlors, which are always laid out with great attention to effective appearance, are seldom really comfortable. There is no room for furniture unless the cabinet maker manufactures articles to fit the spaces left to his care. Many a sofa or piano has to intrude on a window—nay sometimes to block a doorway—while spacious openings are left for sliding doors, in order to give an appearance of extent by throwing the front and rear parlors into one.

The invasion on the space properly intended for furniture has become so "fashionable" of late days, that it has compelled the introduction of many little trifling articles which rather tend to take from the dignity of the chief rooms of a pretentious dwelling, and make of it a mere "baby-house," but like everything that custom has inured us to we derive pleasure from these miniature comforts, just as we become satisfied with the nutshell stateroom on a steamship to which we are confined.

But it is in the plan of the chamber story that the most uncomfortable arrangements are to be found. As for instance, their is either no space for the proper location of a bed, or it must be so placed as to subject the occupant to a strong draft of air and its unfortunate consequences. The toilet table, the bureau, the mirror are all or some one of them without a fit location. The windows are all injudiciously placed, or the chimney so inconvenient as to be worse than useless. The door opens awkwardly from the placing of a chair or table behind it, or perhaps when open it exposes the room unpleasantly. Wardrobes are either wanting, or if present, are away from the window, so as to be dark and otherwise inconvenient.

These are but a few of the serious faults of our modern dwellings—faults which might have been avoided if the necessary room for furniture had been taken into consideration during the composition of the plan, and if the artistic effect strained at in the exterior had not been permitted to crowd out the comforts of the interior. He is a sensible man, indeed, who weighs well the wants of his household, and lets external display occupy a secondary place in his plannings. The comfort of his inner home is more valuable and more lasting to him than the passing praise which an architecturesque appearance might call forth from the outer world.

How few there are who build understandingly! The architect produces his design, and it is canvassed as to its merits and demerits, but always with a view to "appearances." "This will be a fine room, pleasing in all respects," is a common remark, but the necessities which we have mentioned convince the proprietor that he overlooked the points that go to make it comfortable, and he and his household now unite in blaming the architect for want of forethought in the erection of so pretty yet so very uncomfortable a house.

Doors should always slide. This mode is far superior to hanging on hinges, as the opening of a sliding door does not interfere with the regulation of furniture in an apartment, and the sliding is so simple, and easily acted on, that it presents great advantages over the old fashioned door, which it will doubtless yet supersede. At present it costs more than hanging, but if it became general, the sliding mode would be cheaper down to a figure that would bring it within the reach of all. A partition wall need never be over six inches thick to give room for sliding doors. In fact, in small houses, a four inch partition may be made available for this purpose by using inch plank, in four inch breadths, for the inclosing of the door.

Sliding doors for wardrobes and closets would often prove more desirable; they do not impede the light as hinges often do. Above all things attention should be given to the accommodation of bedsteads, chambers, and at the same time secure a fitting place for the toilet. Light and ventilation are great objects in sleeping rooms, for on these depend the health of the occupant.

As regards the ventilation of a house, the object is more easily accomplished by means of a cupola over the stair chamber. All the rooms can be ventilated by this means in the coldest days in winter or during the prevalence of a storm without opening a window to admit air. The heat of the basement furnace under the hall, where it should be placed, would aid in the complete ventilation of the house in winter. A fan, worked by a small caloric engine in an air chamber under the hall, would effect thorough ventilation in the summer season.

Attention to these and a hundred other things which go to make a comfortable house should be the aim of him who would be successful; and of all things, he should never fetter his architect's efforts with considerations of external display at the expense of internal convenience, comfort and happiness.—*Pittsburgh Register.*

[Translated for the PRESS.]

Important Advance in Paper-Making.

The *Arbeitgeber* describes under this heading, an invention of a German chemist, Ungerer, in manufacturing paper from wood. In changing the wood into its fibres in a mechanical way, much power is demanded; and, moreover, the material must also be ground up, whereby it loses much in durability. Hence, for a number of years repeated attempts have been made to effect this in a chemical way by many persons, notably, Adamson, Keegan, Deminger, Broad, Sinclair, and Tessié du Mothay. Only the two last have met with practical success. The method of Sinclair has been introduced in several places, and produces a better and cheaper material than before obtainable, a little cheaper than Mothay's.

All these processes demand the use of very high pressures—up to 14 atmospheres—with the action of strong soda solution. The weak points are the high pressure and the necessity that the material must still be ground, and therefore injured more or less. But Ungerer seems to have overcome both difficulties. He uses a pressure of only 5 to 6 atmospheres, one-half the amount of soda, and only one-fifth the amount of chlorine. The following table gives a comparative view of both methods for producing 1,000 kilogrammes of dried bleached material:

UNGERER.		SINCLAIR.	
2,250 kilo.	wood.	2,250 kilo.	wood.
212 "	soda.	562 "	soda.
128 "	chemicals.	750 "	coal.
900 "	coal.	250 "	chlorido of lime.
50 "	chloride of lime.		

There seems to be some mistake in regard to the respective amounts of coal. Sinclair using only 750 kilo. for his much greater steam pressure; while Ungerer uses 900.

The importance of these inventions is easily understood from the statement that the cost of producing the wood material is reduced nearly one-third by the methods of Sinclair and Tessié du Mothay, and fully one-half by that of Ungerer. This has such an effect, that Belgian factories are able to depress considerable the prices on the Rhine, notwithstanding the import duty of 2 florins. A large company has been formed in Vienna, to introduce the process of Tessié du Mothay; another for Ungerer's method; and a third for a third patent.

The claims of superiority over other methods (especially those of Sinclair, du Mothay, etc.) made by Ungerer, are:—1. Simplicity and cheapness of method; 2. Less steam pressure; 3. Less soda and chloride of lime; 4. Nearly complete regaining of the soda (98 per cent. against 70); 5. Economy in power, there being no grinding; 6. Greater strength of manufactured material.

FIREPROOF BUILDINGS.—If you *will* have wood floors and stairs, lay a flooring of the thickest sheet iron over the joists, and your wood upon that and sheath your stairs with the same material. A floor will not burn without a supply of air under it. Throw a dry board upon a flat pavement, and kindle it as it lies if you can. Prevent drafts, and, though there will be fires, no houses will be consumed.

STAINING HORN.—Horn may be stained by being immersed in a solution of nitrate of silver, and then exposing it to sunlight. Or it may be steeped in a hot dilute solution of bicromate of potash, and then in a decoction of logwood.

MINING SUMMARY.

THE following is mostly condensed from journals published in the interior, in proximity to the mines mentioned.

California.

ALPINE COUNTY.

BULLION.—Monitor *Miner*, June 8: Bullion to the value of $2,200 was shipped from the Tarshish mill this week.

WET CRUSHING.—Alpine *Chronicle*, June 8: The Schensctady Mill is being put in order for crushing.

AMADOR COUNTY.

STATE OF MAINE.—Amador *Ledger*, June 15: The Co. will have their water-power mill completed and in rsadinsss for reducing ore about the 1st of July.

ROBBERY.—On Saturday night last, the sluice hoxs on the claim of Baptiesto & Co., near Volcano, were cleaned up and about $1,500 taken.

PLYMOUTH.—Rich rock has lately heen struck at a depth of 300 ft. in the Alpine.

SUTTER CREEK.—Cor. same: Work at the Summit mine is progressing with vigor.

CALAVERAS COUNTY.

WEET POINT.—Calavsras *Chronicle*, June 15: Fresh developments are heing constantly made, and work is progressing with unabated vigor.

At the Zacatara work is being pressed on the 170-ft. level with extremely favorahle results. The rock taken out is very rich and the lead is showing finely.

In the Bartolo the rock being taken from the bottom of the shaft will average $100 psr ton. At 125 ft. the ledge varies from 2 to 3 ft. in width, all the rock showing free gold.

In the Harris, near the Bartolo, 30 tons of rock, lately crushed, paid $60 per ton. The shaft is 80 ft. deep.

The Steger is lying idle on account of water.

Work is steadily progressing on the Woodland and Ohio Cons.

CAPITOL.—San Andreas *Citizen*, June 15: This claim is down about 50 ft., with a 4-ft. vein steadily improving.

BY TELEGRAPH.—Los Angeles, Jnne 13: Six hnndred hars of hase bullion have been recsived from Csrro Gudo for shipment to S. F.

LONG TOM.—Bakersfield *Californian*, June 6: In Long Tom No. 2 a rich snd extensive body of quartz has been developed which promises to be as valuahle a production as the old mine.

NEVADA COUNTY.

NORTH STAR.—G. V. *Union*, June 9: The mine is pumpsd out and will be ready for the undergronnd workmen to-morrow.

GREENHORN.—We saw yesterday a fine spscimen of ore which has just been taken from the mine. The rock coming out snd put through the mill will give the June yield at douhle that of May.

SHAMROCK.—The shaft is down 60 ft. and the ledge in the bottom is about eight inches thick. There are hetween 15 and 20 tons of quartz on the dump and a crushing will soon be had.

RICH CLAIMS.—Nevada *Transcript*, June 13: The old Teeple claims at Omega, are paying splendidly. The Co. made a partial clean up, a few days ago, of $40,000. It is expected their total receipts for the season will not vary much from $100,000.

GRANITEVILLE.—The Erie Co. are sinking the main shaft 100 ft. deeper, when another level will be opened. The Ansho ledge is about half a mile from the Erie. They are running a tunnel of 100 ft. which will cut the ledge at a depth of 100 ft. The Black & Young mine is paying splendidly.

THE Russel Ravine ledge, at Rocky Glen, is owned by a Virginia Co. who have struck a rich and well defined ledge. It is their design to put up machinery on it in a ehort time. It is reported that the Sweet mine, at the South Fork, is sold to S. F. capitaliets, who propose to erect hoisting works and a mill on it immediately. The Union rock looks fair and has paid $10 per ton. The Iowa, in the same locality, is a large and good looking ledge.

THE Birchville Co. ie einking a fine shaft and are down about 250 ft.

RELIEF HILL.—The Esgle gravel claims in 5 days run paid $4,600. The Specie claims yielded $4,000 at their last clean up. At Woolsey's Flat the Boston Co. cleaned up in 4½ daye working, $7,100, and this only from the upper boxes, leaving quite a number as yet untouched.

THE Oriental Co. cleaned up ahout $3.000 the other day after ahout a week's rnn.

There is another Co. known as the Blue Bank, which is paying well.

THE owners are running a tunnel into these claims. It will be 600 ft. long when completed.

AT Moore's Flat there are 3 Co's. washing, viz: The Illinois, Eagle and Woe Ting. The Eagle Co. cleaned up about $4,400 in a short run. The Illinois Co., who are only stripping, took out $5,000 in a very short time, while the expenses were hnt small. The Co. expects to clean up over $15,000.

PLUMAS COUNTY.

RICH STRIKE.—Quincy *National*, June 8: Another rich pay chimney has been struck in the Baker ledge, Cherokee, in the 180-ft. level, running south from the new incline. The rock prospects from $50 to $60 per ton. The mill is running day and night, on rock paying from 6 to $8 per ton, and crushes from 20 to 24 tons psr day.

SAWPIT & VICINITY.—The Last Chance Co., helow Sawpit, will make big money this year. Dorsey & Co., on South Fork, have been making good wages all winter. and the claim is still paying well. Mickel & Bros. will have an engine at work on their claims on South Fork, during the coming summer, and their prospects are good for plenty of ore.

HUDSON.—The rock from the shaft and drifts is literally "lousy" with gold, and several specimens prospected from $40 to $75 per ton, The shaft is to be sunk 40 or 50 ft. deeper.

SAN DIECO COUNTY.

ITEMS.—San Diego *Union*, June 6: The Antelope mill, at Banner, is running ore from its mine. Work is being prosscuted on the Goldsn Chariot, Ready Rslief, Kentuck, Madden, Atlantic Cahle, and Chapparal mines. The Chapparal and Madden will have some ore crushed at the Antelope mill ere long. The Ready Relief is looking hetter.

At Juliau, Defree's mill is running steadily on Owens ore. Pierce's mill is crushing rock from the Hayden ledge. The Stonewall is pushing the construction of the new works, but is steadily running at the old site until the new srrangements shall be completed. The following leads are heing worked at Julian: The old George Washington has been oommenced again. The Eagle mine is developing under Capt. Gale; regular operations are going forward on the Owens, Van Wert, Hayden, San Diego and Helvetia mines.

SISKIYOU COUNTY.

Yreka *Union*, June 8: ROBBED.—The sluices in the claim of White & Co., on French Flat, Humbug, were robbed on Friday, May 31st, of hetween $200 and $400. The same night also, the sluices of Osterman & Co., near Hawkinsville, were rohhed.

TUOLUMNE COUNTY.

Sonora *Independent*, June 15: WIDENING.—At the 15 ft.-level, in the Ham & Sloan lead, American Camp District, the vein has widened to the thickness of 7 or 8 inches. Amount of a pan of decomposed material, they get $7 in pure gold.

OPHIR QUARTZ MINE.—The vein, at 200 feet below the surface, is 2 ft. in width, and from an assay just made out of average rock, prospects over $600 to the ton.

Nevada.

ELKO COUNTY.

Elko *Independent*, June 8: NEW DISTRICT.—A new district has been discovered ahout 20 miles south of Toano, and named the "Silver Zone." The ore found, assays well up in the thousands, and the prospects are good for a good camp.

COPE DIST.—Work on the Excelsior, is being pushed with flattering prospsct. It is supposed that the hullion yield from Cope District, for 1872, will equal that of the two previous years.

EUREKA DISTRICT.

Eureka *Sentinel*, June 11th: RICH ORE.—The body of ore recently developed in the Adams-Hill mine, assays from $400 to $800 per ton. The grand average of the entire deposit, will not fall below $600 per ton.

COY HILL.—The Wild Rover is showing an excellent body of ore. Already 30 or 40 tons of ore are on the dump, and will very eoon he worked. Average rock from this mine assays from $100 to $250 per ton.

THE Benito, just ahove, shows a good body of ore.

THE Grand Deposit, Douglas, and Vulcan mines, all show good signs of extra milling ore in large quantities, as do the Selden and Dick mines.

THE new furnace will be running hy July 4th.

ELY DISTRICT.

Ely *Record*, June 9: BULLION.—W. F. & Co. shipped during the past week, bullion valued at $139,184.01, an excess of $38,120.17 over that of the previous week.

CUSTOM MILL.—A Cnstom Mill is soon to be erected here. It will start up with 10 stamps, but will he built of a capacity for 20. A furnace will also he attached to the mill. The total cost is estimated at $50,000.

PIOCHE.—Bullion shipped since the 22d ult. The average pulp assay of the ore, is $249 per ton. The main shaft is down 400 ft., and will again cut the ledge at the depth of 620 ft. At pressnt drifting toward the ledge on lower level. Expect to strike the ledge in about 45 ft. more in the cross-cut on the 460-foot drift. Most of the ore raised at prssent comes from fourth station, and is from the same body as they expect to strike in the lower level. The fourth station drift is improving rapidly, and the chances for striking a large body of ore at this point are favorable. Expsct to commence crushing ore at the Bowery mill to-day, and will then have two mills (25 stamps) running on ore from this mine.

NEWTON BOOTH.—Sinking on the shaft is going ahead with good progress.

PACIFIC TUNNEL.—At present looking extremely well in the face, as honeycomb rock is coming in and indications are favorable.

HUHN & HUNT.—Drifting into the hill for prospecting purposes. Cut into a small ledge, ahout 6 inches in width, in the drift last week, assays from which showed $365 per ton.

CHIEF OF THE HILL.—Running drift west on lower level, in which the ledge continues to improve and widen. Still working on the raises for air, which is now good, except in the lower winze.

NEWARK.—Still sinking the winze on the lower level.

TWO BROTHTRS.—The 2 ore seams, have come together, and show 8 inches in width in the ledge. The shaft is down 150 ft.

SETTING SUN.—The shaft is down 65 ft., and sinking has been suspendsd. The drift is looking well, and shows good ore in the face.

SPRING MOUNTAIN TUNNEL.—Drifting on second ledge cut in tunnel, and in on it 25 ft., with lsdge showing 3 ft. wide in face. Ore shows in bunches throughout ledge, hut has not yet come in solidly.

CANDOR.—Mine looking well in hoth shafts, and constantly improving.

CHAPMAN.—Commenced opening the 300-ft. level on Friday last.

GREY EAGLE.—The shaft down 30 ft, and shows 2 ft, of ore in the hottom.

LODI TUNNEL.—Is in 80 ft., and pushing ahead with good progress.

VICTOR.—This location, west of the Setting Sun, and east of the Silvor Peak started up work again Saturday.

DESDEMONA.—Still running drift west from Fuller shaft, and have it in over 100 ft., with ore showing well iu face.

MEADOW VALLEY.—The rumor in regard to the strike in the 300 ft. level in No. 3 shaft, we havs beea unable to traoe to reliable authority. Shipping the nsual quantity of ore to mill.

STIRLING.—Good progress is heing made, and ore shows well in the ledge as sinking progresses.

AMELIA.—Still sinking the shaft, which is down 65 ft., with the ledge showing 3½ ft. in the hottom.

HUMBOLDT.

BULLION.—Unionville *Silver State*, Jnns 15: The shipments for 2 week amounts to $14,251, from the Arizona miue.

EAGLE.—An incline of 130 ft. has been run, and a shaft of 70 ft. snnk on the ledge averaging 5 ft. in width. There are 500 tons of ore on the dump that will work $100 per ton.

CLEAN UP.—The Pioneer mill, after a rnn of 9 days, on tailings, with only 2 pans, cleaned up 56 tbs. of bullion, .991 fine.

GOV. BRADLEY.—The shaft on the ledge is 35 ft. deep. The vein is from 5 to 6 ft. wide, and asssys from $105 to $2,767 per ton in silver.

NEW FURNACE.—A new Stetefeldt furnace is soon to he erected in connection with the Pioneer mill.

ADAMS MINE.—The ledge is very regular, and the ore carries from $50 to $500 per ton in silver, with a small percentage of base metal.

FINE MINE.—Ruse & Co. in Central Dist., are taking out and shipping some exceedingly rich ore. The last shipped, went something over $200 to the ton.

REESE RIVER.

BULLION.—Reese River *Reveille* June 8: W. F. & Co., shipped during May, 94 hars weighing 8,732 pounds of the value of $104,000.49.

BELMONT.—The Canfield mine of the Belmont Co. has its new hoisting works running and is raising fine ore. They are also sinking the main incline.

The Monitor Co. ie taking out lots of rich ore and opening the chute from the main to the upper level.

The El Dorado South Co.'s lower north level is in 140 ft., the south 100 ft. The main incline is down 400 ft. A large quantity of fine ore has been extracted.

In the Arizona a levsl is heing run north from the main tunnel in a large vein of ore; there is also a lower level being run north and one south to strike the main chimney.

The Combination Co.'s hoisting works are running and taking out fins Stetefeldtite ore.

There are ahout 200 miners workiug in the camp.

WASHOE.

LOCAL SUMMARY.—BELCHER.—Gold Hill *News*, June 15: Daily yield 275 tons, from 1,100 and 1,000 ft. levels. The main incline measures 407 ft. below the 850 ft. level. The drift west at the 1,100 to meet this incline is in 90 ft. and has 90 ft. farther to go hut progress in drift and incline is necessarily slow, owing to the very hot air and lack of ventilatiou. No work is being done at the 1,200 ft. level. When the incline reaches the 1,100 ft. levsl it will be 140 ft. west of the ledge, in the hard west country rock. At the 1,000 ft. level in the incline, a station is opened and drifting east to the ledge is heing done. When the proper point is reached, drifting north from it will he done in order to meet the drift south being driven at the 1,000 ft. level. This drift is in splendid ore, some of it exceedingly rich. It assays $16,000 to the ton. The last shipment of bullion averaged nearly 70 per cent. gold. The following is the yield for May: Nuniher of tons, 7,411; yield per ton, $57.93; per cent worked 76; total yield, $429, 339.35.

OVERMAN.—Sinking the shaft deeper for a new level was commmenced last Sunday. The drift at the 1,000 ft. level toward the ledge is in 248 ft. and in more favorable indications than ever. The ground works well and the chances for developing a good body of ore are excellent.

CONS. VIRGINIA.—The drift south on the 500 ft. level is continued through a strong vein of quartz of a very favorable appearance. The east cross-cut at this level is iu 80 ft. from the main south drift, 46 ft. of which are in fine looking quartz, with spots of ore. The drift from the Gould & Curry is within 50 ft. of the southern boundary of the mine. This drift is progressing at the rats of 4 ft. per day. The vein will be tapped hy this tunnel at a perpsndicnlar depth of 1,100 ft.

CROWN POINT.—The water at the lowest level heing well conquered, the ore yield has nearly reached its old standard again. Ahout two-thirds of the ore comes from the 1,200 ft. level, and the halance from the level above. The winzes below the 1,200 are heing sunk as fset as the receding water will allow.

CHOLLAR POTOSI.—Daily yield, 165 tons, all from the regular old workings.

The cleaning out and repairing of the shaft is being actively prosecuted. Over 500 ft. of it will have to he retimbered. This work is now commenced.

HALE & NORCROSS.—Daily yield ahout 45 tons. The winze from the 1,400 ft. level is 110 ft. down toward the 1,500 ft. level. At a further distance of 40 ft. the lowest level will he reached.

BUCKEYE.—Daily yield, 20 tons of ore, averaging about $16 per ton. The incline is down 232 ft. Drifting south from the bottom of the incline is stopped on account of wster. The recsnt ore developments sonth of the shaft are looking still hetter

OPHIR.—Sinking the main shaft deeper was resumed last Monday, and excellent progress is heing made. In order to concentrate upon this point, work is stopped for the present at the 1,200 ft. level. Prospecting the 1,100 ft. level is being activsly prosscuted, however, with more favorable indications in the north drift.

SAVAGE.—Daily yield 162 tons, from the lower levels principally. The ore body developed at that point, contains an occasional streak of very rich ore.

IMPERIAL-EMPIRE. — The drift at the 1,500 ft. level is in quartz, which looks well but carries little or no metal. The drifts at the 1,650 ft. level have reached what is thonght to he the west side of the ledge.

RED JACKET.—Thie mine is being opened and developed in good style.

SUTRO TUNNEL.—Total length, 2,923 ft.

WOODVILLE.—Shaft 162 ft. deep, and sinking deeper, with considerable water to contend with. The fine body of ore mentioned last week ae developed in the tunnel is looking better and more extensive than ever. Daily yield, 30 tons of ore, averaging $30 at mill.

YELLOW JACKET.—Daily yield, 25 tone. The 1,540-ft. station is being opened. The drift through the Kentuck at the 1,300-ft.

level, to connect with the Crown Point for air, had to he discontinned on acconnt of the water in the Crown Point.

McMeans.—Tho ledge of oro developed hy the tnnnel has widened ont to 9 ft., and shows botter and hetter as fnrther penetrated. The tunnel is in 115 ft., and the face shows very snperior ore, which will pay well for milling.

Justice.—The water heing under control, drifting at the 400-ft. level is resumed. The south drift is in milling ore, assaying about $40 to the ton.

Gould & Curry.—Siuking tbe inclino deeper was resnmed last Sunday, and is progressing well.

Knickerbocker.—Shaft down about 300 ft. The new hoisting works are completed and operate smoothly.

Succor.—New shaft down 140 ft. Rock hard, hnt good progress mskiug. Mill not running at present.

Julian.—Shaft down 853 ft. and still in streaks of fair grade ore.

Sierra Nevada.—Daily ore yield 45 tons. The raise above the lower tunnel is yielding some pretty fair ore.

Caledonia.—The 700-ft. etation is being opened for a drift into the ledge.

Senator.—Virginia *Enterprise*, June 9: Yesterday there was landed at the shaft of this mine a full set of hoisting machinery, inclnding boiler, engine and everything complete.

WHITE PINE.

Treasure Hill Mines—Original Hidden Treasure.—White Pine *News*, Jnne 8: Owing to the etrike of the miners, but little development was made during the week. The Wheeler tunnel will cut the ore channel 600 ft. helow the croppings. The ore body in the different openings shows well, and there is every probability that it will hold out.

East Sheboyoan.—Commenced hauling ore to Swansea mill to-day.

Sunbeam.—Sinking goes ahead in the Moscow ehaft, with good ore in sight.

Silver Wave.—The vertical ehaft, for hoisting ore from the Boewell chamber, will connect with the ohamber by the last of next week. Fair headway is made in the Perkins shaft. There is a force of 24 men employed in the works.

Schell Creek Mines—Jupiter.—Schell Creek *Prospect*, June 8: The shaft down 30 ft., is being sunk still further, and rich rock found.

Ontario.—The ore is sulpburets and chloride of silver, and is very rich.

Buena Vista shows well. In the tunnel they have rich ore. There are several shafts dowu, all in good ore.

Mary.—Still running tunnel—ore along it. Work progressing every day.

Schell Creek Canon Mine is panning out pretty well. They are driving a cut into the mountain to ont the main ledge.

Stonehill & Thornton.—Work will he commenced in a few days.

Mountain View is south of the Jnpiter. There is a shaft down on it 25 ft. in good ore which avorages $60 per ton. The ledge is about 2 ft. wide.

Centreville Mines.—The mines in this flourishing camp are looking splendidly. The mill will he in course of erection in a few days.

Queen Spring Mines.—Larbross tunnel is in about 156 ft.; passed through 12 ft. of vein matter. Thie tnnnel is being worked day and night.

War Horse.—Thie mine looks very well.

Arizona.

Items.—Prescott *Miner*, June 1: Work wae progreesing favorably in Tiger and Pine Grove Dists. Jesse Jackson brought over ahout $1,500 in gold bare, heing the proceede of a few daye' run of the Del Pasco 4-stamp mill.

Hualapai.—Los Angeles *News*, June 8: An assay of ore from the Treasure Hill Ledge, near Cerbat, returned $16,640 per ton. A sample of ore from an unnamed ledge realized $9,000 in gold and $5,000 in silver per ton. The silver in both of these ledges ie hornsilver. One of a similar character from the Wild Irish Boy ledge will show an assay yield of from $12,000 to $15,000 per ton. The ore of the Income ledge, Mineral Park, has been worked by an arastra, yielding at the rate of $700 per ton.

Colorado.

Shipments.—Colorado *Miner*, June 6: Hall & Co. have crnshed, sampled and sacked, since our last report, 80,915 lhs. of ore.

The Hopewell, Republican M. is tnrning out ore in large quantities and of remarkahle richness.

Discovery.—Eichenherg, White, Glass, and Wolfong, working all winter, in a tunnel, in Leavenworth M. at 159 ft,. have struck a rich vein of silver ore.

Lavitt.—Central *Register*, Jnne 5: From one shaft, abont thirty tons of ore are raised daily. For the past month the mill ore has yielded from $15 to $25 per ton, under stamps, and the smelting ore, for the same period, has been sold for about $170 per ton.

The La Crosso tunnel is in about 1,000 foet.

Caribou Mine.—Caribou *Post*, June 8: On the east end of the lodo owned by the "old Caribou" Co., a shaft bas been sunk, 170 ft., at the bottom of which is a magnificent crovice of very rich ore.

The first level, 120 ft. from the surface, carries a 15 to 20 inch vein of first-class ore and crevice of second grade ore 2 ft. in width; 50 ft. below this a second level has heen driven.

In the west the main shaft is 290 ft. iu depth. In the hottom there is a orevice of solid ore running across the shaft, 15 inches wide, and a orevice of ore, 2 ft., carrying sulphurets of silver, brittle silver, galena and oopper pyrites.

The fourth level 30 ft from the bottom, 35 ft. long, shows a splendid vein of ore. Over thie ie a "lift" of ground 70 ft. deep, that ie traversed by a drift 140 ft. in length. The 21 ft. adjoinining this, though not ahsolntely worthless is eo considered. The ore crevice of the 81 ft. adjoining this har of ground is rich in native silver and black sulphuret. On a level with this drift the Caribou Co. are driving a level to connect with their shaft, distant about 100 ft. In this, the pay vein, the entire length of the drift, first grade ore, 28 inches in width, and the second grade 20 inches, a total of four ft. The next or second level, has been driven over 200 ft.

Montana.

Deer Lodge Mines.—Cor. Deer Lodge *Independent*, June 8: At Carpenter'e Bar half a dozeu hydraulics and several ground-sluicee are running. Strickland, Green & Pounds' mammoth bed-rock flume will be completed to the richest part of the gulch hy the first of Angust. Twenty Chinamen are employed in the mines at $3 per day—white men receiving from $4 to $5 per day.

At Carpenter's Gulch several hed-rock flumes are running above the mouth of the cañon, and men are at work in all the little side gulches.

Work on the upper Ophir Gulch is still carried on, and it will he several yeare hefore the mines will he worked out. Claims are paying from $5 to $10 per day.

The Buel lode is 14 ft. from wall to wall. It contains large streaks of solid copper ore. The main lode prospecte free gold. Quartz experts think it will pay $15 per ton. A shaft 20 ft. deep has heen sunk, and the walls are well defined and the lode seems to improve.

Several Cos. of white men are working on lower Ophir Gulch and har, eome of whom are making from one to two ozs. a day to the hand. Seven or eight ground-eluice and hydraulic claime are running on Nelson Hill, all of which are paying well,

Two flumes are running in Illinois Gulch. We were shown hy J. M. Jordan several fine nuggets taken from his claim, and among them was one weighing something over 6¼ ozs.

J. S. Yandell, a few days ago, discovered diggings in the har east of French Gulch and helow Ballard & Mellings' flume. Prospects ranging from 2 to 50 cents to the pan were ohtained.

Ashmeade & Allen are running two pipes on Maiden'e Bar, east of the French divide eouth of Bratton's Bar. One Co. of white men and several Chinese Cos. are working in the head of Pioneer Gulch.

Some 20 men and a numher of Chinamen are engaged on the bars hetween Pioneer City and the mouth of Pike'e Peak.

Two hydraulics are ruuning in Trail Gulch, east of Gold creek. Ten men are employed, and good pay is being taken out. H. Smith & Co. started up their hydraulic on Wilson'e Bar, last week, and Fitzpatrick & McKenzie will etart anothor next week. O. M. Timherlake runs three sluices and one hydraulic. Fagan & Co., and O'Neil & Casey, are hydranlic mining in Dry Gulch. All these claims have paid well where clean-ups have heen made.

Discovery.—Harry Richardson and W. Park recently discovered a ledge of silver ore near the Trout mine, at Philipshurg, 3 ft. wide.

Utah.

Big Strike.—S. L. *Tribune*, June 7: Friend Shearman writing from Bingham ooncluded by etating, "have just made a fine discovery in low grade, Bingham. Surface assays so far, $182, $165 and $750."

American Fork.—We hear of a rich strike in this cañon abont 1,400 ft. north of the Miller mine, which is supposed to be a continuance of the Miller vein of ore. The assays are above $400 to the ton in silver and a large per cent. in lead.

Black Jack.—Cor. same: The Lncky Boy is working abont 30 men and is looking better every day.

The French Spy is working 10 men and pushiug tuunel rapidly towards completion. This mine was lately bonded by eastorn capitalists for 100,000. They will tap the ledge about the 1st of next month.

The Beamico & Hyatt parties are preparing to tunnel to the ledge. Shaft down 45 ft..

The Pride of the West is lookiug fiuely; 3 shifts working. Tunnel is about 80 ft.

The Alhambra has 3 shifts working. Tunnel progrossing at the rate of 2 ft. a shift.

The Olo Bull, Royal and Dowu East have each a good showing of chloride ore and are being rapidly developed; $11,000 was offered and refused last week for the 3 locations and the tuunel site.

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the Scientific Press and other San Francisco journals.]

ASSESSMENTS.

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	DAY DELINQUENT.	DAY OF SALE.
Allegbany Consolidated, Cal. Ap. 20, 25c.	June 3	June 24*
Alps M.Co., Ely Dist. Nev., June 18, 50c, July 26	Aug 19	
Arizona&Utah M.Co., Nev., June 4, 50c, July 10	July 31	
Balto.M.Co.,Storey Co.,Nev.,Ap'l 30, $1.	June 5	June 28
Cascade Blue G. M. Co. Cal. May 15, 20c.	June 18	July 9
Cherokee Flat B.G. Co , Cal. June 8, $1,	July 10	July27
Crown Point Ravine M.Co.,May 3, $5	June 26	July 20
Defiance M. Co.,Grass Valley, June 3, 50c,	July 5	July 22
Eagle Quicksilver. May 8, $40	July 11	July 15*
Eckendorn M.Co.,Calaveras Co., June 8, $3,	July 12	July28
El Norado M. Co., Cal., May 13, 25c	June 16	July 10
Gen. Lee S. M. Co., W. Pine, Ap'l 27, 10c	June 26	July 16
Hutch Flat B. G. Co.,Cal., June 11, $1.25,	July 16 - Aug 6	
Hld. Treas. M. Co., W. P., May 11, 10c	June 17	July 8
Hid.Treas.Cons.M.Co..W.P.,May 11, 10c.	June 17	July 8
Howard Hill M. Co.,G. Valley, June 4, $5,	July 5	July 20
Hubn & Hunt, Ely Dist., May 29, 50 cts.	July 5	July 26
Ida Elmore M. Co., Idaho, May 24, $3.	June 29	July 27
Independent G. M. Co., Cal., May 16,50c.	June 22	July 12
Ingoman M. Co., Ely Dist., June 5, 25c	July 15 - August 9	
JacobLittle M.Co.,Virginia,Nev.,May 30, $5,	July 1	July31
Justice M. Co. Storey Co. Nev., $1	June 24	July 15
Kentuck M.Co.,Gold Hill,Nev.,June 12, $10,	Ju 16	Aug 5
Knickerbocker, Nev., May 30, $1	July 3	July 23
Lord Byron G.&S.M.Co., Nev.,Apr. 29, 25c.	June 3	June 22
Lemon M. & M. Co., Nev., May 29, $1	July 6	Aug.10
Lyon & Wheeler Arizona, May 18, 10c	June 24	July 15*
Mina Rica M. Co., May 8, 20c	June 10	July 1*
Minnesota M. Co., I. T., May 12, $1.50.	June 22	July 20
Newark M.Co.,Ely Dist.Nev.,June 12, 50c,	July 22	Aug 17
Newton Booth Cons.M.Co.,Nev.June 6,30c,	July 12	Aug6
Ohio Cons. M. Co. Cal., May 21, 10c	June 20	July 20
Overman M.Co.,Gold Hill,Nev.,June 5,$4.	July 18	Aug 7
Pacific Borax Co.,, Nevada, May 4, 20c	June 6	June 29
Pea Vine S.M.Co.,Ely Dist.,May 14,20c.	June 20	July 12
Potomac S.M.Co.,Nye Co.,Nev,June 6,50c	July 15	Aug19
Pride of Mt. M. Co. Nev., May 7, 25c	June 17	July 10
Rising Star S. M. Co., Idaho, Ap'l 27, $1.	June 1	June 29
Roxby, Gold Hill, June 3, 50c	July 6	July 27
Silver Sprout M. Co., Cal., April 29, 50c.	June 1	June 22*
St.Patrick M.Co.,Placer Co.,Cal.,June 19,$3,	Ju 27	Aug19
Tecumseh M. Co., Cal., April 24, $5	May 29	June 17*
Union G. M. Co., Cal., May 20, $2.50	June 22	July 9*
Washington M. Co., May 8, $3	June 11	June 29*
Wash. & Creole M. Co.,Nev.,May 13,75c.	June 20	July 17
Woodland M. Co., Cal., May 21, 12½c.	June 25	July 16*

MEETINGS TO BE HELD.

Altona No. 1 Gravel M. Co	Annual Meeting, July 5
Belcher M. Co	Special Meeting, June 25
Belmont M. Co	Annual Meeting, June 27
Hardy Coal M. Co	Special Meeting, July 9*
Imperial S. M. Co	Annual Meeting, June 25
Kentucky G. & S. M. Co	Annual Meeting, June 29
Mahogany G. & S. M. Co	Annual Meeting, June 25
Morning Star M. Co	Annual Meeting, June 10
Newark S. M. Co	Annual Meeting, Juno 1
Pocahontas G. M. Co	Annual Meeting, July 2
Pride of the Mountain M. Co	Annual Meeting, July 12
Rock Island G. & S. M. Co	Annual Meeting, July 1
Union Consolidated M. Co	Annnal Meeting, July 20
Washington M. Co	Aunnal Meeting, June 24
Woodland G. M. Co	Annual Meeting, July 17

LATEST DIVIDENDS—(Within Three Months).

Belcher M. Co., $30	Payable May 10
Belcher, $30	Payable June 10
Black Diamond Coal Co., ½ per cent	Payable May 29
Crown Point G. & S. M. Co., $3	Payable June 12
Eastport, Coose Bay, Coal M. Co., $5.00.	Payable June 11
Eureka Gold M. Co., $1	Payable March 11
Keystone M. Co., $7.50	Payable April 10.
Meadow Valley M. Co., $1.00	Payable June 20
North Star G. M. Co., $7	Payable April 9
Raymond & Ely M. Co., $7	Payable June 10

——*Advertised in this journal.

Leather Market Report.

[Corrected weekly by Dolliver & Bro., No. 109 Post st.]

San Francisco, Thursday, June 20, 1872.

Sole Leather.—The Eastern markets higher, and some tanners have advanced their prices bore. We quote as below:

City Tanned Leatbor, ₱ lb	26@29
Santa Cruz Leather, ₱ lb	26@29
Country Leather, ₱ lb	25@28
Stockton Leatber, ₱ lb	26@29

French skine continne firm. All California skine are scarce and bring full prices.

Jodot, 8 Kil., per doz	$80 00@
Jodot, 11 to 15 Kil., per doz	70 00@ 88 00
Jodot, second choice, 11 to 15 Kil. ₱ doz	60 00@ 76 00
Lemoine, 16 to 18 Kil., ₱ doz	75 00@ 77 50
Levin, 12 and 13 Kil., per doz	68 00@ 70 00
Cornellian, 16 kil., per doz	70 00@
Cornellian, 12 to 14 Kil., per doz	60 00@ 68 00
Ogerau Calf, ₱ doz	84 00@
Simon, 18 Kil., ₱ doz	65 00
Simon, 20 Kil., ₱ doz	65 00
Simon, 24 Kil. ₱ doz	72 00
Robert Calf, 7 and 8 Kil	35 00@ 40 00
French Kips, ₱ lb	1 10@ 1 30
California Kip, ₱ doz	60 00 to 80 00
French Sheep, all colors, ₱ doz	15 00
Eastern Calf for Backs, ₱ lb	1 15@ 1 25
Sheep Roane for Topping, all colors, ₱ doz	9 00@ 13 00
Sheep Roane for Linings, ₱ doz	5 50@ 10 50
California Russet & Sheep Linings	1 75@ 5 50
Best Jodot Calf Boot Legs, ₱ pair	5 25
Good French Calf Boot Legs, ₱ pair	4 50@ 5 00
French Calf Boot Legs, ₱ pair	4 00
Harness Leather, ₱ lb	30@ 37½
Fair Bridle Leather, ₱ doz	48 00@ 72 00
Skirting Leather, ₱ lb	34@ 37½
Welt Leather, ₱ doz	30 00@ 50 00
Calf Leather, ₱ foot	18@ 21
Wax Side Leather, ₱ foot	20@ 22

S. F. Stock and Exchange Board.

Thursday, June 20.

The sales at the Board for the week ending on Wednesday the 12th inst. amonnted to $2,126,700. The last clean np of the Sierra Nevada mine of 700 tons yielded $4,448. The Hale and Norcross mine yielded last week, 330 tons; the Sierra Nevada, 350 tons; the Savage 1,430 tons, assaying $21.27. The Pioche mine shipped last week $12,350. The Raymond and Ely shipment on June account is $162,000, the last heing $32,000. The Crown Point mine, turned ont last month 2,000 tons of ore valued at $79,000, and the Chollar Potosi 1,000 tons assaying $41.28 per ton. The last clean np at the Eureka (Grass Valley) mine, was 550 ounces of amalgam. The snm of $6,300 wss sent down from the Kentnck on the 14th and 18th inst. The Meadow Valley Mining Co's. dividend payable to-day amonnts to $60,000 for the month.

The market has fluctuated considerably this week. On Change the stocks were in moderate demand, and prices weak and irregular. The next day the market was slightly improved, being a little more active. On the 17th, there was an advance on the whole list, and stocks seemed to he in better favor. On the 18th, they were weak again, most kinds showing a decline from previous days' sale. Wednesday, the 19th, there was a fair husiness done in the Board, and prices were generally higher, Belcher advancing $77, and Crown Point, $17, over previons days' sales. To-day Stocks were quiet and husiness was light, and compared with yesterday's sales, Belcher advanced $20; Kentuck, $5; Ophir, Justice, and Raymond & Ely, each $1. Savage, Segregated Belcher, and Yellow Jacket, each declined $3; Caledonia, Chollar-Potosi, Hale & Norcross, and Meadow Valley, each $2 ; Alpha, Cons. Virginia, Crown Point, and Exchequer, each $1.

Comparative Prices—Extremes. Advance and Decline.—S. F. Stock and Ex. Board.

	June 13.	*Highest.*	*Lowest.*	June 20.	*Adv.*	*De.*
Alpha	$37½	45	36	42	4½	—
American Flag	18½	19	17	18	—	½
Belcher	800	960	800	950	150	—
Buckeye	—	4	3	—	—	—
Chollar-Potosi	109	118	105	113½	4½	—
Caledonia	40	48½	36	45	5	—
Cons. Virginia	21	23¾	21	22½	1½	—
Crown Point	136	155	125	154	18	—
Caney	—	2¾	2½	2½	—	—
Eureka Cons.	29½	29½	28½	28¾	—	¾
Eureka	—	16½	16	16⅜	—	—
Exchequer	15	17½	15	16	1	—
Hale & Norcross	—	70	66	68	—	—
Ida Elmore	16½	19	15	—	—	—
Imperial	5½	8	5½	7	1¼	—
Kentuck	280	280	220	270	—	10
Mammoth	1¼	1¼	90c	90c	—	60c
Meadow Valley	15¼	16¼	15	14½	—	¾
Mahogany	—	23½	20	—	—	—
Ophir	35	37	31	37½	2½	—
Orig. Hid. Treas.	13	13⅜	12	—	—	—
Overman	70	72½	68	75	5	—
Pioche	15	16½	15	15½	—	½
Raymond & Ely	125	135	120	132	7	—
Savage	147½	155	145	142½	—	5
Sierra Nevada	17	17	15¾	—	—	—
Succor	—	4	4	4	—	—
Wash. & Creole	5	5	4½	—	—	—
Yellow Jacket	122	130	114	122½	½	—
Justice	8½	9¾	8	10	1½	—
Seg. Belcher	67	69	68¼	81	4	—

Latest Prices—Bid and Asked.

	BID.	ASKED.		BID.	ASKED.
Alpha Cons	39	40	Ida Elmore	15	—
Amador	—	—	Imperial	6½	7
Belcher	950	980	Kentuck	270	280
Chollar-Potosi	112	113	Meadow Valley	14¼	14½
Crown Point	153	155	Ophir	36	36½
Caney	2½	—	Orig. Hid. Treas	13	13⅜
Eureka Cons	28½	29	Overman	75	75
Eureka	—	—	Savage	140	142½
Golden Chariot	9	9	Raymond & Ely	132	132
Gould & Curry	—	—	Sierra Nevada	15¾	16
Hale & Norcross	66	67	Yellow Jacket	122	122½

San Francisco Metal Market.

PRICES FOR INVOICES

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

Thursday, June 20, 1872

Iron.—			
Scotch Pig Iron, ₱ ton	$80 00	@	85 00
White Pig, ₱ ton	70 00	@	75 00
Refined Bar, had assortment, ₱ lb	— 04½	@	— —
Refined Bar, good assortment, ₱ lb	— 05	@	— —
Boiler, No. 1 to 4	— 05½	@	— —
Plate, No. 5 to 9	— 06	@	— —
Sheet, No. 10 to 13	— 08	@	— —
Sheet, No. 14 to 20	— 08	@	— —
Sheet, No. 24 to 27	— 09	@	— —
Horse Shoes	7 50	@	
Nail Rod	10		
Norway Iron	8		
Rolled Iron	5		
Other Irons for Blacksmiths, Miners, etc.	5	@	6
Copper.—			
Sheathing, ₱ lb	— 40	@	— 45
Sheathing, Yellow	— 30	@	— 33
Sheathing, Old Yellow	— 12	@	— 12½
Composition Nails	— 28		— 30
Composition Bolts	— 28		— 30
Tin Plates.—			
Platee, Charcoal, IX ₱ box	19 00		19 50
Platee, I C Charcoal	17 00		17 50
Roofing Plates	18 00		18 50
Banca Tin, Slabs, ₱ lb	— 50		— 55
Steel.—English Cast, ₱ lb	— 15		— 16
Drill	15		16
Flat Bar	17		18
Plough Points	3 75		
Russia (for mould boards)	12½		
Quicksilver.—₱ lb	— —		— —
Lead.—Pig, ₱ lb	— 05½		— 06
Sheet	— 10		— —
Pipe	— 9		— 10
Bar	— 06½		— 07
Zinc.—Sheets, ₱ lb	— 11		— 11½
Borax.—Refined	— 27		— 30
Borax, crude	— 5		— —

There are 192 miles in the State of Nevada, nsed in the crnshing and reduction of various ores. Their capacity eqnals 8,325 horses; they carry 2,848 stamps, and costs over $10,800,000.

The Sutro Tunnel.

A *Bulletin* correspondent writes as follows from Washington, D. C., under date of June 3d: The report of the Mining Committee on Mr. Kendall's hill, to aid the Sutro Tunnel project, was made to the House to-day, and is even more favorable than has hitherto been expected, as the Committee recommend not merely an endorsement of the interest on the bonds to be issued, but an absolute loan of two million dollars in cash, to be advanced to the Company out of the proceeds of the sale of the public mineral lands or other money in the United States Treasury, at the rate of $50,000, for every 500 lineal feet of its tunnel or shafts completed, provided an additional equal amount shall have been expended on the same 500 feet of work by the Company. The Government advances are to be secured by a first mortgage upon the whole of the Tunnel property, and are to be repaid with five per cent. interest out of the revenues of the Company, one-half of which must be turned over to the United States Treasury semi-annually until the whole amount of the loan is liquidated. The other provisions of the bill in regard to the character and dimensions of the tunnel and its appurtenances, and also the appointment of Commissioners to report on the progress of the work, are about the same as those contained in the previous Sutro Tunnel bills, and need not be recapitualated. The investigation of the Committee in this subject has been remarkably laborious and prolonged. A cross-examination by Sutro on the one hand, and Mr. Sunderland, representing the Bank of California, on the other. Long arguments have also been made, which, together with the voluminous testimony, are now reported to the House. The following is the report of the Committee, which is signed by all its members excepting Mr. Sargent. It will be read with interest.

Report of the Committee on Mines and Mining.

The Committee on Mines and Mining, to whom was referred H. R. 1173, entitled "A bill to aid in the construction of the Sutro Tunnel from the proceeds of the sale of mineral lands," after careful consideration, have prepared the accompanying substitute, and recommend its passage:

Your Committee have patiently and carefully investigated all the questions having any bearing upon the subject; they have heard the evidence of the commissioners and other experts; they have listened to the arguments for and against the bill; and, without commenting at length upon the details of their investigations, beg leave to submit the following statement of facts and conclusions:

1st. Our mineral domain is almost unlimited in extent, and of incstimable value.

2d. The mines on the Comstock lode are the most valuable in the world.

3d. They have yielded already $130,000,000 in bullion.

4th. The present annual yield exceeds $15,000,000.

5th. Their future yield, by means of a deep tunnel, will be almost incalculable.

6th. Deep tunnels are necessary for the full development of our mining interests.

7th. The Sutro tunnel is of the highest importance to the future profitable working of the mines on the Comstock lode.

8th. The construction of this tunnel was authorized by the Legislature of Nevada.

9th. The mining companies on the Comstock lode contracted for its construction.

10th. The Legislature of Nevada memorialized Congress to aid in its construction.

11th. Congress, by special law, endowed it with certain rights and privileges.

12th. Congress reaffirmed those rights by a refusal to interfere with them.

13th. Congress again reaffirmed them by provisions in two general mining laws.

14th. Congress sent out a commission to report upon the facts concerning it.

15th. The Commissioners made a report, recommending the work to favorable consideration.

16th. Some points in the report not being entirely clear, the Commissioners were fully examined by your committee.

17th. Other witnesses, amongst whom Professor Raymond, the United States Commissioner on Mining, were also examined.

18th. The testimony (which accompanies this report, embracing 810 pages), makes a conclusive case in favor of the tunnel.

19th. The construction of the tunnel is entirely feasible.

20th. It will cost from $4,000,000 to $5,000,000.

21st. It will take from 2½ to 3½ years to complete it.

22d. It will be of immense benefit to the legitimate owners of the mine.

23d. It will secure the health of the miners by good ventilation.

24th. It will create an outlet for escape in case of fire.

25th. It will establish a new basis of operations 2,000 feet below the surface.

26th. It will drain the water to that depth by its own flow, and dispense with the numerous steam engines now required.

27th. The water contained in the mines may be utilized as a great water power to pump the water, by means thereof, from below the tunnel level.

28th. Greater depth may be reached thereby than has ever been reached before on any mines in the world.

29th. It will stimulate explorations on all portions of the Comstock lode, and may increase its yield to $50,000,000 per annum.

30th. It will develop several lodes in the course of its construction.

31st. Immense quantities of low-grade ores exist in the Comstock lode and other lodes cut by the tunnel.

32d. These low-grade ores can only be utilized by means of concentrating works.

33d. Extraordinary facilities exist at the mouth of the tunnel for the erection of improved concentrating and reduction works.

34th. The tunnel itself will furnish sufficient water for concentrating and amalgamating purposes.

35th. Cheap motive power can be secured with coal from the Rocky Mountains and firewood floated down the Carson river.

36th. As a geological survey, penetrating into this argentiferous mountain, it will be of the highest value to science.

37th. It will serve as a pattern work for all other mining districts.

38th. Its success will give confidence in mining operations.

39th. A practical illustration of the downward continuance of mineral lodes will give a high value to our mineral domain.

40th. It will make capital flow in that direction.

41st. It will result in the construction of hundreds of tunnels by private enterprise.

42d. It will populate our vast mining regions, and create millions of dollars of taxable property.

43d. It will establish a mart for western produce and eastern manufactures.

44th. The total yield of gold and silver will be largely increased.

45th. The increase of the stock of the precious metals has a tendency of increasing the money value of all property.

46th. The increased value relieves the burdens of the people by reducing the rate of taxation.

47th. It has the most important bearing on the payment of the national debt.

48th. The Sutro tunnel is now in full progress of construction.

49th. The company has secured funds to the amount of $1,500,000, and is expending upon the work at the rate of $50,000 per month.

50th. The work is of national importance, and the aid provided for in this bill will secure its early completion.

51st. The security to the Government is unquestionable, ample, and satisfactory; one-half of the royalty alone yielding at the present rate of production $365,000 per annum.

52d. Under the bill reported the aid extended shall not exceed $2,000,000.

53d. The Company is required to expend an equal amount to that loaned by the Government.

54th. One-half of all the income will be paid over to the Government semi-annually.

55th. The sum loaned, together with the interest, will probably be repaid to the Government within a few years after its completion.

56th. No money shall be paid until the commissioners to be appointed shall report the completion of each section, as prescribed by law.

57th. A non-compliance with the provisions of this bill will forfeit all rights under the same.

58th. The aid extended only applies to the first four miles of tunnel to the Comstock lode.

59th. This first section of the tunnel will form, as it were, the main artery or highway, from which one hundred miles of branch tunnels may be constructed.

60th. No further aid will be required; for after the tunnel reaches the mines, the income will be sufficient to make it self-sustaining.

61st. We would in conclusion indorse the language used in the closing paragraph of a report to Congress made by a former committee, recommending a loan of $5,000,000 in the following words:

"That taking into consideration the magnitude of the undertaking, the large yield of bullion which will be directly secured thereby, the great influence by its successful completion upon all our mining interests, the stimulus it will give to mining generally, the positive proof it will furnish of our immense mineral wealth, and considering the importance of attaining these results, in view of our large national debt, ordinary wisdom and foresight should command that the aid asked for the construction of this important work, or a much larger sum, if it were necessary, should be granted, even were no security whatever offered for its payment.

Henry Waldron.	W. L. Sessions.
Nath. P. Banks.	F. E. Shober.
W. C. Smith.	P. M. B. Young.
J. S. Negley.	C. W. Kendall.

Washington, June 3d, 1872.

[The committee refers to a number of works for detailed information on the subject embraced in the report, but as the above gives their reasons for recommending the loan we omit the reference.—Eds. Press.]

The Generation of Petroleum.

The recent development of the reproductive power of petroleum wells which had been for some years abandoned because they were believed to be exhausted, is not alone a matter of value to the owners of the territory that was until lately prosumed to be incapable of further production, but it affords a more trustworthy basis than any hitherto obtainable for forming an approximate correct opinion concerning the chemical process whereby petroleum is generated. Until lately, a popular opinion prevailed that petroleum, in spite of its name, was the product of coal; and so nearly was this idea general among a majority of people, that many foreign receivers of petroleum are still accustomed to order it as "coal oil." The belief, however, that the terrene oil of Pennsylvania and Canada is exclusively a product of bituminous coal may now safely be pronounced to be an error. There is certainly no evidence that coal is not one of the substances from which petroleum is distilled; but, at the same time, it is a somewhat strange fact, allowing a proper degree of credit to the belief that coal does not enter into the composition of petroleum, that no coal beds susceptible of being worked are known to exist within fifty miles of the oil-producing territory. Again, it is a manifest and recognized fact that carbon does predominate as an integral essence of petroleum; and the other fact that the oil territory of Pensylvania is surrounded by beds of bituminous coal, renders it eminently reasonable to believe that coal enters largely—if not, indeed, more largely than any other substance—into the process of distillation whereby petroleum is produced.

Petroleum is certainly a mineral oil. But whatever may be the number and chemical variety of the minerals from which it is formed, the distillation of it is more intimately associated with limestone than with any other mineral. Sandstone is also found in boring oil wells, but it is from the pores of limestone that, in the chemical process of extracting oil from the minerals found in connection with its production, the greatest quantity of petroleum is taken. It is singular that, in boring for oil, no coal has ever been found, even in the smallest quantities, while sand, sandstone and limestone abound. The inference, therefore, cannot be escaped that petroleum is the product of the distillation of at least two, and probably of more than three, distinct mineral properties. In the process of manufacturing refined oil, the crude article yields three different products—naptha, kerosene and residuum, a fact which certainly supports the belief that crude oil is the product of three different minerals. So far as concerns the contribution by coal of an integer in the chemical process by which petroleum is produced in and from certain geological strata, it may be remarked that the "shale" oil produced from bituminous coal in England, is very different from American petroleum; in that, the American naphtha must be used in order that the latter may be burned in lamps. Another fact that favors the inference that petroleum is mainly produced from or generated through limestone, is that petroleum has been extracted from limestone found in the neighborhoods of Chicago and Terre Haute, Ind. In regard to the reproductive powers recently developed in the Pennsylvania territory believed to have been exhausted, it affords two favorable presumptions: First, as a partial assurance that the distillation of petroleum is a continuous process; and next, that the formerly abandoned territory was given up because the machinery for extracting petroleum from the earth exceeded in its power of exhausting the fluid, the generative power by which it is produced.—*Petroleum Monthly.*

An Old Invention Turned to Account.

The Virginia *Enterprise* mentions the successful application of Archimede's screw in raising the tailings of the Santiago Mill on the Carson River. The mill is situated so near the level of its water in the river, and the tailings are discharged so low down that heretofore it has been found impracticable to save them, if not impossible. They have been allowed to flow into the river and waste for the past ten years. One of these screws 28 inches in diameter and 44 feet long has been placed in position, and raises the tailings to a hight of 23 feet. The screw consists of a core of wood into which are inserted iron rings, in such a way that they wind spirally round the central shaft like the thread of a screw. This as it now stands is then inclosed in a casing of wooden staves hooped on the same as a barrel is hooped over.

The mode of using is as follows:—The lower end is placed in a large agitator, standing at the point where the tailings are discharged from the mill, while the upper end is supported by a frame erected at the point where the tailings are to be discharged. The screw stands at an angle of 45 degrees, and to run both it and the agitator costs but four-horse power. The agitator has nothing to do with the efficiency of the screw; it would work equally well in a quiet pool. The part the agitator plays is merely that of stirring up the fine particles of tailings, and keeping them afloat in the water until caught up and elevated by the screw—without the agitator the tailings would settle to the bottom of the tank and little else than water would be pumped up. At the top the screw discharges the tailings (in the shape of muddy water,) into a sluice which carries them to a huge reservoir 1,000 feet distant, where they settle, and the clear water runs away. The great

Value of the Contrivance

Will be seen when we state that the mill is now crushing 2,500 tons of ore per month, and that after it has once passed through the mill this same ore is still worth $5 per ton, which sum may be obtained for it in the reservoir where it is saved. According to this estimate, $12,500 per month is saved by the use of the Archimedan screw. It carries up and deposits in the reservoir every ounce of everything, water and all, that passes through the mill. The mill has been running ten years. At first its capacity was 1,600 tons per month, but this was afterwards increased to 2,500, its present capacity. Counting the loss for ten years at 1,600 tone per month gives 192,000 tons, but as part of the time the loss was 2,500 tons, we may safely set the total loss down as being in round numbers 200,000 tons, which at $5 per ton would be an even million that has floated off down Carson River. We are informed that screws will be put up at several other mills on the river where tailings have been lost in the same manner for many years.

Wages of Mechanics in Europe.—The following figures are from the British Foreign Secretary's Report to Parliament, being the average daily rate paid to mechanics, after being reduced to our money:

Austria	$1 00	Sicily	30
Belgium	60	Portugal	40
France	1 10	Prussia	75
Denmark	60	Russia	75
Italy	40	Sweden	60
Netherlands	75	Switzerland	60
Norway	60		

When we consider that this is the average paid for skilled labor, and that unskilled or half-skilled labor is only paid one-half as much; and, again, that many of the workmen labor twelve hours a day, the difference in favor of the workmen in the United States will be very apparent. In England the prices are about one-quarter more than paid on the continent.

Professor Goltz, Königsburg, in his experiments upon the nervous centre of frogs, finds that if you take out the brain, and then rub a finger down the frog's back, the creature will croak as if pleased. Frogs must be easily pleased.

Useful Information.

How they Cut Veneers.

Many persons, doubtless, have wondered how these thin layers, or shavings, of mahogany or rosewood, are cut or sawed so thin, and yet so true as to thickness from those hard woods. And still more wonderful, how those very thin, hard wood paper hangings are made. And yet, wonderful as they appear, the mystery vanishes in a great measure when one sees the process, though it must still be admitted that it is a triumph of human skill and perseverance. How long it has been since veneers have been made and used, probably nobody knows; but the manufacture, like all other inventions, has progressed to perfection by degrees, through unwearied labor and improved mechanism.

Most approved process for cutting veneers, may be thus described:—The log to be shaved is cut into lengths of about ten feet. It is then split lengthwise, and the rounded side hewn or planed down, so as to make a face about six inches broad, perhaps. And as thus prepared, the piece is six inches in thickness. It is then soaked in warm water, several hours for the softer woods, and days perhaps for the harder kinds. When the shaving is to begin, the water is brought to the boiling point, and the stick taken out of boiling water, all hot and steaming. It is then taken to the machine and fastened to a cast-iron plate, horizontally, by screws. This plate is about a dozen feet long, by four broad, and stands vertically, the heart of the stick being next the iron. The fastening is by screws, which pass through the plate and enter the wood about an inch. A dozen screws perhaps are put into a stick a foot broad. This plate moves up and down, with the stick fastened thus firmly, and horizontally, to its face. In front is a knife, fixed solidly, some ten feet long, sharp as a razor, and made like a chisel, with the bevel from the wood. This knife stands vertically, with the edge upward.

When the stick and knife come together, the former comes down and strikes the knife through its whole length; a shaving is pared off, and this, in thickness is just what the operator pleases; it may be thick as a veneer, say twenty-six or twenty-eight or thirty, more or less to the inch, as veneers are made; or it may be as thin as the paper hanging, which are 200 to 300 to the inch. The machine works automatically, the plate with the stick going up and down, while the knife moves forward at every elevation just enough to get in place to shave another veneer when the sticks descends. As fast as the veneers are shaved off they are taken by two men and laid in a pile. Ten or twelve are shaved off in a minute. Care of course is requisite, toward the close of the cutting, that the stick is not shaved so close that the ends of the screws are exposed and hit the knife. But as the screws only enter the wood just so far, somewhat less than an inch, the work is stoped before that point is reached. The removal of the piece from the plate, through which the screws passed, completes the operation. And this piece is a plank, or rather board, of about an inch in thickness, which may be cut up for other uses as the greater portion is not damaged by the holds. The veneers are as much finished upon one side as upon the other, and perfectly even in thickness. After being cut they are spread, to dry, being turned up edgeways to accomplish that end.—*Cabinet Maker.*

What is Water?—Water is *rust.* The red powder that falls from iron which has long been subjected to the action of moisture, is rust of iron. It is the oxide of metal, and so is water. Water is the rust of hydrogenium, a true metal. This wonderful element no human eyes have ever looked upon, and probably never will, as in its free state it exists only in the form of an invisible gas. Quite recently science has demonstrated experimentally, what has long been suspected, that hydrogen gas is a metal, and capable of assuming a solid form in alloys. Oxygen, by uniting with this gaseous metal, rusts, oxidizes, or burns it, and water is the rust or ashes. This strange metal, hydrogenium, and its oxide, play an important part in all the operations of nature. It is not alone confined to the little ball of earth upon which we live, but it exists in the stellar worlds above us, and in those mighty points of light, the nebulæ, which have so long puzzled and perplexed the astronomer and men versed in the physical sciences. The recent discoveries by means of the spectroscope, have proved that this element enters largely into the unformed, chaotic masses of matter, moving in space, of which the worlds are made. It is ready, when the formative act is fully accomplished, of taking its place, in combination with oxygen, as water, to aid in the sustenation of animal and vegetable life upon spheres so far distant that our imagination even cannot reach them.—*Fireside Science.*

What is an Indian Citizen?—A decision has been made by the Secretary of the Interior to the effect that Indians may and do become citizens by an abandonment of the tribal organization. The Ottawas and Chippewas have abandoned such organization and have become subject to the jurisdiction, to all intents and purposes, of the United States, and become citizens under the Fourteenth amendment. They are entitled to make homestead entries, and in every respect are subject to the rights and privileges of native born citizens. The Fourteenth amendment excluded "Indians not taxed," and the supreme court has decided that the tribal relation remains, Indians are not taxable, which by implication means that when that relation ceases they may be taxed. Taxation and representation then go together, the Indian becomes merged in the mass of American population and one of it. This is one step further in the universality of rights under the American government.

The Weather Waste of Coal.

Dr. Varrentrapp has made this the subject of an investigation, and as a result states that the amount of loss suffered by coal from exposure to weather is considerable, far greater, indeed, than is generally known.

The results of his analysis show in some cases a total loss in weight of a specimen, from this cause, amounting to 33·08 per cent., while its deterioration in quality for purposes of fuel or gas-making reached a still higher figure.

This change consists in a slow combustion, in which the volatile constituents—which are most valuable combustible elements—are gradually eliminated, while the relative proportions of carbon, ash and sulphur are comparatively augmented.

It might be expected, now that the nature of this change is indicated, that anthracito (which has already gone through a very similar process in becoming what it is, by the loss of its bituminous matter) should suffer least of all coals from this action, and the result of analysis show this to be the case. The density and compactness of this variety, aside from its chemical character, protect it in no inconsiderable degree.

The Cannel coals rank next in their power to resist deterioration from this source; while the bituminous varieties are the most susceptible.

The experiments of Dr. Varrentrapp are of such direct and practical importance that all who are engaged in the mining, transportation, storage or consumption of coal can study them with profit.

It appears, from accurate test of a number of samples before and after exposure, that all the valuable properties of the coal had deteriorated.

The cooking quality of the weathered coal diminishes with its gas-yielding quality, the author informing us that a sample of coal yielding, when freshly mined, a firm, coherent coke, after eleven days' exposure, yielding a coke of no coherence, and in all the samples tested the rule was absolute that the longer the coal had been exposed the greater was the inferiority in the quality of the coke it produced.

The gas-yielding quality decreased in one instance 45 per cent., and the heating power 47 per cent. while the same sample under cover lost in the same time but 24 per cent. for gas purposes, and 12 per cent. for fuel.

These experiments go far to explain the almost universal inferiority of the slack or waste coals in heating power when prepared for burning, even though some combustible material like pitch or tar is used in their cementation. It indicates, too, the imperative necessity of keeping coals amply protected from the deteriorating action of the air and moisture by keeping them constantly dry and under cover.

Something About Wills.—Here are some rules governing the making out of wills, which may prove important if not interesting. A will cannot be made in language too simple or concise; it must be written in ink, on paper or parchment; and, if contained on one sheet, must be signed at the end by the testator, in the presence of two or more witnesses, and, if written on more than one sheet, the testator and witnesses had better sign each sheet. The witnesses must rigidly comply with every particular required by the attestation clause, at the end of which clause they must sign their names. A codicil to the will is to be made with the same regulations as the will itself, and may be written thus: This is a codicil to my last will and testament, bearing date the——day of——18—. and which I direct to be taken as part thereof. I give, devise, and bequeath, etc. As witness my hand this——day of——. Obliterations or alterations are dangerous, and when of necessity made, ought to be signed by the testator and witness. Marriage after making a will, renders the will void. It is not indispensable for a witness to know the contents of the will, which may be so folded as to prevent any other portion than the signature and attestation clauses being read.

How to Fasten Rubber to Wood and Metal. As rubber plates and rings are nowadays need almost exclusively for making connections between steam and other pipes and apparatus, much annoyance is often experienced by the impossibility or imperfection of an air-tight connection. This is obviated entirely by employing a cement which fastens alike well to the rubber and to the metal and wood. Such cement is prepared by a solution shellac in ammonia. This is best made by soaking pulverized gum shellac in ten times its weight of strong ammonia, when a slimy mass is obtained, which in three or four weeks will become liquid without the use of hot water. This softens the rubber, and becomes, after volatilization of the ammonia, hard and impermeable to gases and fluids.

To Protect Walks from Weeds.—Take one gallon of gas-tar and about a half a pound of air-slacked lime, boil and incorporate them well together and apply the mixture with a common long-handled whitewash brush. This will dry in a few hours if put boiling hot, and will kill off all young weeds and prevent their growth.

Good Health.

Sea-Sickness.

The cause of sea-sickness, and the question of its curability, have both been the subject of a good deal of discussion. Some have asserted that it is always due to mere imagination or nervousness; but though this is undoubtedly a frequent cause of the malady, it is certain that it is not the invariable one. We have seen people sea-sick when the ship was moving more smoothly and steadily than a railway car and it was easy to believe in that case that the expectation of the nausea was all that produced it. On the other hand, people who suppose themselves proof against an attack of the kind have been the victims of a sudden seizure. They neither feared nor anticipated anything of the kind, and it could not have been brought on by any mental cause whatever. Animals, moreover are not exempt from sea-sickness. We have known a cat—not a "land-lubber" of a puss, but one of sea-going habits, that had crossed the Atlantic more than once—to be wretchedly sick in very rough weather; and we have heard of horses and dogs that were similarly affected. No one will assert that in these instances imagination had anything to do with the nausea.

Dr. Wollaston suggested, more than sixty years ago, that sea-sickness results from pressure of blood upon the brain; and it is well known that injury or pressure on the brain is almost invariably attended by vomiting, which is indeed its earliest symptom. Dr. Wollaston explains the way in which the pressure upon the brain is produced by the motion of a ship at sea, by reference to the action of mercury in the tube of a barometer. He says that "If a barometer be carried out to sea in a calm, the mercury will rest at the same height as when on shore; but when the ship falls by the subsidence of the waves, the mercury is seen apparently to rise in the tube which contains it." He considers that the action of the blood on the brain, at the moment of the descent of a ship is identical with that of the mercury in the barometer, and that there is an actual pressure, and even a blow, which, by frequent repetition, produces nausea and vomiting. The action in both cases is due to the *inertia* of the liquid, which tends to remain where it *is*, and not to follow the movement of that which contains it; in other words the mercury stays *up* when the barometer tube goes *down*. In like manner the blood tends to remain stationary when the head is carried downward, and the result is virtually the same as it would be if the blood were forced upward into the head. This produces an unnatural pressure upon the blood-vessels of the brain, and nausea and vomiting follow. This view is confirmed by the fact that the nausea is most marked when the ship is descending.

The sickness induced by waltzing is to be explained in a similar way. In this case, the blood is forced up into the brain by centrifugal force, just as liquid tends to rise in a vessel that is whirled around rapidly. Swinging also sometimes causes nausea. The only rational way of averting sea-sickness, is given as follows by Sir James Anderson:—

The first point is wholly to avoid the upright posture. Every one knows that it is a common practice to lie down, and this is done almost instinctively, but it is also known that to do so, though frequently successful, is not invariably so. The way in which the motion in a swing affects the brain affords the proper explanation why lying down is not invariably successful; and shows that it is necessary, not only to take a recumbent position, but to lie in the right direction. A person lying down with the feet towards the bows of a ship is, while it descends in pitching, in the same position as a person in a swing descending forwards, in which case we have seen that sickness is produced by blood being forced upon the brain. On the contrary, a person lying down with his head towards the bows is, during the descent of the ship, in the position of one descending backwards in a swing, in which case the pressure by the blood will be towards the feet, and, therefore, relief rather than an inconvenience will be experienced, the tendency being to reduce the natural supply of blood to the brain. It is necessary, not only to lie down, but to do so with the head to the bows; and it is highly desirable that this position should be assumed before the ship begins to move. There is a secondary advantage to be gained by closing the eyes, and so shutting out the confusion arising from the movement of surrounding objects.

Consumption.—An English physician has written a book to prove that "consumption *always* originates from the breathing of prebreathed air;" and, though that may be putting it rather strongly, there can be no doubt that rebreathed air is one of the most fruitful sources of this and many other forms of disease.—Dr. Roux says that the French, by daily using copper cooking utensils, take copper enough into the system to render its detection in the blood an easy matter.

Snakes make sad work in India. Eight thousand persons die annually from snake-bites. In one province, nine hundred and thirty-nine cases are reported. Ammonia being freely administered, seven hundred and two cases were cured. In New Zealand the doctors find that a very much reduced quantity, introduced by injecting under the skin, is yet more successful.

How a Person May be Choaked.

All that we eat or drink passes over the top of the windpipe, without a particle ever entering it, although the opening is larger than a dime, because the very act of swallowing draws over the open top of it a fleshy trap-door, which fits so closely that not even a particle of air can pass; but at the instant of swallowing, it opens up with a spring, and we go on breathing as if nothing had happened; but if we attempt to swallow anything too large, this trap-door being at the narrowest part of the passage, is kept closed, not a particle of air can enter the lungs, and we die in a moment of suffocation, as in drowning or smothering.

If you chew a piece of dried beef for some time, there will be a white remnant left which there is no inclination to swallow; if it be taken and picked apart, it will appear to be made of little strings, tough and strong; these were attached to the more flesh-like parts, which were chewed and swallowed. If, in eating, a man has a sharp knife, and cuts his meat wholly in two, he may put two or three of those pieces in his mouth, and chew and swallow without danger; but if the knife is dull, does not divide the pieces wholly, two pieces may be tied together with one of these little strings, and while you have swallowed one part nearest the swallow, the other part may be near the teeth, and both held by the string, which holding the two parts together and hanging across the trap-door, prevents it opening, and death follows in an instant; hence the practical value of sharp knives at the dinner table.

A long hair in a mouthful of food may so entangel it in the act of swallowing as to cause a choaking to death; this is what is meant by being "strangled by a hair." "String beans" may occasion a choaking to death in the same way, if not carefully "strung." Hence all food should be cut fine; should be taken into the mouth in small pices, chewed thoroughly, swallowed deliberately.

Most readers have suffered considerable inconvenience from something "going the wrong way;" this is occasioned by a single drop of water, or atom of solid food, a crumb, or other thing slipping into the windpipe and falling down to the lungs, causing an instantaneous, spiteful, angry, dry cough; it is because nature was alarmed by an unnatural and unwelcome visitor, and takes this her only means of ejecting the intruder. If the particles is large or heavy, the surgeon must be called to cut open the windpipe and remove the substance.

A person cannot laugh or speak a word unless the top of the windpipe is uncovered; but if a laugh is provoked, or a word attempted to be spoken while in the act of swallowing, and just before the particle has fully passed the trap-door, it is raised a little, a drop or a crumb falls into it, and hence the mischief. Hence, in eating, do not attempt to speak until the "swallow" is clear.—*Hall's Journal of Health.*

How to Purify the Blood.

The stomach makes blood, and the lungs give life to the blood. If any individual has two gallons of blood in his body, and the food taken into the stomach makes one pint of blood in twenty-four hours, in sixteen days he would have new blood. The human body, consisting of bones, muscles, sinews, blood-vessels, organs of reproduction, nutrition, respiration, and of thought, etc., is constructed, nourished and sustained in accordance with certain laws common to organized beings. It is made up of the elements that surround us, such as animals, vegetables, and water. These substances, taken into the stomach, undergo the process of digestion, and the chyle, or nutritive portion, enters into the composition of the blood, and by this means is brought in contact with all parts of the system. Our bodies are always undergoing change, constantly wearing and wasting away, and constantly supplied and repaired by food, drink, and air; particles are displaced and thrown off, and new particles are deposited in their places, so that, by this gradual but constant exchange of particles, it is estimated that the soft parts of our bodies become entirely changed in the space of about one year, and our bones in seven years; hence, all the flesh of our bodies at the present time, will, in the course of one year, pass away, and, by the combination of new particles, its place will be supplied; and in seven years a like change will take place in bones, giving us entire a different body from our present.

Heart Disease.—Those ladies who suffer from the distracting grievance and disability of being treated too much as drawing-room pets, and shielded too carefully from the rougher blows of the battle of life, may possibly learn resignation, if they cannot derive complete consolation from some dry but significant researches which Dr. Quain has made. Enlargment of the heart, one of the most distressing and fatal diseases, is more than twice as frequent in males as in females, the precise proportion being eight to three. This remarkable liability to the enlargment of men's hearts, as compared with those of women, is, he thinks, unquestionably due to the greater amount of work and anxiety which, in the present dispensation, falls upon men. Ladies may take this fact to heart, and reflect whether, in claiming the rights of women, they may not at the same time incur the risks of men, and with them a new and unexpected form of disability. They might do wisely to rest content for their sex, with hearts suffering, it may be, from those tender affections which often pain, but never kill.—*British Medical Journal.*

Scientific Press.

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San Francisco:

Saturday Morning, June 22, 1872.

Gold and Legal Tender Rates.

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MISCELLANEOUS.—A Surface View; The Sutro Tunnel; Tne Generation of Petroleum; An old Invention Turned to Account; Wages of Mechanics in Europe, 390.

Tuolumne Reunion.

The ex-residents of Tuolumne county, held their fifth annual picnic and reunion on the 17th inet. at Badger's Park, Brooklyn, Alameda Co. Tbe aesociation comprises tbe residents and ex-reeidents of "Old Tuolumne" and was formed for the purpose of renewing the acquaintance and friendship formed in early daye, and keeping up the reminiecencee and memories of by-gone daye. Although Tuolumne was once one of the most populous counties in the State, the exhaustiou of her placer minee, caused a rapid decline in her prosperity, and the old reeidente are ecattered far and wide. Once a year they meet at eome appointed place to talk over old timee, and enjoy themselvee generally. Tbere wae a larger attendance at thie laet reunion than any of the previous onee, and of couree everybody had a fine time.

Tbe Preeident, W. G. Dinemore, of Oakland, called the aesociation to order, and after eome music by the Handel and Haydn Society, the Hon. H. P. Barber delivered the ueual oration. The Secretary C. E. McCueker read the namee of the officere, for the eneuing year who were unanimouely elected. Among them were Z. H. Cunningham of San Francieco, Preeident; L. P. McCarty, (Our Travelling Correspondent) Vice Preeident; O. E. McCusker Secretary and Treaeurer.

FLOOD.—The high water of the Gila river haa caueed a flood in Arizona City, A. T. The Colorado and Gila rivers were still rising fast when the news was sent. New river which has not run for aaveral years is, at New River Station, 70 miles west of Fort Yuma, now 100 feet wide and from fifteen to twenty feet deep. Stage lines are delayed, and ferry hoats long out of use have heen put in operation.

Academy of Sciences.

Tbe regular eemi-monthly meeting of the Academy wes beld on the 17th inet. Tbe Preeident, Profeesor Davidson, in the chair. Dr. J. B. Pigne Dupuytren, wes elected a member of the Acedemy. A number of pemphlets, etc., from the Smitheonien Institute at Washington were received and duly acknowledged. Several names were propoeed for membership to be acted on at the next meetiug. It was announced that the American Associetion for the Advancement of Science, which wee expected to meet in thie city in August, had notified the Academy that a chenge in the arraugemente had heen mede, and that they would meet in Dubuque, Iowa, inetead of here. A statement of the reaeons why this change was made will be found iu another column.

Death of Scientists.

R. E. C. Stearne announced the deeth of Edmund Ravenel, of Charleston, S. C. Robert Smith, of Philadelphia, who died at St. Thomas, W. I. Dr. Hubbard, of Long Island, N. Y., and Dr. William Stimeon, of Cbicago, who died at Ilchester, Md. Dr. Stearns read a paper on the life and services of the late Dr. Stimson, late Director of the Museum of the Chicago Academy of Sciences, and preeented a seriee of resolutions deploring hie loee, which were unanimously accepted. Professor Davideon presented a

California Boomerang,

From Samuel Shrewsbury, of Loe Angelee County, being one of two which tbat geutleman bad obtained from the Indiane there. The Indiane appeared to underetand their uee but these were all that have recently been found in their possession. The old recorde of Los Angeles however, contain references to the boomerang as an implement of warfare among the Indiane of that locality. The diecovery preeents an interesting subject suggesting communication between the North American eavages and the Australian nativee at eome former period. Prof. Davideon eaid that in a long experience on tbie Coast as far north as Alaska, tbat he had uever eeen them among the Indians.

The Inyo County Earthquake.

Professor Whitney, the State Geologist, being preeent was invited to relate his expèrience and observations of the earthquake region during his recent trip to Inyo county for the purpose of studying the effecte and cauees of the earthquake. The Professor stated that he had prepared a popular etatement of eartbquake theoriee, etc., which would appear in the next number of tbe *Overland Monthly*, and that the ecientific points he wonld bring before the Academy at a future meeting.

New Specimens.

R. E. C. Stearne presented a specimen with deecription of a new epecies of Siphonaria of California, which be called the *Siphonaria Brannani* from tbe beach of Santa Barbara Island; also epecimene of a new epeciee of Mangelia from Monterey Bay—called *Mangelia Interlirata*. He also presented a apecimen of the maguey plant, from which the Mexicans manufacture an intoxicating drink called *aguadiente*. Prepared fibre from tbe leaves of the plant accompanied it; the fibre ie white and etrong, and its adaptability to manufacturing purposes is only considered a questiou of time.

The Open Polar Sea Question

Was again epoken of by Professor Davidson, who eaid that he aud M. Pavy had had several conferences on the subject eince the discussion at the last meeting of the Academy. He preeented further evidencee to sustain his pointe in opposition to the the theories of M. Pavy, quoting from numeroue authorities.

Professor Davidson said that in studying up tbe Mint

System of Weighing,

Or what is called "croes-weighing," he fouud that it had been the custom to do it so that there was certain guess work about the reeults which left room for small errors on account of always aesuming the two arms of the levere of the balance to be equal. In investigating the matter he arrived at a way of determining the difference of two weights and the difference in the etatitical moments (length weight) of the heam and weights by cross weighing. He illustrated how it could be done with mathematical accuracy, by an example on the black-board showing the proper way to arrive at very preciee reeults.

Assay of Silver Bars in the East-Indian Mints.

According to the raport of the assayer of the Calcutta Mint, in the East-Indian Mints the silvar hara are aaaayed by determining the ailver as chloride. The cupellation asaay is not corract anough to satisfy the sellers and purchasers; the Guy Lussac assay is notuaed hecause most of the hullion contains quicksilver, laad, and other hase metals; because a previous cupallation aasay is required; bacausa the high tempararture of the climate causes an evaporation of the salt solution; and hecause a large number of persons would ba nacessary on account of the large daily numher of assays.

Under these circumstances, a process introduced hy Dodd, has heen used sinca 1852. By this, the precipitated silver chloride is collected, dried and weighed; 100 parts of chloride containa 75.3 parts of silver. We translate the details of the procesa from the *Berg. u. Hutt Zeitung*:

1. The assay aamples is taken by granulation.

2. The assay is weighed approximately in duplicate hy tha aaaistauts, and then axactly hy the assayers; 18.825 grains (1.22 grammas), corresponding to 25 grains of chlorida ara taken as unity. The weights for the chlorida are marked in thousands, to correapond to fineness. Thus, tha piace actnally weighing 25 graina, is atamped 1000; 10 grains, 400; 0.025 grains, 1; etc.

3. The assay is dissolved in 12-ounce pyramidal-ahaped bottles by means of 1½ drams (2.66 grammas) of nitric acid of 1200 ap. gr. for ailver holding copper only, and of 1320 sp. gr. for impurar bullion. The bottles ara heatad on a sand-bath until the silver commences to dissolva; then 6 oz. cold distilled water are added.

4. Tha chloride is precipitated by adding 1½ drama of hydrochloric acid (1060 sp. gr.) and tha closed bottla ramains quiet for 5 minutes, and then is shaken hy hand 3 or 4 minutes. Then the bottla is nearly filled with water and permitted to stand quiet for 4 hours.

5. The solution is removed by a siphon, nntil only ahout 1 inch remains over tha precipitata; tha bottle is again filled with watar and allowed to remain quiet for two hours. Only with mnch copper is a 3d or 4th washing necessary. The chloride must not stand too long after the second washing, lest it lose in weight, get very finely divided, and stick to the glaaa.

6. Tha flasks are emptied into stone ware crucihlas (1½ in. high), atanding in porcelain saucers, by closing the neck of the hottla with the finger, turning the hottla upsida down, and letting the contents fall into tha crucihle. The bottle is again filled with water, and tha remaining chloride emptied into tha crucihla in a aimilar manner. The lumps of chloride ara pressed in tha crucihle by glasa rods, and the crucihlas decanted.

7. From 10 to 150 crucibles are warmed for an hour in a watar-bath until the chloride aeparates from the sides of the crucible and bakes to a cake. Then they are heated to 150 deg. to 170 deg. C. in an air-hath, until the chloride is well-dried. Tha chloride is weighed while still warm.

8. The length of time required is ahout twenty-four honrs for a few assaya, and three days for a large numher. In the last case the ailver is weighed, dissolved, and precipitated on the firat day, washed on the second, and put in the crucihles, dried and waighed on the third. Generally eighty assays are made daily.

9. Influence of foreign suhstances. Gold remains with the ailver, and is reckoned as such, as in the cupellation assay. Quicksilver has no influence if excess of nitric acid is used, and a strong heat given when dissolving. Lead is removed hy repeated washing of the chloride.

IT is eetimated that China will be a market for American butter and cbeeee to the amount of 5,000 tons annually.

Full List of U. S. Patents Issued to Pacific Coast Inventors.

[FROM OFFICIAL REPORTS TO DEWEY & CO., U. S. AND FOREIGN PATENT AGENTS, AND PUBLISHERS OF THE SCIENTIFIC PRESS.]

FOR THE WEEK ENDING JUNE 4TH.

WATER WHEEL.—Walter Forward, Bettle Creek, Cel.

GANG PLOW.—David A. Manuel, Napa, Cal.

STENCH TRAP.—John Marquie, S. F., Cal.

TRACTION ENGINE.—Oliver A. Olmsted, Sebastopol, Cel.

MODE OF OPERATING ROCK DRILLS.—Ambroee Blatchley, S. F., Cal.

COMPOSITION POST FOR FENCES, TELEGRAPH POLES, ETC.—Johu L. Boone, S. F., Cal.

COMPOSITION RAILROAD TIE.—John L. Boone, S. F., Cal.

BUILDING BLOCK.—John L. Boone, S. F., Cal.

NEEDLE SETTER AND TWEEZER FOR SEWING MACHINES.—John C. Schlarbaum, San Jose, Cal.

REISSUE.

GOVERNOR.—Charlee P. Bowen, Silver City, Idaho Ter.—Patent No. 120,366, deted Oct. 31, 1871.

NOTE.—Copiee of U. S. and Foreign Patente furnished by DEWEY & Co., in the shortest time poeeible (by telegraph or otherwiee) at the lowest ratee. All patent business for Pacific coast inventore tranecacted with greater eecurity and in much leee time than hy any other agency

Notices of Recent Patents.

Among the patente recently obtained through Dewey & Co's SCIENTIFIC PRESS, American and Foreign Patent Agency, the following are worthy of mention:

PRESERVING IRON.—William H. Sterling, New York City, N. Y. Dr. Sterling, although a resident of New York City, hae been for a considerable time etopping in this city. Hie invention contemplates the permanent preeervation of iron. Thie he accomplishes by first heating the iron in vacuo, in order to expand it and open the poree, and then forcing some non-oxidizing or non-oxidizable eubetance into the interstitial and intercellular spacee of tbe iron, and then allowing the iron to cool. Thie thoroughly impregnatee the iron with a eubstance which will prevent it from rusting or deteriorating in any manner. Amongst numerous eubstances which can be ueed with the above result, the inventor especially mentions and etates his preference for paraffine. We regard this as one of the most valuable patente which hae ever been taken out by an inventor on this coast. Englaud has offered a large reward for any procese that will prevent iron from oxidizing, in order that their iron ehipe migbt be rendered proof againet the oxidizing effecte of salt water, which soon destroye their iron plating; and we hope that Dr. Sterling will be the fortunate one to receive it.

MAGNETIC INDICATOR.—Jacob Unna, San Francisco, Cal. This ie quite a novel and exceedingly intereeting arrangement of questions and answere, so arranged, that the device appeare to pereone unacquainted witb ite operation, to be operated by magic. Tbe indicator ie intended as a toy to be used both for amuaement aud instruction, ae it can be made to anewer any number or variety of questione in an entirely magical way. It consiets of a ehallow box provided with a glass cover. Below this cover an index finger ie euepended eo ae to vibrate freely in a circle. The euspenaion of this finger ie hidden by a circular card which covers the center of the cover, and outside of tbie card the glase ie also covered eo as to leave only an annular space tbrough which the motiou of the finger ie visible.

A circular card or disk, which may be provided with questions of geography, mathematics, or of any desired character, around its peripbery is placed upon tbe center card, and is eo constructed that a magnetic attraction will be exercised so ae to cauee the finger to immediately move around and point to the answer to the queetion propounded by tbe card. These answere being arranged on the outside of tbe annular transparent space. The Indicator never answere a question incorrectly, but ie a very interesting teacher, and is capable of teaching many valuable lessone even to old persons. A. Roman & Co., of this city, have purchaeed the entire right conferred by this patent, and will shortly introduce the Magnetic Indicator to the public, when we predict that they will meet with a ready sale.

PERSONAL.—Our friend, Prof. J. A. Whitney, late Editor of the *American Artizan*, New York, hae eatabliehed himeelf in the patent agency business at No 128 Broadway, in that city. Being a mechanical engineer, an expert in patent cases, and a gentleman of much editorial experience, we believe tbat inventors "on the other side" will be fortunate in securing his services whenever tbey need assietance in his profeseional line. Prof. W. is President of the New York Society of Practical Engineering, which eociety'e meetings have frequently been reported in the SCIENTIFIC PRESS. He takes an important part in the weekly discussione of the New York Farmers' Club, and first visited this Coast in 1870, with the delegation of Agricultural editors and ae a member of the committee from tbe Farmers' Club. We wish him the fullest success iu his new undertaking.

Burleigh Rock Drill and Air Compressor.

Since witnessing the effective operation of the Burleigh drill in the Hoosac Tunnel, in 1867, we have repeatedly noticed its performances in other places, anticipating its introduction into some of our large mines on this Coast. We have once illnstrated one form of the machine, bnt are now enabled to give, with other cuts, an engraving of its latest and most improved pattern. The editor of the *Engineering and Mining Journal*, of New York, who has had an opportunity of seeing a number of these machines at work; has given a full descriptive article under this head, and we can do no better than to qnote his language as follows:

The subject of rock drilling by machinery is one of the greatest importance in these days of railroad and canal building, of magnificent tunnels and extensive mining operations.

While the appliances for handling and transporting largo masses of solid rock are many of them of ancient date, the machinery adapted to rock drilling is of very recent origin, though it has already reached a great degree of perfection, as is evidenced by the fact that so many great works are now being prosecuted by the use of pneumatic rock drills.

The Burleigh Patent Pneumatic Rock Drill is a machine designed for tunnelling, mining, quarrying, and sub-marine drilling, which combines the advantages of simplicity of construction, great strength of parts, compactness and lightness, weighing from 200 to 1,000 lbs., according to size, and designed for drilling holes from ¾ to 5 inches in diameter.

It is convenient, easily handled, and not liable to get out of repair, and is in every respect the most practical drilling machine ever invented. It will drill from two to six inches per minute, according to the hardness of the rock. The drill-points used with the machine will make TEN times greater advance at each sharpening than when nsed in the ordinary manner, by hand and sledge. This is proved hy records kept at the Hoosac Tunnel, where these machines have heen in constant use, night snd day, for the last five years. This machine is so constructed that the piston bar is the only part of the machine which receivcs the shock resulting from the hlow upon the rock. This piston har, to which the drill point is directly attached, is made from a solid bar of cast steel. With a pressure of 50 pounds to the sqnare inch, the drill strikes the rock from 250 to 300 blows per minute. The machine is provided with an automatic feed and rotating device, hy means of which the drill is partially rotated at each stroke, and advanced toward the rock as required. The machines vary in size from 38 inches in length, and cross section of 12x6½ inches, to 105 inches in length, and cross section of 15x13 inches, and will feed forward without change of drill-points, from 19 to 54 inches, according to size of machine. By changing drill-points, auy depth required may he drilled. The machine can he operated either hy steam or compressed air. In tunnels and deep shafts the air is preferable, as it serves the douhle purpose of power and ventilation. The compressed air or steam is conveyed to the machine by means of a flexible pipe or tube, which is easily removed when hlasting. The machine will drill equally well at any angle of direction.

Some of the largest works in this country are being prosecuted by these drills; such as the Hoosac Tunnel in Mass., the Nesquehoning in Pa., (just completed,) the Lewis Tunnel in Va.—aud several large tunnels in Colorado. We are informed that several of the hest copper mines in the Lake Superior region do their entire drilling with these machines. The gigantic work of driving 13 tunnels uuder the reef at Hell Gate, New York harbor, which Maj. Gen. Newton is so successfully prosecuting, is heing done largely hy the use of 10 of tbese drills. They are also employed for suh-marine drilling in some of the harhors of the Atlantic and the Lakes.

Fig. I. reproseuts one of the drills mounted on a very simple device, an iron tripod, which answers for surface, shaft and open cut work. For quarries a simple frame on wheels is often used, without any disadvantage.

Fig. I.

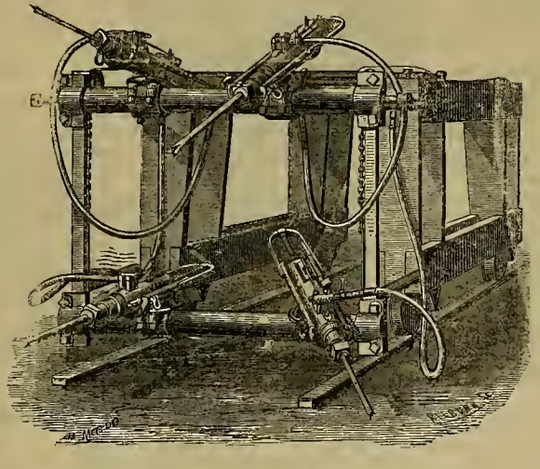
THE BURLEIGH DRILL.

Fig. II. rcpresents the drills as mounted for work at the tunnels at Hell Gate.

This carrisge is constructed of wood and iron, and runs upon iron wheels.

It has jack screws to raise it from the wheels during the drilling, and is held in place by screws running out from the end of the upper har, or from the frame to the roof of the tunnel. A tunnel 8 feet in hight, and from 10 to 16 feet wide, can be constructed hy the usc of this carriage.

Fig. II.



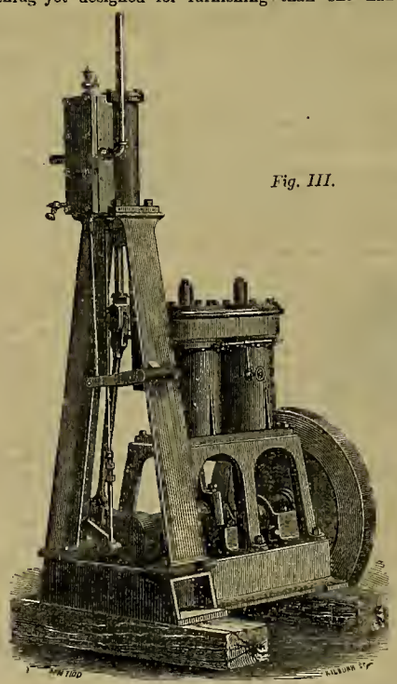
TUNNEL DRILLS.

For smaller drifts a similsr form of carriage is used, consisting of an upright har, standing upon a platform on wheels. Upon this bar a movahle nut and clamp secures the drill and allows of its adjustment to any required position for drilling.

Fig. III. represents the Burleigh Air Compressor used for driving the drills in tunnels, there being five such machines at work at Hell Gate.

It consists of a steam engine connecting by means of a crank shaft with two single-acting air-pumps. It is compactly built, and said to he the hest thiug yet designed for furnishing the "air motor" for the many uses it is now heing put to.

Fig. III.



BURLEIGH AIR COMPRESSOR.

Thirteen (13) of the lsrgest size of these machines are now running night and day to supply the requisite pressure of air in the immense caisson of the New York Bridge Company, now being sunk at Peck Slip, and fifteen (15) of them are at use at Hoosac Tunnel.

The Yellow Jacket Silver Mining Company, at Gold Hill, have recently introduced one of the Burleigh Air Compressors, (second size,) which is giving the most perfect satisfaction. It is running two of the Burleigh Mining Drills in the 1,460 ft. level, with great success. It is also running a No. 3 Knowles Pump at the foo of the slope, and situated 2,000 feet from the Compressor, lifting a two-inch column of water 200 feet vertically. In addition to this, the air exhausted from the machines furnishes the best of ventilation.

It is claimed for this Compressor that it will deliver a much larger quantity of air per minute than any other requiring an equal amount of power to run it.

We understand that several others of the companies on the Comstock Lode are contemplating the employment of these Compressors for hoisting and pumping, as well as driving pneumatic drilling machines.

Parties interested in Rock Drilling hy machinery are referred to our advertising columns for the name and address of the manufacturers, who can douhtless furnish further information.

Mining Accidents.

Thomas Bright, 21 years of age, was killed in the Lloyd claim last week. The San Andreas *Citizen* says he had just run the underground car to the hottom of the shaft to fill the hoisting tuh, and as the tuh ascended the shaft the pin came out of the friction wheel and the tub falling eight or ten feet on his head, killed him instantly.

A miner named Martin was caved on and killed, in the Taylor Hill claims on the East Branch on the 4th inst. The Quincy *National* ssys, that the other men who were with him, on going hack to work after carrying the body to the house, discovered that the whole side of the hill had slid into the cut, and had not the first accident happened the whole company wonld undouhtedly have heen killed. This makes the fourth man killed in these claims this Spring.

A sad accident is recorded in the Mountain *Democrat* of the 15th inst., as having occurred at the Crystal mine nesr Brownsville, El Dorado county, on the 12th inst. In the mine a tunnel entirely perforates the hill or ridge, and the maiu shaft passes through this tunnel, the hoisting whim being on top of the hill, over the tunuel. Miss Edith Richardson aged about 17 years, daughter of the owner of the mine, was visiting it with some of her friends and in going through the tunnel leading the way with a candle, she fell down the shaft, a distance of 170 feet, killing her instantly. She hsd frequently been through the tunnel hut it is prohahle that she came to the shaft sooner than she had expected to.

A man named Welsh was hlown up and killed, at the Spring Valley Mill, on the 8th inst. So says tho Gold Hill *News*.

THE Reno *State Journal*, ssys Mr. Solomon Lingle, mining in the Peavine district, had his leg broken hy a falling rock last week.

A. L. Roltz of El Dorado, Montana, fell from a bank on to the point of a crowhar, and received serious injuries, on the 5th inst.

The Deer Lodge *Independent* says a miner called "Dutch Henry," was severely hurt by a cave on Pilgrim's Bar, on the 5th inst.

By an accident in the Jackson mine, at Eureka Nev., on the 17th, Jos. Holhrook was instantly killed and Jno. Franklin was hadly cut and bruised. In descending the shaft the whim suddenly became inoperativo and they were precipitated rapidly to the bottom, 120 feet. Franklin began to climh the rope and thus saved his life. The other was killed. A shower of rain had wet the pulley, and caused the ropeto slip.

A miner named Thos. Frakes was cousiderahly hruised during the fire at the Amador mine last week. While heing lowered down the shaft, the fire broke out, and the engineer was compelled by the heat to abandon his post. When Frakes was almost half way down the shaft, the ropes ran off the drum, letting the cage fall to the hottom, a dispatch says a distance of 600 feet. He was hadly hut not seriously hurt, hut how he escaped with his life, sfter such a fsll is a miracle. He was the only one hurt during the fire.

L. E. Vowel was caved on and killed in a hydraulic claim on Spruce Bar, Montana, recently.

Frederick Behrman was crushed to death in a cave in Poormans Gulch, about 7 miles from Mokelumme Hill, Calaveras county, on the 7th inst.

DOMESTIC ECONOMY.

Cooking and Health.

The *Health* always and very often the *Life*, especially of invalids and those who have weak and infirm stomachs, depend upon the care and skill of the cook. Our forefatbers were so sensible of this that in days of yore no man of consequence thougbt of making a day's journey without taking his "*magister coquorum*" with him.

In order to acquire health, beauty, strength and spirits, we need nourishing food; and we will further say that we do not acquire those faculties or conditions of the mind and body, because our digestive apparatus gets out of order by reason of the indigestible nature of the food crowded into it. The greater part of the truly nutritive and digestible food is spoiled in the cooking, and so rendered unhealthy.

It is the business of the cook to know wbat is to be cooked and how to cook it—and to do this well it is not necessary to understand anatomy, chemistry, or botauy, auy more than it is necessary to study astronomy to ascertain why the bread comes out heavy, the roast baked to einders or flabbily underdone. Vigilance and precision are tbe indispensible requisites of cooking well.

Recipes for *blanc mange*, custards, etc., and the endless and useless collection of puerile playthiugs for tbe palates, are scrupulously exact, even to a grain in the ingredient, while in substantials everything is done at random. For instance: a bit of this, a handful of that, a pinch of of t'otber, do 'em over with an egg, and a eprinkle of salt, a dust of flour, a shake of pepper, a squeeze of lemon or a dash of vinegar, etc. Seaeon it to the palate (meaning the cook's) in another way of expressing it. The palate may become dull by repeated tastings, and the best way to refresb it is to eat an apple or wash the mouth well in milk. The power of the nervous papillæ of the tongue becomes exhausted and therefore the cook should call in weight and measures so as to preserve the organ of taste for great occasions and new compositions.

It is true that a combination of certain colors is pleasing to the eye, while that of others is disagreeable; so an association of certain savors is pleasing to the taete and grateful to the stomach while others prove disagreeable and cause a revolt in tbe digestive apparatus; thus yellow and violet, green and roee produce an agreeable effect, hut hlue loeee its shade when mixed with green; so sugar is miscible with sweet, sour or hitter food; but not with salt; a proper uuion should therefore he studied. It is likewiso necessary to know that the organs of taste aro distrihuted in different places iu the mouth. *Piquant* food, for example, is felt principally on the sides of the tongue; cinnamon specially stimulates the end of the samo member; tbe ardor of pepper is experienced ahout the middle of the tongue, aud hitter substances affect the base, while spirituous substances seek the palate and the cheeks. The samo may be said of substances sapid in tbe throat and others in the stomach.

Bearing these peculiarities in mind, the cook will be able to form combinations without being monotonous, and accommodate the most difficult taste.

Again, in order that the cook may encourage the macbinery of mastication, food must not only be well cooked but put on the table iu the neatest and most elegant manner. The good opinion of the eye is the first step towards awakening the appetite. Decoration is much more rationally employed in rendering a wholesome, nutritions dish inviting, tban ie the elaborate embellishments whicb are crowded about trifles sucb as custards, cakes, etc. How often do we ece monumental pastry heautiful to the eye but no more digestive than a tombstone, of which it is strikingly suggestive. Better to behold a glorious leg of mutton or roast of heef surrounded with edible ornaments, the demolitiou of which gives joy to the stomach and recreation to the palate—unlike the disagreeable sensations experienced by devouring gypsum pastry fortifications.

Food to be eaten in perfection must be put into the mouth immediately after being cooked —anything *overdone* cannot he meuded; but if a little *underdone*, the stewpan, gridiron or oven even will rectify the mistake. If *overdone* the best juicee of meat are evaporated, and will serve morely to disteud the stomach, and if the sensation of hunger be removed, it will he at the price of an indigestion. The cbief husiuess of eooking heing to render food easy of digestion and to facilitate nutrition, the ouly way to accomplisb it is by plain cookery in perfection—*i. e.* neither *over* nor *underdone*.

How often before diuner is announced and everything in apple-pie order, all becomes lukewarm, and to complete our mortificatiou, the meat is put on a sheet of ice in the shape of a plate, which instantly converts the gravy iuto jelly, and tbe fat iuto a something which puzzles the teeth and the roof of the mouth as if we had bird lime to masticate, requiriug the stomach of an ostrich or a clay eater to digest.

Unless you bave prime provisions you cannot cook well. Be not therefore a *bargain hunter* and trot "around, around, aronnd ahout" a market until trapped into buying somo unchewablo old poultry, tough mutton, stringy cow heef or stale fish at a very little less thau the price of prime and proper food. Many there are, however, wbo with *savings* like these toddle home in triumph, eackling all the way like a goose that bas got ankle deep into good luck. *Ohio Farmer.*

How to Make Hoe-Cakes.—A correepondent of the *Country Gentleman*—says the term "Hoe-Cakes" originated in Virginia, the cakes being baked hy negroes on boes in front of wood fires, the hoes supported hy hricks. Iu Maryland and Rbode Island they are called johnny or journey cakes, and baked on the centre portion of a harrel head, wet previous to baking to prevent sticking to the hoard when turning the cakes; as common wood fires havo become nearly obselete, they may be baked by heing enclosed within an oyster-broiling gridiron, set over fire coals on or outside a stove, avoiding smoke or hlaze. For a single cake, three half piuts *yellow* Indian meal, two eggs, salt to taste, half to a teaspoonful of yeast powder, and a handful of cracklings (refuse of rendered lard) boiled till soft. Lard will do about as well. Work and mix well and to the consisteney of thick paste. Cakes half inch tbick. Serve up on a warm dish, butter generously on the inside.

If any one should think the above is too "rough and ready," try the following: Pour over a quart of Indian meal boiling water, add some lard and a little salt, spread it over a board with a knife, tuck on the bottom of the hoard an iron hoop (ledge) and a handle hehind the board to keep it in position.

Cucumber Salads.—A lady correspondent of *Hearth and Home* says: "We have just prepared our winter's supply of cucumber salad, and this is bow we madc it: There were ahout a dozen ripe "White Spine" cucumbers lying on their vines, and these we picked, washed, pared, cut into strips, taking out the seods, and then to each dozen eucumhers—wbich we cut up into pieces like small dice—we put twelve large white onions, ehopped, six large green peppers, also chopped, one quarter pound each of hlack and white mustard seed, aud a gill of celery seed. These were all mixed together, a teacup of salt added, and they were then hung in a cotton bag to drain twenty-four hours. Then the salad, with enough clear cold vinegar added to cover it, was pnt into stone jars and fastened nearly air tigbt. In six weeks it will be fit for use. It looks as well as it tastes, so white and crisp, and makes an elegant salad for a joint of cold meat. It is not like the Spanish salad, that requires 'a counsellor for salt, a miser for vinegar, a spendthrift for oil, and a madman to stir it up,' but it is quite as good in its way, and not very troublesome to make."

Home-Made Yeast.—Daisy Eyebright, iu the *Country Gentleman*, recommends tbe following: "Boil two handfuls of hops, tied in a small bag, in six quarts of water; slice thin six large potatoes, and boil them with tho bops; when they are soft, skim them out and mash perfectly fine; add to them ono and a balf pints of wheat flour stirred to a smooth hatter with cold water; turn over the whole the boiling hop liquor, first taking out the bag and squeezing it dry; then hang it aside to nse another time, for it will mako two batches of yeast. Stir into this mixturo two tablespoonfuls of sugar, one of ginger and one of salt. When milk-warm, add a teacupful of yeast, set in a warm place to rise, and it will be ready to put into a jug by tho next moruing. Keep in a cool cellar or icebousc, aud it will last good for eix weeks or more. Always shake the jug before using any of its contents. A teacupful of tbis yeast will mako three loaves of bread and a pan of rolls. I shall surely try the recipes of Southern corn meal, which I always uso in preference to the yellow meal.

Oranges.—A writer in tbe Boston *Journal* gives an accouut of winter living in Florida, from which tbis is an extract:—"We get up in the morning and eat a few oranges, by way of preparing an appetite for breakfast. Mrs. M. and L. take theirs in their rooms; I take mine under the trees. After breakfast, which usually consists of fifteen dishes, more or less, oftener more, we go out for a walk. We usually begin under an orange trec; always end there. There are 30,000 of the trees, which accounts for it. At diuner we have oranges again. They constitute the sixtb course, eacb having from one to thirty dishes. If they are not on the table we ask for them. We have never had to ask for them yet. They are both cooked and uncooked, skins both on and off. After diuuer we eat orangee under the trees. I forgot all about lunch. One day I counted eighteen dishes and two negroes; we had orangee, and had them again in the afternoon.".

Graham Bread.—There is but one way only to make Graham bread, viz:—Obtain first-class flour and make it precisely in the same manner as wbeaten bread, with bakers' yeast. It is the most natural and wholesome of all breads. Some people fancy that with the addition of soda, molasses, steaming, etc., it becomes more palatable. This is all bosh; for the manner in which it is generally made renders it by no means healthy or digestible, while *au contraire*, the simpler it is prepared the botter, like all other food. I bave used it according to the above plau for twenty years, only varying from the same when traveling, and then have been compelled, at hotels, to worry down trasb, yclept Graham hread, made out of villainous compouuds and prepared, no doubt, according to some of the "precious" recipes occasionally appearing in various newspapers.— *Moore's Rural.*

The Olive.—There is no more wholesome or palatable oil for cooking than genuinc sweet olive oil. It might well superoede in a great measure the use of hutter and lard. In Italy and other parts of Europe, and cspecially in the East, it is used in eooking to the exclusion of almost everything else of this nature. The fruit, too, is coming into more general use in the different modes of pickling. Tbe taste for olives is usually not a natural one, but when formed it becomes very decided, and the fruit is perhaps the most wholesome pickle that can be used.

Egg Plants, or Vegetable Eggs—Are used in tbeir green state—that is, while the seeds are soft aud white. Tbey will do as soon as they are large enough; but economy suggests that they be full size hefore pulliug. Pare off the outside rind, cut arouud in slices one-quarter of an incb in thickness. Have on a dish equal portions of salt and pepper, wbich must he rubbed with the fingers on to each side of the slices; then roll in flour and fry ou a buttered griddle. When brown on hoth sides they will be soft and ready to eat while hot. They make a nice breakfast dish, and are a substitute for meat.—*Moore's Rural.*

To Clean Lamp Chimneys.—When you wisb to clean a lamp ehimney, hold a linen cloth against one end of the chimney and place the other end in your moutb; breatbe in it until it is covered inside with moisture, push the cloth into the chimney with a smooth slender stick, and rub it around until the moisture is ahsorbed; repeat the process and breathe over the outer surface also; rub tbis with a cloth until dry, and you have a clean, bright chimney. Soft newspaper will take the placo of a linen cloth. Do uot use cotton clotb on any glassware.

To Boil Eggs.—Who does not know how? Yet how few people know the way to boil them iu order to retain all their delicious flavor. Allow me to tell you my method:—I put one half dozen eggs into a tin pail, and pour about two quarts of boiling water overtbem; then set the pail on the heartb, where the heat is not kept up, and let them remain for six or ten minutes, according as we like them cooked, bard or rare. By eo cooking the white is always tender and delicioue. Try it.

Selected Recipes.

Salad Dressing.—Take the yolk of oue fresb egg and mix witb it two tablespoonfule of olive oil very slowly, add one and one-half spoonfuls of mustard, three spoonfuls of salt, a little pepper, and last of all two epoonfuls of viuegar. Boat the white of the egg to a stiff froth, and lightly stir in.

Apple Float.—One pint of stewed apples; when cold sweeten and flavor to taste. Just as you want to send to table, and the beaten whitee of four egge, lightly stirred into it. With cream this makes a nice dessert.

Apples stewed for sauce should be pared, cored and put into cold water until they are ready to be cooked, to keep them from discoloring. Add a little water, puttiug them in a porcelain kettle or stew-pan. Cover them, and let them cook gently.

Very Fine Doughnuts.—Half a teacup of hutter or lard, 1 teacup of sugar, 1 teacup of sweet milk, 4 eggs, 1 teaspoonful of extract of lemon, or allspice and cloves if proferred, saleratus and cream of tartar.

English Buns.—One pound of flour, ¼ pound of sugar, some cinnamon, ½ pint of rising; rub them all togetber, and mix them with milk, four or five drops of pearlash. Wash them after they are baked with sugar and water.

Spanish Buns.—One and one-quartor pounds of flour, ½ pound of butter, ½ pound of sugar 4 eggs, 1 glass of brandy, wine and rose water mixed, some currants and a ¼ pin of rieing. Rub tbe flour, butter, sugar and ciunamon well together, then add the other ingredients, beat all well together, and stir in enough milk to make it a proper batter. Bake them in tins.

Jelly from Gelatine.—One ounce and a half of gelatine put over nigbt into a pint of cold water, with tbe rinds and juice of three lemons. Next morning add a pint of hoiliug water, half a pint of sherry, the whites and shells of three eggs, and sweeten to your taste. Boil the whole ten minutes, and strain through a jelly-bag. This will make a quart of jelly. Bo sure not to stir tho mixture after it is placed on the fire. It is excellent.

Milk or Cream Gravy.—One quart milk, 3 tablespoonfuls corn starcb, made into a smooth batter with rich milk or cream. Boil the milk and pour in the batter, stirring all the wbile. Let it boil two or three minutes, remove from the fire, and stir in immediately a well-beaten egg. This dressing is used for haked potatoes.

Excellent Crackers.—To fourteen cups of flour, add one cup of lard, two teaspoonfnls of soda, four of cream tartar. Rub the ingredients well into flour, then add three cups of water, work thoroughly and bake quick.

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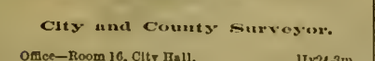
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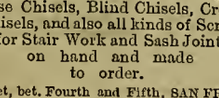
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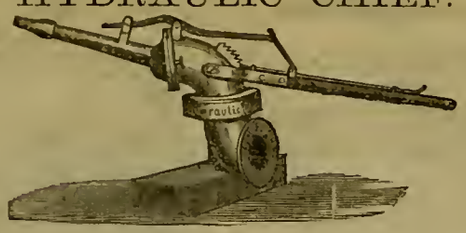
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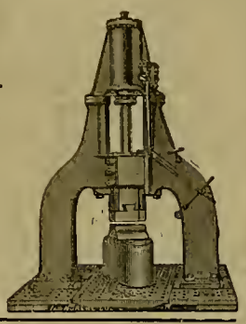

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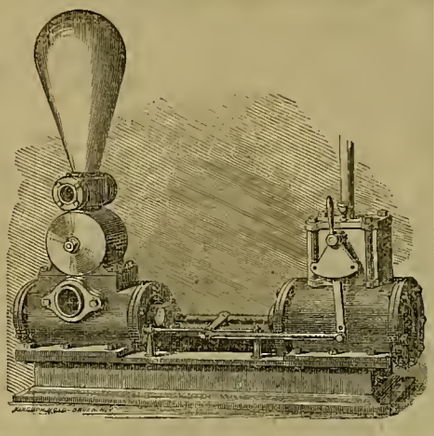
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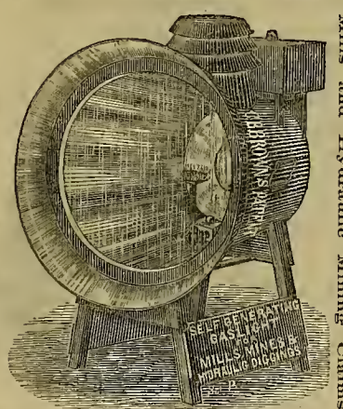
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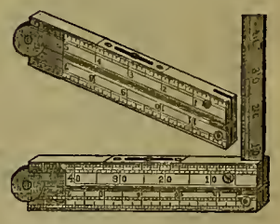
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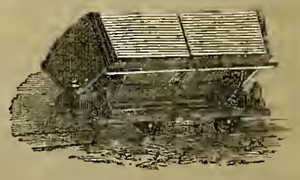
By this invention, one man, with one horse and five cars, does the work of ten men, ten horses and ten carts.
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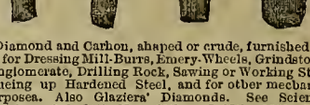
DICKINSON'S
Patent Shaped Diamond Carbon-Points.
Fig. 1 Fig. 2 Fig. 3 Fig. 4

Diamond and Carbon, shaped or crude, furnished and set for Dressing Mill-Burrs, Emery-Wheels, Grindstones, Conglomerate, Drilling Rock, Sawing or Working Stone, Tracing up Hardened Steel, and for other mechanical purposes. Also Glaziers' Diamonds. See Scientific American, July 24th, Nov. 20th and 27th, 1869; Engineering and Mining Journal, Jan. 17th, 1871; Journal of the Franklin Institute, Philadelphia, June, 1870. For Circulars descriptive, and Prices, send stamp to
1v24-6m J. DICKINSON, 64 Nassau St., N. Y.

An Inventor Going Eastward.

Mr. George Pardy, of this city, well known as a Mechanical Engineer and Draughtsman, and late Secretary of the Mechanics' Institute, has given up his practice as Engineer and Patent Solicitor, and gone to the Eastern States to introduce his patented system for detecting spurious holders of non-transferable admission tickets to various kinds of audiences and entertainments.

His system of making characters upon the face of tickets when sold, indicating the age, hight, complexion, hair, whiskers, etc., of the purchaser, is a very simple one, and so conveniently efficient, that some $5,000 or more was saved to the Mechanics' Institute of this city, by its use in one season. Over $2,500 it is conceded, was saved by the use of Mr. Pardy's patent tickets at the last State Fair. Believing that its use in other States will be similarly useful, we hope Mr. Pardy will be successful in introducing his invention in the East.

We have received the following note from Mr. Pardy, just before leaving, on Monday last, with the request that we should state that his address, for the present, will be at Harrisburg, Pa.

San Francisco, June 17th, 1872.

Messrs. Dewey & Co., *Gentlemen*:—I have to thank you for kindly consenting to adjust what Patent business may remain unfinished in my hands, at date of my departure for the East. I would also take this occasion to refer my late clients to your firm, as able and trustworthy solicitors, fully prepared to prosecute Patent applications, both here and in Europe.

Very truly yours, George Pardy.

Fires.—A fire started at 2 o'clock A. M. on the 13th inst. in the storehouse of the Amador Mining Co., Sutter Creek, which totally destroyed the storehouse, timber house, blacksmith shop and hoisting works over both the north and middle shafts, and thence into the mine by the north shaft, the same which was burned out by the fire two years since. For a short time it was thought that the fire would get into the lower workings but by well directed efforts it was extinguished. The Superintendent, Mr. Steinberger had all the entrances to the mine closed, after the men had come ont of the south shaft, and the fire was checked, only one man was hurt and he not seriously. The machinery and hoisting apparatus was all comparatively new; preparations have already been made to have the mine in running order again immediately. The Amador *Dispatch* roughly estimates the loss at not less than $100,000. It is not known at the present writing how badly the shaft ie injured. The fire is said to have been caused by some one going into the store room with a lighted candle and letting it accidently come in contact with a Giant Powder box.

A fire broke out on the night of the 16th inst. in King's Hotel, Mineral Hill, Nevada, by which nearly all the business portion of the town was destroyed. The loss was quite heavy.

The Paul Process.—We call the attention of quartz miners to the statement, in our advertising columns, of the Snperintendent of the Calaveras Mining Co., respecting his test of the Paul Process. The result is reliable, and really remarkable. In the face of such certificates as Mr. Paul has from time to time presented to the readers of the Press, we can scarcely doubt the declarations of Panl's ability to increase the yield of our California gold mines from 50 to 100 per cent.

New Incorporations.

The following have filed certificates with the County Clerk, San Francisco.

Baltic S. M. Co.—June 13. Location: Ely District, Nevada. Capital Stock, $2,000,000, in 20,000 shares. Trustees—P. J. White, John C Ballinger, G. Atkinson, Douglas W. Davies, and Stephen G. Worden.

Victoria and Imperial Tunnel and M. Co.—June 13. Location: Little Cottonwood District, Utah. Capital Stock, $3,000,000, in 30,000 shares. Trustees—Charles A. Washburn, S. A. Raymond, S. A. Coburn, Jos. B. Bidleman, and H. G. Livermore.

San Francisco Tunnel and M. Co.—Juue 17. Location: Enreka District, Nevada. Capital stock $500,000, in 50,000 shares. Trustees—Homer S. King, Henry Epstein and S. Heydenfeldt.

McMahon S. M. Co.—June 18: Schell Creek District, Nev. Capital stock, $3,000,000, in 30,000 shares. Trnstees—O. F. Griffin, G. T. Lawton, Coll. Deane, F. R. Hayes and J. H. H. Williams.

Increase of Capital Stock.

The Tecumeeh G. and S. M. Co. have filed a certificate of increase of Capital Stock from $153,500, in 614 shares to $3,000,000 in $30,000 shares.

Julia G. and S. M. Co. filed a certificate of increase of Capital Stock on the 17th from $1,000,000, in 10,000 sharee to $3,000,000 in 30,000 shares.

The Adriatic G. and S. M. Co., also filed a certificate of increase of Capital Stock on the eame day, to $2,700,000 in 27,000 shares.

Meetings and Elections.

The Ohio Consolidated Mining Company have elected as Trustees, W. G. Wayman, (President), J. J. Birge, Benjamin Dore, D. McDonald and A. Bateman; W. A. Knapp was elected Secretary.

The Independeut Coal Mining Co. met on the 17th inst. and elected the following Trustees for the ensuing year: A. Block, S. Steinert, H. Levy, H. Epstein and E. L. Goldstein.

The Victoria and Imperial Mining Co. Trustees have elected the following as officers: C. A. Washburn, President; J. B. Bidleman, Vice-President; Wm. H. Watson, Secretary and Treasurer, S. A. Coburn Superintendent.

The City Railroad Company have elected the following Directors: R. B. Woodward (President and Treasnrer), A. J. Glading (Vice-President), M. P. Jones, Jos. H. Moore, Isaac Hyde, E. Dewitt (Snperintendent) and Richard Kent, M. E. Willis wae elected Secretary.

The Alpha Consolidated Mining Company have elected the following Trustees: J. D. Fry, W. M. Lent, L. Gerstle, H. C. Kibbe and A. K. P. Harmon.

The Hidden Treasnre Consolidated Mining Company have elected as Trusteee, S. Linkton, B. F. Sherwood, F. G. Smith. J. K, S. Latham and M. C. Hillyer.

The Silver Wave Mining Company have elected the following Trustees: J. E. Perkins (President), S. B. Boswell, L. A. Booth, Thos. Flint and W. P. Prichard; J. W. Clark wae chosen Secretary.

Mining Discoveries.—Rich silver mines are reported as having been discovered in the madison Range, on the ridge between Elk and Cherry Creek, Montana. Some of the ore has assayed abont $225 per ton.

The Santa Fé *Post* records the discovery of extensive deposits of coal on the pre-emption lands of Rencher & Co., iu the vicinity of Galisteo, about 20 miles from Sant Fé. It is a bituminous coal, very free from enlphur, aud has been sufficiently tested for house and blacksmith purposes, to prove it of excellent quality for both these purposes.

A large and promising vein of yellow sulphuret and carbonate of copper ore has recently been discovered about 5 miles from Cañon City, Colorado.

Croppings of bituminuous coal are reported as having been found along the shore of the Golden Gate, between Point Bonita and Lime Point.

Another ledge of cinnabar ore has been found in Sonoma Co., Cal., about four miles from the Geyeers, in the same range of mountains in which the Knox aud Redington mine, in Napa Co., is located. Prospecting is "lively" in that locality.

Mining Sales.—A dispatch dated, Eureka, June 17th, says, that another heavy mining eale to English capitalists has just been made. The Bullwhacker, Dunderberg, Lord Byron, El Dorado, and Tecoma, are among the mines purchased. Extensive reduction works are to be erected by the company. A private letter from D. Andrews, Postmaster at Buel, Elko Co., Nev., informs us that the Tecoma, mentioned above, has been sold to W. H. Aspinwall, and others of New York, for $150,000. We presume he refers to the same sale.

The Quincy *National* says, that Thos. Robson has sold a one-sixteenth interest in the Buckeye claim for $2,500.

A Worthless Patent Made Good.

Washington City Branch of
Dewey & Co.'s "Scientific Press" Patent Agency.
Washington, D. C., May 28, 1872.

Messrs Dewey & Co.—*Gentlemen*:—We are particularly pleased to announce our success, to-day, with John E. Ball's reissue "Elevator." We went over the case carefully, with the Examiner; and the result of the interview was, the case passed for issue without altering a word. By devoting a half hour's time to this case, and arguing the points involved with the Examiner, we have converted what was a worthless patent into a valnable one. We congratulate our client. Yours truly,

A. H. & R. K. Evans.

We are constantly succeeding with cases like the above, originally issued through other agencies, or takers out by experienced inventors themselves.

D. & Co.

A NEW BOOK ON MINING.

The Explorers', Miners' and Metallurgists' Companion; Comprising a Practical Exposition of the Various Departments of Exploration, Mining, Engineering, Assaying, and Metallurgy. The Most Practical and Comprehensive Work on Mining Subjects Extant. Comprising 640 Pages, and 81 Engravings. By J. S. Phillips, M. E. Price, bound in cloth, $10 (in coin); in leather, $12. Forwarded by mail, in cloth, $11.40, currency; in leather, $13.75. Issued and for sale by Dewey & Co., Patent Agents and Publishers Scientific Press, S. F.

State University.—The next term of the Prspara tory Department will begin April 20th, 1872.

The course of study embraces the Ancient and the Modern Languages and the higher Mathematics, and is specially adapted to the University curriculum.

Terms, $12 a term. GEORGE TAIT, Oakland.
13v3bp-tf

RICHARD H. BUEL, Consulting Mechanical Engineer, 7 Warren Street, New York. Advice and assistance given to those who desire to invest funds in meritorious and valuable Patent Rights. Machinery of all kinds bought and sold. Unusual facilities for testing engines, boilers and other machinery. I refer particularly to Professor R. H. Thurston, of the Stevens Institute of Technology, who has consented to associate himself with me in consultation on matters of special importance.
jun15-3t

THE NEW U. S. MINING LAWS.

The new Laws of 1872, governing the location and purchase of Placer and Quartz Mines, and Agricultural Lands in Mining Districts, of the U. S., printed in circular sheet, for sale at this office. Single copies 10 cts. Usual discount to the trads.

---

50 CENTS A COPY

Will be paid at this office for a few copies of the Scientific Press of January 7, 1871. Subscribers having broken files on hand will please examine and see if they cannot accommodate.

Philadelphia Agency.—W. H. Daffin, formerly of San Francisco, is our correspondent and business agent, Frankford, Philadelphia, Pa.

H. Baelen & Bro., formerly of Havilah, Kern county, will please communicate with this office.

Continental Life Insurance Co., 302 Montgomery street, corner of Pine.

If you want pictures or fine frames, cheap, send to Sanborn, Vail & Co., 31 Kearny street, S. F. 18v24-3m

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MINERAL ASSAYER AND METALLURGIST,

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The experience of over twenty years, specially devoted to the preparation of this article, has enabled the proprietors to effect a combination of lubricants calculated to reduce the friction on axles, and thus

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Far beyond the reach of any who have but recently gone into the business; and as the H & L AXLE GREASE can be obtained by consumers at as

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Among the advantages they have over glass are, that being susceptible of the HIGHEST POLISH, they transmit more rays of light, nothing having more transparency.

They are COOLER to the Eyes—a very important gain.

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The best quality of Crystal is found in Scotland and the Brazils, and is manufactured into lenses by the best workmen in England and France, for

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Persons sending their Spectacles can have Pebbles inserted of the same grade as their glasses.

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MINERS AND TUNNEL MEN are reminded that we are in constant supply of the old and popular brand of

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Cincinnati "Star" Adamantine Candles, the best and cheapest in the market, affording the most light for the least money, and in every particular sustaining their reputation as the leading candle of the U. S. For sale in lots to suit by

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WARNER & SILSBY

Manufacture all sizes of

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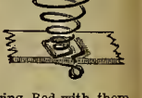

Which they offer to the trade at reduced prices; also the celebrated Obermann Self-Fastening Bed Spring.

Any man can make his own Spring Bed with them by attaching them to the slats of any bedstead.

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PORTABLE ENGINES, TURBINE WATER WHEELS, Wood and Iron Labor-Saving Machinery, Hardware, Belting, Lacing, Packing, and a general stock of Engineers', Miners', Farmers' and Mechanics' Tools and Mill Supplies.

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Purchasers please say advertised in Scientific Press.

Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the Scientific Press we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

Alleghany Consolidated Gold Mining Company.

—Location of Worke: Allegbany, Sierra County, Cal.

Notice.—There are delinquent upon the following described stock, on account of assessment (No. 11) levied on the twenty-sixth day of April, A. D. 1872, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No Certificate.	No. Shares.	Am't.
J. J. Roche	4	15	$ 3.00
Geo. Treat	54	500	100.00
Geo. Treat	58	35	7.00

And in accordance with law, and an order of the Board of Trustees, made on the 26th day of April, 1872, so many shares of each parcel of said stock as may be necessary, will be sold at public auction at the office of the Company, Room 37, New Merchants' Exchange, California street, San Francisco, California, on the 24th day of June, 1872, at the hour of 12 o'clock M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

J. M. BUFFINGTON, Secretary.

Office, Room 37, New Merchants' Exchange, California street, San Francisco, California. June 8—3t

Eagle Quicksilver Mining Company---Location

of works, Santa Barbara County, California.

Notice is hereby given that at a meeting of the Board of Trustees of said company, held on the 8th day of May, 1872, an assessment of $40 per share was levied upon the mines of said company, payable immediately in gold coin of the United States, to the Secretary at his office, room 5, No. 302 Montgomery street, San Francisco, California.

Any shares upon which said assessment shall remain unpaid, on Thursday, July 11th, 1872, shall be deemed delinquent, and will be duly advertised on Saturday, July 13th, 1872, for sale at public auction, and unless payment shall be made before will be sold on Monday, the 15th day of July, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. WM. H. WATSON, Secretary.

Office—Room 5. No. 302 Montgomery street, San Francisco California. ma11.

Excelsior Mill Mining Company—Location

of works, Copo Mining District, Elko county, State of Nevada.

Notice is hereby given, that at a meeting of the Trustees of said Company, held on the 20th day of June, A. D., 1872, an assessment of Two Dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, No, 415 Montgomery street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on Saturday, the 27th day of July, A. D., 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 19th day of August, A. D., 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. FRANK SWIFT, Secretary.

Office, No. 415 Montgomery street, San Francisco, Cal. Jun22-3t

Hudson Gold Mining Company—Location

of works, Cherokee Mining District, Plumas county, State of California.

Notice is hereby given, that a meeting of the Trustees of said Company, held on the 18th day of June, A. D., 1872, an assessment of Ten Cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, No. 411 California street. Any stock upon which said assessment shall remain unpaid on Saturday, the 27th day of July, A. D., 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the 17th day of August, A. D., 1872, to pay the delinquent assessment, together with costs of advertising and expenses of the sale.

J. L. KING, Secretary.

Office, 411 California street. Jun22-3t

Lyons & Wheeler Mining Company—Location

of works, Maynard Mining District, Mohave County, Arizona Territory.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 18th day of May, 1872, an assessment of Ten Cents per share was levied upon the capital stock of said Company, payable immediately, in United States coin, to the Secretary, at the office of the company, Room 3, No. 419 California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on Monday, the 24th day of June, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 15th day of July, 1872, to pay the delinquent assessment, together with the costs of advertising and expenses of sale. By order of the Board of Trustees. T. W. COLBURN, Secretary.

Office, Room 3, No. 419 California street, San Francisco, California my25-td

Mina Rica Mining Company—Location of

Works, Auburn Mining District, Placer County, Cal.

There are delinquent upon the fol owing described stock, on account of assessment levied May 8th, 1872, the several amounts set opposite the names of the respective shareholders, as follows:

Name.	No. Certificate.	Shares.	Amount.
Slosson, R. D.	7	550	$110

And in accordance with law, and an order of the Board of Trustees, made on the 8th day of May, 1872, so many shares of each parcel of stock, as may be necessary, will be sold at public auction, at the office of the Company, No. 320 California street, room No. 5, San Francisco, California, on Monday, the first day of July, 1872, at two o'clock, P. M., of that day, to pay said delinquent assessments thereon, together with cost of advertising and expenses of sale.

Jun15-3t GEO. R. SPINNEY, Secretary.

San Francisco, June 13, 1872.

"Pacific Ramie Company"—Notice Is

berehy given, that at a meeting of the Board of Trustees of said company, held on the 11th day of June, A. D., 1872, an assessment of Twenty Cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary at his office, No. 214 Battery street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 13th day of July, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless paymcnt shall be made before, will be sold on Thursday, August 9th, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. THOS. R. HAYES, Secretary. jun22-td

Stockholders' Meeting—Office of the

Hardy Coal Mining Company, San Francisco, June 4, 1872

In accordance with a resolution adopted at a meeting of the Trustees of the Hardy Coal Mining Company, held this day, a special meeting of the stockholders of said company is hereby called, the same to be held at the office of the company, 328 Montgomery street, San Francisco, California, on Tuesday, the 9th day of July, at 11 o'clock A. M., to take into consideration and decide upon the proposition to increase the capital stock of the said company, from two hundred thousand dollars, divided into four hundred shares of five hundred dollars each, the present capital stock of the company, to five hundred thousand dollars, divided into five thousand shares of one hundred dollars each.

L. BARTLETT, EDWARD McLEAN, JACOB HARDY, } Trustees

"HOADLEY."

TREADWELL & CO.,
SAN FRANCISCO,
Are the only Agents for Sale of these Engines in the Pacific States.

"THE HOADLEY"

Is the perfection of the Portable Engine. They are known throughout the Pacific States, and are justly noted for their Efficiency and Perfect Workmanship. We have them with and without wheels, and take pride in commending them as

Threshing Engines,

In which field they have long led all others—and for general use. Beware of Cheap-made Imitations, with their boilers imperfectly stayed, and made of second quality material. Better take a "HOADLEY" at double the price, and know your Life and Property are secure. No man who values either, can afford to buy any other, as hundreds can testify throughout California. Ask any man who has a Hoadley Engine, what he thinks of it.

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The Paul Process

UNRIVALLED!

A Square, Practical Test.

The Process more than Doubles the Yield!

$58.44 per ton by the Paul Process;

$23.33 per ton by the old way.

YIELD IN GROSS:

$1,139.70—from 19½ Tons by Paul Procees.
420.21—from 18 Tone by Old Way.

If 20 Tons can be Worked, why cannot 20,000 Tons?

The long sought-for Secret discovered and secured by Five Letters Patent.

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CALAVERAS GOLN MINE, Washington Mining District, Calaveras County, California, June 13, 1872.

ALMARIN B. PAUL:—Dear Sir: The result of working 19½ tone of our ore by your Process wae at the rate of $58.44 per ton. A eimilar quantity of same ore, worked by the wet battery, ae a teet, gave only at the rate of $23.33 per ton.

I will here add that I entertain no doubt of your Procees saving *at least* 50 per cent. *more* than hattery working on *any ore*, and in sulphureted ores a much higher percentage. Yours reepectfully,

WM. M. DONNELL,
Superintendent Calaveras Gold Mining Co.

THE PAUL PROCESS,—Ae long ae ores have heen worked, a great lose, it ie admitted, still occurs in the present mode of reduction; and if Mr. Paul has fonnd the philoeopher's stone for saving it—and it really looke as though he had—it will open a bright future for the Pacific Statee, and inaugurate a new era in mining throughout the world. Not only is the Procese new, but most of the machinery adapted to it invented and patented by Mr. Paul. The Process poeseeeee the remarkable quality of being adapted to hoth silver and gold; it ie eaid to be lese expensive than pan working, and but a trifle more expeneive than our present system, as used in California.—*S. F. Chronicle.*

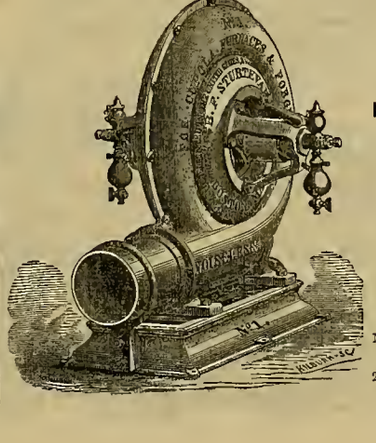
TO THE MINING INTEREST.

I offer my services to the mining community for the overcoming, by my Procese, of all difficultiee connected with the amalgamation of a high percentage of the precione metals from milling ores, and assert my ability to increaee the yield of California gold mills from 50 to 100 per cent. above that now obtained by Battery, Copper-plate and Blanket working—the finer the gold, the higher the per cent. produced—and in pan working on eilver ores (nnroasted) from 20 to 200 per cent., according to combination of metals, and in no case have bullion less than 950 fine.

The Procees and machinery is plain and practical, and appeale to the common sense of experienced miners.

I offer it at reasonable pricee, having a desire to make it a public henefit, ae well ae an individual one. Pamphlets can be had, free of expense, on receipt of addrese, or application to

ALMARIN B. PAUL,
318 California St., Room No. 1,
SAN FRANCISCO.



STURTEVANT'S

PRESSURE BLOWERS,

For Cupola, Furnaces, Forges, Etc.

Ventilating Mines, Carrying off Dirt, Etc.

Send for Circular Price List.

TREADWELL & CO.,

Selling Agents,

MARKET, HEAD OF FRONT STREET,

25v24eow SAN FRANCISCO.

Woodland Gold Mining Company—Location

of works, West Point Mining District, Calaveras County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 21st day of May, 1872, an assessment of 12½ cents per share wse levied npon the capital stock of said company, payahle immediately, in United Statee gold coin, to the Secretary, at the office of the company, Room 64, Merchants' Exchange, California street, San Francisco, California. Any stock npon which said assessment shall remain unpaid on the 25th day of June, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and nnless paymeut shall be made before, will be sold on Tuesday, the 16th day of July, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. F. MADGE, Secretary.

Office, No. 64 Merchants' Exchange, California street, San Francesco, California. may25-td

Important to Miners.

FREY'S IMPROVEMENT ON

Evans' Under Current and Sluices,

For Saving Fine Gold and Floating Quicksilver.

For particulars address
WATERS & CO., Assayers, Agents,
NO. 54 J STREET, SACRAMENTO.
16v24-3m

Endless Chain Elevator,

FOR RAISING WATER FROM WELLS.

BALL & CRARY, Patenteee.

The inventor claims that bie ELEVATOR excele any other apparatus that has ever been brought before the public for the purpose of raising water from welle. Its chief merits are: First—The water is obtained from the well in a purer and colder state, for the reason that it is drawn from near the bottom. Second—It ie operated with the least difficulty, particularly in lifting a certain amount of water from any depth in a given time, as compared with any other mode. Third—It obviates all necessity for going down into the well in putting in the machinery, or for repairing the same, as auch labor can be performed at the surface. Fourth—It can be easily taken out of one well and transferred to another. Fifth—It is less liable to get out of repair—but when repairs are necessary they can be easily made by any one; the action made by the Endless Chain and buckets keepe the well properly ventilated; there is no possibility for the person operating it [nor for a child] to fall into the well.

For circulars and particulars address

JOHN A. BALL,
20v24awbp1m Grass Valley, Nevada Co., Cal.

FOR SALE.

A 10-STAMP QUARTZ MILL,

Known as the Montezuma Mill, in Montezuma Dietrict, Nye County, Nevada.

All in running order, with Pans, Belting, Furnaces, etc. In a good locality for custom work. The mill can remain or he removed.

THIS PROPERTY CAN BE BOUGHT AT

A LOW FIGURE.

Inquire of R. T. VAN NORDEN,
607 Montgomery street, San Francisco.
24v24-tf

To Parties About Building.

A person who is competent to prepare plans and take charge of the construction of Dwellings, Mills, Bridges, or other architectural improvements, will make favorable engagements with persons or corporations in the city or the interior. Has had full experience on this coast, and can insure good satisfaction. Address

EDW. W. TIFFT,
6-v24-8a No. 626 Jessie street, San Francisco

For Steam Pipes & Boilers **Hair Felting**

SAVES 25 PER CENT. OF FUEL—An item worth looking after. Also, Steam Governors, Tube Scrapers, Steam Pumps, Self-Oilers, Cylinder Cups, Belting, Lacing, Hose, Fuse, Packing, etc., including all kinds Miners', Engineers' and Millmen's Supplies, at the Machinery and Supply Depot of TREADWELL & CO.; old stand, Market street, head of Front, San Francisco.
13v24eow

$1,000 REWARD! For any case of Blind, Bleeding, Itching, or Ulcerated Piles that Dr Bishop's Pile Remedy fails to cure. It is prepared expressly to cure the Piles and nothing else. Sold by all Druggists. Price $1.00.

O. F. RICHARDS & Co., Agents, corner Clay and Sansome streets, San Francisco, Cal.

PURCHASERS please say advertised in SCIENTIFIC PRESS.

Machinists and Foundries.

ESTABLISHED 1851.

PACIFIC IRON WORKS,

First and Fremont streets,

SAN FRANCISCO

IRA P. RANKIN, A. P. BRAYTON,
GEO. W. FOGG, Superintendent.

Steam Engines and Boilers,

MARINE AND STATIONARY,

IRON AND BRASS CASTINGS

Mining Machinery of Every Description,

And all other classes of work generally done at first-class establishments, manufactured by us at the lowest prices, and of the best quality.

☞ Particular attention paid to Jobbing Work and Repairs.

N. B.—Sole Agents for sale of HUNTOON'S CELEBRATED PATENT GOVERNOR.

18v20-3m GODDARD & CO.

FULTON
Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.

E. corner of Tehama and Fremont streets, above Howard street, San Francisco. 3-qy

GEORGE T. PRACY,
MACHINE WORKS,

109 and 111 Mission Street,

SAN FRANCISCO.

These Works have lately been increased, by additional Tools, and we are now able to turn out any kind of work, equal to and cheaper than any establishment in the State; that is to say:—

STEAM ENGINES,

Flour and Saw Mills,

QUARTZ MACHINERY

Printing Presses,

AND MACHINERY MADE OF EVERY DESCRIPTION.

Improved Safety Store Hoists,

Fitted with Cutting's Patent Cams, unequaled for safety, convenience and cheapness. This Hoist can be built for about half the price of any other in use. To be seen at HAWLEY & CO.'s.

ALSO, MANUFACTURER AND SOLE AGENT FOR

Pracy's Celebrated Governor.

TURNING LATHES, Etc., constantly on hand.

4v23tf

UNION IRON WORKS,

Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

STEAM ENGINES, BOILERS,

CROSS' PATENT BOILER FEEDER AND SEDIMENT COLLECTOR

WILCOX'S PATENT WATER LIFTERS,

Dunbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders.

And all kinds of Mining Machinery.

Front Street, between N and O streets,

SACRAMENTO CITY

PACIFIC
Rolling Mill Company,

SAN FRANCISCO, CAL.

Established for the Manufacture of

RAILROAD AND OTHER IRON

—AND—

Every Variety of Shafting,

Embracing ALL SIZES of

Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames

—ALSO—

HAMMERED IRON

Of every description and size.

☞ Orders addressed to PACIFIC ROLLING MILL COMPANY Post Office, San Francisco, Cal., will receive prompt attention

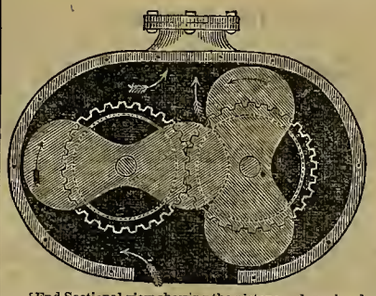
☞ The highest price paid for Scrap Iron 9v143m

ROOT'S PATENT FORCE BLAST ROTARY BLOWER,

MANUFACTURED AT THE

GLOBE IRON WORKS,

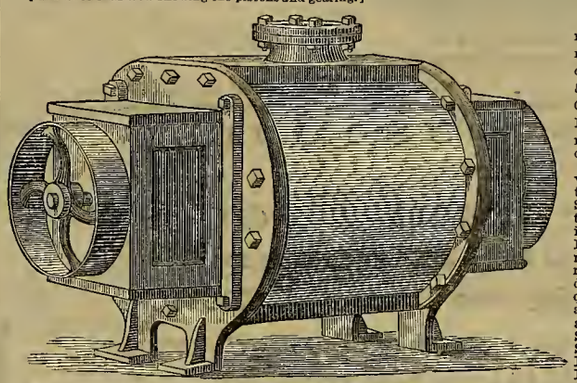
Stockton, Cal.



[End Sectional view showing the pistons and gearing.]

Awarded the First Premium at the Paris Exposition.—Patented November 1, 1864; July 24, 1866; and October 9, 1866.

Adapted for Smelting, Foundry, Mining and Steamships. Requires 50 Per Cent. less power than any Blower now in use.



One of these Blowers may be seen at W. T. Garratt & Co.'s Brass Foundry, San Francisco; Gould & Curry and Savage S. M. Co.'s, Nevada; and at C. P. R. R. Co.'s Works, Sacramento; and other places on this coast.

CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article. Quartz, Saw and Grist Mill, Iron, Stationary and Steamboat Engines, Horse-Power and Pumps, of all Sizes.

For Circulars and further information, Address

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CAMERON'S

STEAM PUMPS.

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Engine Regulators,

GIFFARD'S

INJECTORS.

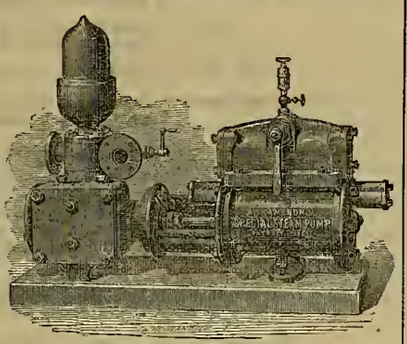
BARTOL'S

STEAM TRAP.

Surface Condensers.

DAVID STODDART,

114 BEALE STREET, S. F.



San Francisco Boiler Works, 123 and 125 Beale Street, San Francisco.

F. I. CURRY (late Foreman of the Vulcan Iron Works), Proprietor.

High and Low Pressure

BOILERS

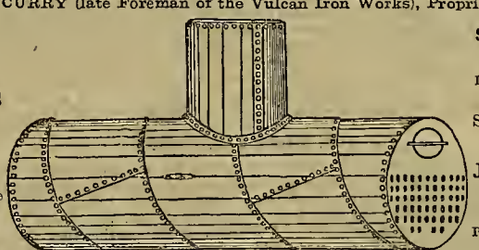
of all descriptions.

SOLE

Manufacturers of the

CELEBRATED

SPIRAL BOILER.



Sheet Iron Work of every DESCRIPTION done at the Shortest Notice.

All kinds of

JOBBING

and

Repairing

Promptly Attended to.

22v22-3m

THE RISDON
Iron and Locomotive Works.

INCORPORATED.....APRIL 30, 1863.
CAPITAL.....$1,000,000.

LOCATION OF WORKS:
Corner of Beale and Howard Streets,
SAN FRANCISCO.

Manufacturers of Steam Engines, Quartz and Flour Mill Machinery, Steam Boilers (Marine, Locomotive and Stationary), Marine Engines (High and Low Pressure). All kinds of light and heavy Castings at lowest prices. Cams and Tappets, with chilled faces, guaranteed 40 per cent. more durable than ordinary iron.

Directors:

Wm. Alvord,	C. J. Brenham,	C. E. McLane,
Wm. Norris,	Wm. H. Taylor,	Lloyd Tevis,
	James D. Walker.	

WM. H. TAYLOR.....President.
C. E. McLANE.....Vice President.
JOSEPH MOORE.....Superintendent.
LEWIS R. MEAD.....Secretary.

24v17-qy

OCCIDENTAL FOUNDRY,

137 and 139 First st., near the Gas Works, San Francisco.

STEIGER & BOLAND,

IRON FOUNDERS.

IRON CASTINGS of all descriptions at short notice.

NOTICE.—Particular attention paid to the making of Superior Shoes and Dies. 3v24-3m

Miners' Foundry and Machine Works,

CO-OPERATIVE,

First Street, bet. Howard and Folsom, SAN FRANCISCO.

Machinery and Castings of all kinds.

COPARTNERSHIP NOTICE.

We have this day admitted Mr. William R. Eckart as a member of our firm, the business of which will be hereafter conducted under the firm name of Prescott, Scheidel & Co. PRESCOTT & SCHEIDEL.

Marysville, Jan. 6, 1872.

MARYSVILLE FOUNDRY.

Referring to the above, we respectfully solicit the patronage which has for the past twenty years been enjoyed by our predecessors, pledging our best attention to the wants of all who may so favor us.

Quartz and Amalgamating Machinery,

SAW AND GRIST MILLS,

STEAM ENGINES,

HYDRAULIC MACHINES,

HOUSE FRONTS, ETC.

Repairs upon all kinds of machinery promptly made and at moderate charges. Having unrivalled facilities, we are prepared to make to order, at short notice, everything required in our line.

Specimens of our work may be seen in all the mining regions on this coast.

5v24-3m PRESCOTT, SCHEIDEL & CO.

CALIFORNIA BRASS FOUNDRY,

No. 125 First street, opposite Minna,

SAN FRANCISCO.

ALL KINDS of Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch

☞ PRICES MODERATE. ☜

J. H. WEED V. KINGWELL.

H. J. BOOTH & CO.,
UNION IRON WORKS,

(The Oldest and most Extensive Foundry on the Pacific Coast).

Cor. First and Mission Sts.,

SAN FRANCISCO.

Marine, Locomotive and Stationary Engines Quartz Crushing and Amalgamating Machines, Mill Irons and Brass and Iron Castings, of every description, made to order.

Steamboat Repairing, Boiler Making, Turning and Finishing,

EXECUTED WITH DISPATCH.

Beet Sugar Machinery complete in every part—made a specialty.

OIL MACHINERY.

A complete set of Machinery of our own design and patent for extracting oil from Castor Bean, dispensing with Hair Cloth. Also Machinery for Flax Seed Oil, Mustard Seed Oil, and Sun Flower Seed Oil.

MARBLE MACHINERY

For sawing Marble of any thickness or size.

Irrigating Pumps. Steam Pumps.

Plans, Estimates, and Advice promptly supplied.

H. J. BOOTH. GEO. W. PRESCOTT. IRVING M. SCOTT

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OSCAR LEWIS. S. S. MORRILL.

CITY IRON WORKS,

23 Fremont street.....SAN FRANCISCO.

LEWIS & MORRILL,

Manufacturers of all kinds of Architectural and Ornamental Iron Work,

LAUNDRY MACHINERY, STEAM ENGINES, ETC.

Agricultural Work and all kinds of Blacksmithing and Jobbing done with promptness and at reasonable prices. Orders from the country promptly executed.

22v24-3m

SAN FRANCISCO

SCREW BOLT WORKS,

PHELPS BROTHERS, Proprietors,

MANUFACTURERS OF ALL KINDS OF

Machine Bolts, Bridge Bolts, and Ship or Band Bolts.

13 and 15 Drumm Street, San Francisco. 4v24ly

THOMPSON BROTHERS,
EUREKA FOUNDRY,

129 and 131 Beale street, between Mission and Howard, San Francisco.

LIGHT AND HEAVY CASTINGS,

of every description, manufactured 24v16qr

FERRACUTE MACHINE WORKS,

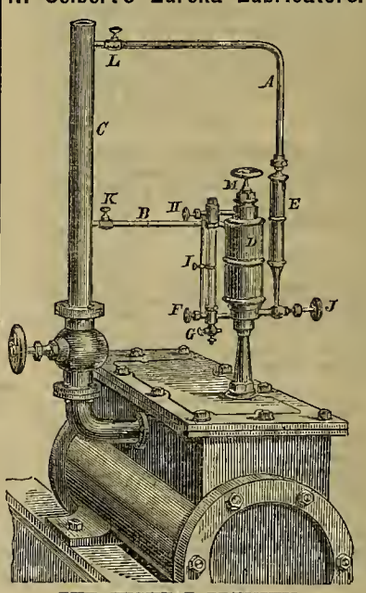
Bridgeton, N. J.

PRESSES, DIES and all FRUIT CANNERS TOOLS a specialty.

Improved 3-lb. Can Press for $65; Rotary Solder Cutter, $15, etc. 13v24-13t

Machinery.

N. Seibert's Eureka Lubricators.



THE HIGHEST PREMIUM

Awarded by the Mechanics' Institute Fair, San Francisco, and State Fair, Sacramento, 1871.

These Lubricators are acknowledged by all engineers to be superior to any they have ever used; feed constantly by pressure of condensed water, supplied by pipe A, regulated under the oil by valve J, and forced out through check valve and pipe B into the steam pipe C; it then becomes greasy steam, passes to all the valves and cylinder at every stroke of the engine; glass tube I indicates amount used per hour. Packing on rods and stems lasts longer, and the rings on the piston will not corrode. One pint of oil will last from three to six days, according to speed and size of engine; I, sliding gauge; K, valve to shut off when engine stopps; H, F, valves to shut off in case of frost; steam does not enter the cup; it is always cool; warranted to give satisfaction. Patented February 14, 1871. Manufactured by California Brass Works, 125 First street, S. F. 24v23tf

PACIFIC BRIDGE COMPANY,

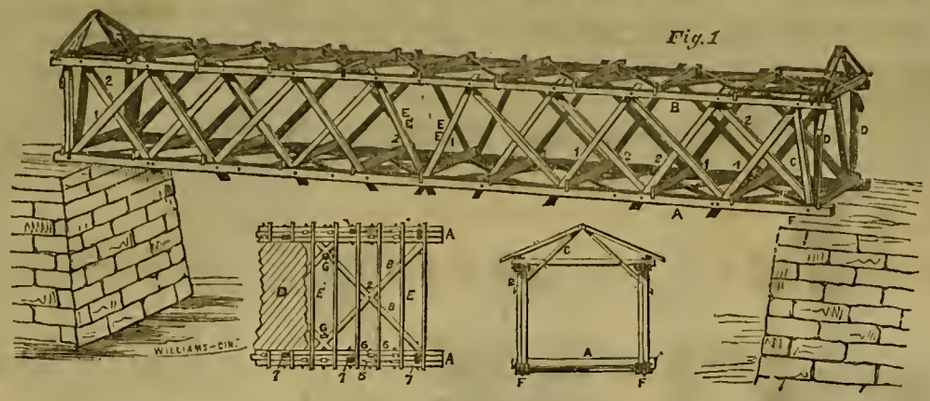


Fig. 1

WORKS NEAR SOUTH POINT MILL, BERRY STREET, SAN FRANCISCO, CAL.

Are Prepared, with Superior Machinery, to Manufacture and Build all kinds of Bridges on Smith's, Howe's, and other Improved Plans. Framing of all kinds done by Machinery.

The Smith Bridges have been thoroughly tested in the East for Three Years, and wherever tried have proved superior to any other Bridge in the following points:

Being built of wood entirely, they are not affected by change of temperature.

The timber used is placed so directly in the line of strain, that less material is required to support the same load.

It is not perceptibly affected by shrinkage. It is the most Economical Bridge built. It is adapted to any practicable LENGTH OF SPAN.

Plans, Specifications and Terms will be sent to any County, Township or Person wishing to build a Bridge, and no charge made unless the Plan is used. For all Public Bridges the Plan will always be open to competition.

Smith's celebrated CAST IRON PIER, economical, and adapted to heavy currents, built at low rates.

C. H. GORRILL, Secretary. **W. H. GORRILL, President.**

THEODORE KALLENBERG,
MACHINIST,

and Maker of Models for Inventors. All kinds of Dies, Stamps and Punches made. Also, all kinds of Small Gears Cut.

Repairing done on very Reasonable Terms and in the best manner. No. 32 Fremont street, S. F. 19v23-3m

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WM. M. BETTS & BROTHER,
CARRIAGE SPRING WORKS,
218 Fremont street, bet. Howard and Folsom, SAN FRANCISCO.

LOCOMOTIVE, CAR,

And all kinds of Carriage and Wagon Springs made to Order and Warranted.
3v24-3m

PACIFIC STONE COMPANY.

Ransome's Patents,

For which Commissioners for the International Exhibition of 1862 awarded the Prize Medal, and Gold Medal at the Mechanics' Institute Fair, 1871, of San Francisco.

REMOVAL.

This Company have removed from the corner of Turk and Larkin streets, to their new and Commodious works corner of Greenwich and Octavia. They have established an office and salesyard at the Junction of Market and Bush, where they will keep constantly on hand an assortment of ORNAMENTAL, BUILDING, CEMETERY and GRINDSTONES. Orders will be received at the above office from all who wish to get good work at low prices. Send for Circular. 5v24-3amslamrly

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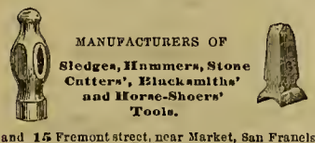
NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel.



MANUFACTURERS OF

Sledges, Hammers, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools.

18 and 15 Fremont street, near Market, San Francisco. 10v15ar

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QUICKSILVER.

QUICKSILVER FOR SALE, IN LOTS TO SUIT,

—BY—

C. J. BRENHAM,
23v24-tf 217 Sansome street, S. F.

J. M. STOCKMAN,
Manufacturer of
PATTERNS AND MODELS,
(Over W. T. Garratt's Brass Foundry).

N. W. corner Natoma and Fremont streets, S. F. Entrance on Natoma street. 6v23-3m

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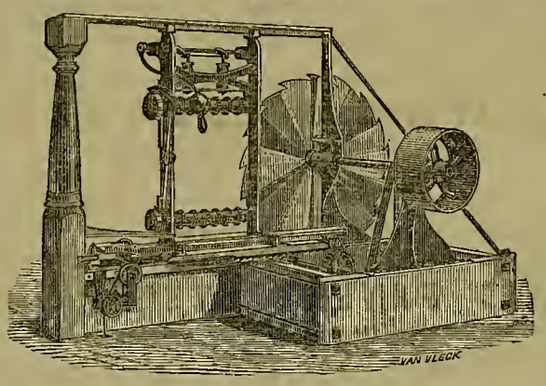
Huntington's Improved Shingle Machine.

PATENTED DECEMBER 7, 1870.

MANUFACTURED AND FOR SALE BY
F. A. HUNTINGTON,
Nos. 18 and 20 Fremont Street, SAN FRANCISCO.



FOR SIMPLICITY, DURABILITY AND RAPIDITY OF action, these Machines have no equal, cutting from 3,500 to 4,000 per hour. They are now used by all the principal Millmen on the Pacific Coast.

These Machines are in use at the Mills owned by the following parties: Macpherson & Wetherbee, San Francisco; Popo & Talbot, San Francisco; Hanson & Co., Redwood City; Rico & Haliburton, Woodside; S. P. Pharis, Woodside; Harrington & Co., Pescadero; Burch & Co., Pescadero; A. Saunders, Point Arena.

Steam Engines, Sawmills, Planing, Lath and Picket Machines, etc., made to order, at short notice.

3v24-1am-6m **F. A. HUNTINGTON**, 18 and 20 Fremont street, San Francisco.

Varney's Patent Amalgamator.

These Machines Stand Unrivaled.

For rapidity pulverizing and amalgamating ores, they have no equal. No effort has been, or will be spared, to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the apperture and between the grinding surfaces.—Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Setlers made on the same principle excel all others They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill-men are invited to examine these pans and setlers for themselves, at the office, 229 Fremont Street, San Francisco.

Notice is hereby given, that the copartnership heretofore existing between A. J. Severance, Charles W. Randall and J. Gus. Burt, under the firm name of "Severance, Holt & Co.," is this day dissolved by mutual consent. A. J. Severance, having purchased all the interest of his late partners, will continue the business of manufacturing and selling Diamond Drills, as before, under the style of A. J. Severance & Co.

Dated San Francisco, Nov. 24, 1871.

Office, 315 California street. A. J. SEVERANCE, CHAS. H. RANDALL, J. GUS. BURT.

22-v23-tf

California File Manuf'g Co.

Potrero, Solano street, bet. Tennessee and Minnesota streets, SAN FRANCISCO.

Manufacturers of New Files.

Old Files re-cut and warranted equal to new.

REAPER AND MOWER SECTIONS, BARS AND KNIVES COMPLETE,

at a saving of 50 per cent. Orders from the country promptly attended to. 9v19-1y

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☞ BUY BARBER'S BIT BRACE. ☜

WOOD WORKING MACHINERY

MOLDING, MORTISING, TENONING AND SHAPING MACHINES,
BAND SAWS, SCROLL SAWS,
Planing & Matching
MACHINES, ETC.,

For RAILROAD, CAR, and AGRICULTURAL SHOPS, Etc., Etc.

☞ Superior to any in use

J. A. FAY & CO.,
14v24-6m CINCINNATI, OHIO.

POWER, TAINTER & CO.,

MANUFACTURERS OF

WOOD-WORKING MACHINERY,

3003 Chestnut street (West end Chestnut street Bridge) PHILADELPHIA.

☞ Woodworth Planers a Specialty. 2v23-1y

The Hesse Grinder and Amalgamator.

BEST IN USE!

Especially well adapted for the Reduction of Sulphuret Ores.

LORD & PETERS, Agents,
304 Battery street, San Francisco, Cal.

☞ Send for Circular. 13v24 3m

CALDWELL'S

Improved Stop Governor,

Manufactured at the CYCLOPS MACHINE WORKS, 113 and 115 Beale street, San Francisco.

3v24-3m WM. CALDWELL.

Metallurgy and Ores.

RODGERS, MEYER & CO.,
COMMISSION MERCHANTS,

ADVANCES MADE

On all kinds of Ores, and particular attention PAID TO CONSIGNMENTS OF GOODS.
4v16-3m

LOUIS FALKENAU,
STATE ASSAYER,
Analytical and Consulting Chemist,
421 Montgomery St. up stairs.

Particular attention given to the Analysis of Ores, Minerals, Metallurgical Products, Mineral Waters, Soils, Commercial Articles, Etc.

One or two pupils can receive theoretical and practical instruction in Assaying, Analysis, or any particular branch of Chemistry at the laboratory. 11v21-3m

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LEOPOLD KUH,
(Formerly of the U. S. Branch Mint, S. F.)
Assayer and Metallurgical CHEMIST,
No. 611 Commercial Street,
(Opposite the U. S. Branch Mint)
SAN FRANCISCO, CAL. 7v21-3m

J. W. THURMAN,
(Successor to S. W. Howland & Co.,)
ORE CRUSHERS AND SAMPLERS,
Nos. 413 and 415 Mission Street,
SAN FRANCISCO.

Particular attention paid to Ores received on consignment

ALL ORDERS EXECUTED AT THE SHORTEST NOTICE. 5v24-6m

CALIFORNIA ASSAY OFFICE
No. 512 CALIFORNIA STREET,
One Door West of Montgomery.....SAN FRANCISCO.

J. A. MARS, Assayer.

☞ Analysis of Ores, Mineral Waters, etc. 10v20

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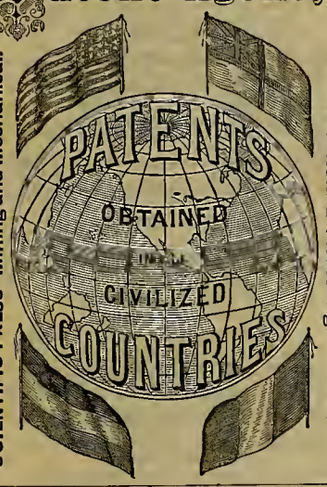

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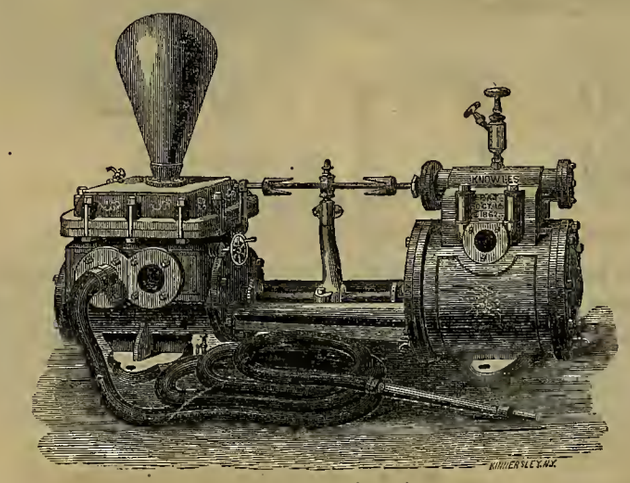
KNOWLES' PATENT STEAM PUMP.

Extract from Official Report of Mechanics' Institute Fair of San Francisco, 1871.

"In the foregoing trials it appears that the most efficient Pump on exhibition is the KNOWLES. The workmanship on this Pump is also very good. We would therefore recommend that this Pump receive a Silver Medal. (Diploma awarded). Signed by the Committee:

G. W. DICKIE, H. B. ANGELL,
v113-awbp CHAS. R. STEIGER, W. EPPELSHEIMER, MELVILLE ATWOOD."



It has no Cranks or Fly-Wheel, and has no dead points where it will stop, consequently it is always ready to start without using a starting-bar, and does not require hand-work to get it past the center. Will always start when the steam cylinder is filled with cold water of condensation.

The trial of Steam Pumps at the Eighth Industrial Fair in San Francisco, by a Committee of Five of the most thoroughly practical mechanics on this coast, showed the Knowles Pump to lose but 11½ per cent., while others lost as high as 40 per cent., showing great difference in economy.

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BLAKE'S PATENT STEAM PUMP.

From the Report of the Committee on Steam Pumps, at the Seventh Industrial Exhibition of the Mechanics' Institute, San Francisco.

BLAKE'S STEAM PUMP.—This Pump yielded the best results as to the quantity of water discharged as compared with its measured capacity. The valves are of brass, and well arranged. The steam valves are well arranged for operating the pumps, either fast or slow.

We recommend that a Medal be awarded to it, as THE BEST STEAM PUMP. [Awarded a SILVER MEDAL, the first premium.] (Signed) JAS. SPIERS, WM. H. BIRCH.

From the Report of the Committee on Steam Pumps, at the Eighth (or *last*) Industrial Exhibition of the Mechanics' Institute, San Francisco:

BLAKE'S MINING PUMP.—Thie is an excellent Pump, well made, end givee a high per cent. of duty. We recommend a Diploma for this Pump. (Signed by the Committee.)
G. W. DICKIE, H. B. ANGEL, OHAS. R. STEIGER,
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[No other Steam Pump received other than a Diploma or honorable mention et the LAST Mechanics' Exhibition, *all other assertions to the contrary notwithstanding.* Hooker's Hand Pump wes the *only* Pump of any kind whatsoever, that received a MEDAL and FIRST PREMIUM (highest award to pumps) at the *last* Exhibition, for which we are also selling agents.—*See official Report of the above Committee.*]

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BY DEWEY & CO., Patent Solicitors.

SAN FRANCISCO, SATURDAY, JUNE 29, 1872.

VOLUME XXIV. Number 26.

The Mint Bid.

Some four or five months ago, the Superintendent of the new U. S. Mint building, uow being constructed iu this city, issued propoeals for the wrought and cast iron work for that structure. In answer to said proposal, five bide were put in by different parties in this city, in addition to a number from the Atlantic Statea. Two of the San Francisco bids were lower than the lowest Eastern bids. After an unusual dclay of about three months from the tiue these bids were received at Washington, the lowest San Francisco bid—that of the Occidental Foundry was accepted, with the proviso that the chimney should be put in place within thirty daya from the dste of the contract, and that, too, when no *time* wae specified in the proposale, the bids being all made on reasonable time for completion of the work.

This new condition of thirty daye was considered an unreasonable demand, and one which could not be met under the terms of the bid; hence the bidders refueed to eign the contract.

After some little delay, proposale were re-advertised, under which three bids from thia city were again put in on the 17th of June, at the Superintendent's office in this city, in accordance with the terms of the advertisement, (the bids to be forwarded from this city to Washington for approval.) On Wednesday, only two days afterward, telegraphic advices were received here, that *the contract had been let at the East!*

The above, we believe, are the simple facts in the case. Now, if it wae necessary to insist upon the thirty days for the construction of the chimney, as per the first bid, instead of perhaps fifty or sixty days, which would have been a reasonable time, how could the Department have bettered itself by taking the time to readvertise for new proposals, and then let the contract to parties in the East, who would require about thirty days for the transportation of the chimneys to this coast, after they were ready for delivery at the Eastern foundry? The San Francieco parties, uuder the first bid could have had the chimney in place before it could have been possible for the accepted bidders at the East to have got them ready for shipment. Again, how is it possible that any Eastern bidder could comply with a 30 days' condition, eepecially after the delay for readvertising, when more than half that time would be required for transportation, even if sent by rail, an unnsual mode of trausporting such heavy freight?

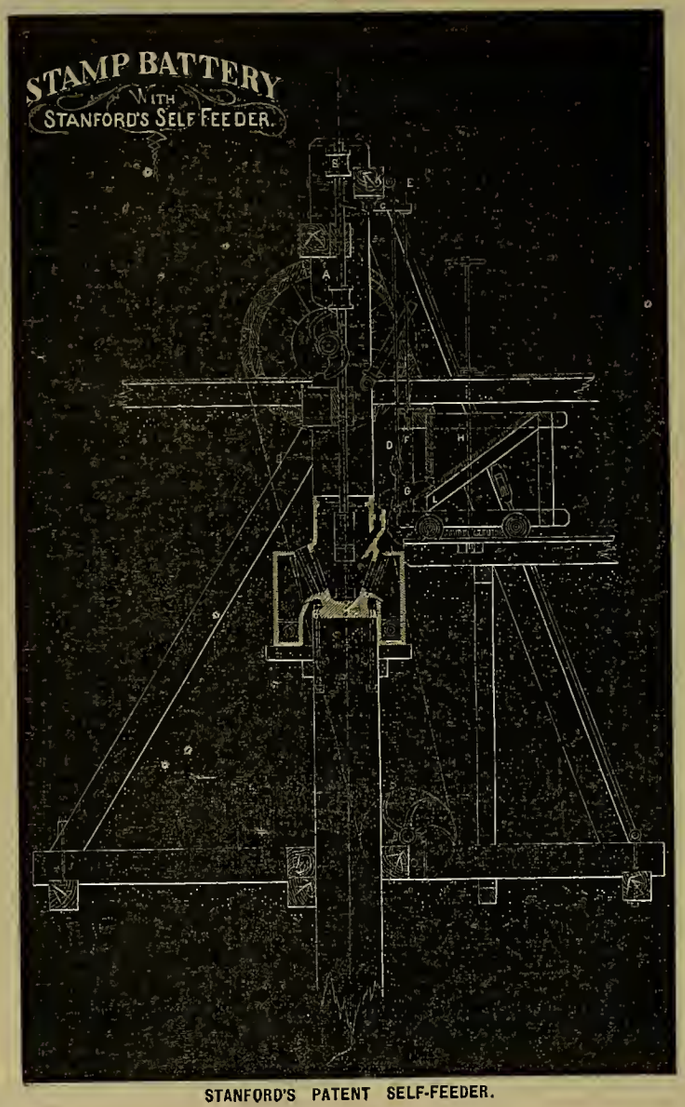
The mechanics of San Francisco ask no favors over their Eastern brethren; but the circumstances connected with this contract would eeem to indicate that there has been discrimination somewhere, the evidence of which is too palpable to be overlooked.

DIVIDENDS AND ASSESSMENTS.—The eum of $882,000 was paid out ae dividends this month by four companies, viz: Belcher, $312,000; Crown Point, $300,000; Meadow Valley, $60,000; Raymond & Ely, $210,000. Assessments levied during the same time, by 15 different companies, amounted in the aggregate, to $220,850. The difference in favor of stockholders, is $661,150. The Crown Point dividend fell off from last month, $181,000; and the Yule Gravel Company omitted their usual dividend; so this month the product ie a little lees.

JULIAN DISTRICT.—The bullion ehipments from this promising mining district, in the Cuyamaca Mountains, San Diego county, were $13,151 last week.

Stanford's Patent Self Feeder.

Thie convenient and ueeful device is the invention of Mr. C. P. Stanford, and is intended for the purpose of keepiug the mortars of stamp batteriee supplied with rock automatically. It is said to do its work thoroughly and in a very satisfactory manner, and the simplicity of construction ineures steady work without its being liable to get out of order. The principle upon which the apparatus works is simple; as the stamp crushes the rock, which passes from under it through the sieves, it drope below a certain point, giving a jar to the shoe of a hopper-car, causing the discharge of a quantity of rock into the mortar. The manner of operation will be seen by reference to the accompanying engraving, from plans and working drawinge of H. J. Booth & Co., Union Iron Works, in this city.



STANFORD'S PATENT SELF-FEEDER.

In the cut, *A* repreeents the stamp etem, tu which is keyed a feeding tappet *B*. This tappet is set on the stem so that when the rock in the mortar hae been reduced to a certain depth, it shall strike on one end of the lever *C*, as the stamp falle.

Thie lever is hung from the girt *K*, and is forked so that it spans the stamp stem. The rod *E*, paases up through a hole in the ontsidc end of the lever, and has a collar bearing against the lever to support it. The hight of this collar is regulated by a screw and check nuts *F*, on the lower end of the rod *E*. A rod *D*, with a hook at each end, hooke into a notch in the lever *C*, and aleo hooks into the bail of the shoe *G*, of the hopper-car, *H*. The shoe *G*, is hinged at *L*. The hopper-car is lined with sheet-iron and has four wheels, so that when the battery is to be run without the eelf-feeder, it can be run back out of the way.

The operation of the apparatue is as follows: The feeding tappet *B*, having been clamped on the stem at the proper place, and the lever having been regulated to its proper poeition for the dietances apart at which the ehoe and die are to work by reason of the intervening rock, the hopper-car is filled with rock. The mortar has been fed by hand so as to make a bed under the stampe. As soon as the rook under the middle etamp, to which the feeding tappet is attached, decreases in depth below the fixed limit, the feeding tappet, in its descent, strikee against the lever *C*, and through the rod *D*, jars the shoe *G*, caueing it to throw a quantity of rock into the mortar. This continues, until the rock has become ec thick under the stamp that the feeding tappet does not touch the lever. Feeding is then stopped, to begin again when the rock has been crnshed from under the stamp. The feed is adjusted tc the wear of the ehoes and diee by the screw *F*, and by moving the feeding tappet *B*, in the stem.

This is a California invention, and dces away entirely with a man for "feeder," and can be regulated so as to keep just euough rock under the etamp to prevent it either choking or getting on the die. Booth & Co. have put this self-feeder in the International Mill, 60 stamps; the Stanford Mill, 30 stamps; the Pinto Mill, 20 stamps; the Mineral Hill, 20 stampe; and the Monitor aud Northwesteru Mill, 10 stamps. It is also being used at the Rock Point and Birdsall's Mills, at Dayton, Nev.; Angel's Mill, at Angels; the Calaveras Miuiug Company'e Mill; the Amador Mill, and other prominent mills throughout the coast.

ARIZONA ORES.—The shipments of orcs from Wallapai, Prescott and Clark Districts in Arzona Territory, are increasing every month, and some of the finest class of ore has arrived in this city from those localities, within the past few weeks. Mr. J. W. Thurmau, who sampled these ores, informs us that they average fron $300 to $2,500 per ton. As soon ae they get steamers on the Colorado River, which will bring up all the ore that is now accumulating on the dumps of the different mines, we may expect large shipments of ore monthly. The miners in that eectiou of country deserve great praise for their energy and perseverance, and it is to be hoped that the day is not far distaut when they will be amply rewarded for their time and labor. All they want now is a railroad, iusuring cheap and quick trnsportation, ae the above mentioued districts have a large amount of good ores lying at the different mines, which would pay the owuere handsomely if they could get them to San Francisco ou reasonable terms.

POWDER WORKS EXPLOSION.—The Hercules Powder Works, owued by the California Powder Co., and located near the Eastern extremity of the new Park, and lece than three miles from the heart of the city, exploded with a terrible report, about six o'clock on Friday 21st inst. The employés had fortunately left the works bnt a short time previous, so that no one was injured. The loes of powder, etc., was eome four or five thoueand dollars.

The Hercules powder is a mixture of rifle powder and nitro-glycerine. The nitro-glycerine wae made upon the ground, and the rifle powder at the Company's powder works.

The supposed cause of the accident was the bureting and inflammation of a carboy of acid, occasioned no doubt, by the excessive heat of the day. The explosion wae heard throughout a radius of twelve or fifteen miles in every direction. The concussion was very severe in the city.

THE NARROW GAUGE RAILROAD CONVENTION met in St. Louis on the 19th inst., to discuss the question of railroad gaugee. Some of the moet prominent railroad men in the United States were present, and the result of their proceedings will be looked to with intereet. A resolution was adopted which provides for a central committee of thirteen.

CORRESPONDENCE.

Schell Creek Mines.

[By our Mining Reporter.]

The Opening up of Southeastern Nevada—The Pioneer Miner.

The fall of '68 and the early part of '69 witnessed the White Pine ebullition. Subsiding the next summer, a considerable popnlation fouud themselves in that remote, and then isolated locality, without employment, and generally, without either the means or disposition to return. The most of them were miners—many belonging to that bardy, fearless class known as prospectors. The country about, though reputed rich in mineral wealth was but little explored, and, therefore, opened an enticing field for the like of them. Wandering off in every direction and suffering infinite hardships with proverbial patience, they have eince thoroughly explored every portion of Central, Southern and Eastern Neveda, a region likely to prove mervellously rich in every variety of the precious and useful metals. Successively, Eureka, Mineral Hill, Pioche and other valuable districts were found, organized and brough into notice; Schell Creek, the latest, heing by no means the leest of these important discoveries.

The adage of the "ill wind" finds apt illustration in this stampede to White Piue. But for this, how sparse might still have been the populetion of this portion of the State—how little even might have heen kuown of these now prosperous and promising districts! So often does a present seoming ill resolve itself into an ultimate good! And eo of the men who fulfill these honorable missions and achieve these useful ends! Rough and gnarled of person, crippled with toil and tanned by exposure to tho winds and the snn, the miner is still your true pioneer, going forth unaided and unnoticed, and euhduing the savage, he opens up our desolate and harharic lands, and fits them for the abode of civilizetion and productive industry. Last season the territory so redeemed from the wilderness during the past three years, produced over seven million dollare worth of gold and silver bullion, a eum that will he largely increased the present year.

Interest of San Francisco—Need of a Railroad and Mills.

In view of these facts, and the prosperoue future that ohviously awaits this entire section of oountry, one feels warranted in hespeaking for Schell Creek the aid and good offices of the San Francisco business community, since through these means the entire trade of this region can he permanently secured to your city. Let your people hear thie in mind, for in a short time, this business will be worth to them millions of dollars annually. Money is needed here to build mills, also to assist in constructing a narrow gauge rail way to counect this district with Humholdt Wells, on the Central Pacific Road. This is a good country iu which to invest money, at least for these purposes, aud I say this not ignorant nor unmiudful of the losses that have so generally attended the expenditure of money on mining account in all parts of Nevada. At another writing I will give more fully my reasons for this opiniou, content for the present, with urging your capitalists, merchants, machinists and all others interested in extending the commerce and huilding up the industry of San Francieco, to give this matter their eerious attention. A road ouce built to this point would soon he extended eouth along the series of open plains and valleys that reaches all the way from here to the Colorado; passing in its course through or near to the Robinson, Piermont, Patterson, Pioche, Pahranagat and many other already or prospectively important dietricts.

The inductive eteps in this enterpriee have already heen taken hy parties here, the movement being backed hy the Crawfords, large iron workers in Philadelphia, and other wealthy men in the East, those parties being largely interested in the Spruce Mountain Dietrict, lying adjacent to the proposed line of this road, and where extensive emelting worke are now beiug erected. The Central Pacific Compauy also, I am credibly informed, would, with their characteristic enterprise and liberality, further the project, hy remitting in part cost of freight on material transported over their road, and perhaps aid in a still more direct manner, it being their policy to encourage the huilding of these feeders to their mein trunk. This Company have pureued a geueroue course with the Elko and White Pine roed now in process of construction, and would hardly do less for a hranch likely to contrihute still more largely to their carrying traffic; and I may here add, as one having opportunities to know, that the Central Company have, in the main, dealt not only justly but liherally with this section of country throughout, and what ever may he the grievances fancied or real of the people of San Francisco, we feel here that we have no just cause for complaint, since without the facilities for transportation and travel afforded hy this Company, nearly the whole of Central and Southeastern Nevada would still have heen in the hands of the ahorigines—a source of constant annoyence to the people and of expense to the government, instead of heiug, as at preseut, filled everywhere with self-sustaining and prosperous communities.

Our Experience in Silver Mining—Fissuro Viens and Ore in Sight.

It is now 13 years ago since Californians first emharked in silver mining. It is 13 years this very month of June since they first began to hear much of Washoe, a few venturing then over the Sierrae to see what these rumore might amouut to. By the next summer many thousand had followed and the new husiness was gotten fully under way. Teking the Comstock as our typical mine, we set out rummaging through the wilds of Western Utah. Ledges ahounding everywhere, quite a good many were located, care being taken that they should oonform as nearly as might he in external appearance to our representative mine. Much work was afterwards done on these ledges but not generally with eetisfactory results, and as a consequence we ratber lost confidence in "bold croppiugs," "regular strikes" and other indicetione of "trne fissuree," "going afterwards for" "ore in sight," and hecoming enamored of rich and well displeyed surface deposits, such as greeted us at White Pine, Eureka, Pioche and elsewhere. It is true, these have not in every instence, proved "all our fancy painted them," "etill our miners retain a strong prediction for this class of deposits, helieving that it is just as well to engage in gathering up the ore when found on and near the top of the ground as to go delving into the bowles of the earth, in search of it. Hence this class of ores, despite the mishaps of White Pine, ie much in favor, aud as they have nowhere else heen fouud so abundant and of such high grade as here in Schell Creek, this, of course, conforms more nearly than any other district ever yet discovered to the prospectors idea of a "Miuers' Paradise." Go where you will and you see here rich silver oree on the surface. Taken as a whole there never was, perhaps, euch a display of mineral wealth. The ore-bearing helt extends north and south a distance of 20 miles reaching clear across the Schell Creek Rauge and covering an area of forty or fifty square miles.

The mountains here are very lofty—from eight to eleven thousand feet high. They are also ragged aud precipitous—walled with cliffs and cleft hy stupendous ceñons. Being so hoaved and disjointed, they are probahly riven by deep fissures, since filled with metal and their various mineralizers, their upper chambers shatterod and covered up with the debris of geological ruins. From these main fractures run off many small cracks, also carrying ore and smashed to pieces in their upper portions. Hence things iu the upper story are hadly displaced and it is difficult to get the plen of the veiu system or that on which the ores have been distributed. But our experts are unravelling the mystery. Clayton, thoughful, diligent and indefatigable has the key to the whole thing and will soon proceed to unlock it to the world. He pronounces this the best district, every thing considered, yet found on the Coast, and we have great faith in him here. Of the practical men who have visited the country all entertain the highest opinion of its mineral resources and the facilities at hand for rendering them cheaply available. Not a man of this elass has left witbout procuring interests for himself or thoso he represented.

The Character of the Ores Here as well as of the Lodes

Is considerably diversified, the former consieting mainly of the eulphuretted variety, much of it tinged with a ruby color. A good deal of horn and native silver with a chloride ore also occur. The general trend of the lodes is in a northerly and southerly direction with a pitch into the mountain. They are of variable thickness—some very large and some extremely small—stand tolerahly steep though occasionally lying at a low angle. The most of them are contect veins lying hetween porphyry and limestone or shale, and lime, the veiu matter being composed mainly of quartz, some of it light colored and granular and others portions compact and dark, smell quantities of qnartzite limestone and spar heing occasionally intermixed with the ores and the vein matter. The percentage of ore is generally large, and hut very few ledges have heen located which failed to exhihit more or lese on the surface. The most of the prospecting yet done has been hy open cuts on the snrface, though a numher of shafts have heen sunk iu the veiu matter, some to a depth of fifty to sixty feet—several tunnels have also been carried in a considerahle distauce. In every instance these works have proved setisfactory both as regarde ore developments and the probable permenence of the veins themselves. One of these tunnels heing driven into Queen Springs Mountain has cut a well walled, regular vein, four feet thick and carrying a fine hody of ore at a depth of 80 ft. Elsewhere similar resnlts have been ohtained estahlishing a strong probability that the ledges here will prove both prolific and permanent.

What is Required Here Now

Is reduction works with a moderate amount of working capitel to open the mines. Several mills could he rnn for a year on the hundred dollar ore in sight, or at least obviously procured. Lahor is also in demand, at $4 per day for miners; millrights, carpenters and masons getting a little more. Should capital he eupplied for putting up mills and opening the mines to the extent that the prospect now would seem to warrent, the demand for lahor would he greetly inoreased, and business of all kinds he very active. Every thing so far hes been maintained in a healthful condition, but little excitement or epeoulation, and nothing greatly overdone. A number of cash sales of mining properties have been effected and a good many honded, but all seemingly at reasonahle prices, some of the claims containing ore enough in sight to pey the purchase money, could it he economically milled. As regards supplies of

Wood, Water and Grass,

This section of country eurpasses any other lying between the Sierra Nevada and the Wasatch mountains, there being also in the valleys a great deal of fine agricultural land. As a consequence, mining in all its brauches can be carried on here cheap, the climate heing at the eame time extremely healthful and agreeable. This is in fact, a fine country to live in, and apart from its mines will soon be filled with a thrifty population because of its advantages for sheep and stock growing and dairying.

Centreville, White Pine Co., Nev., June 24th, 1872.

The Quicksilver Mines of Almaden, Spain. No. 1.

[Written for the "Scientific Press."]

During my first residence in Spain, from 1860 to 1865, I did not visit these celebrated mines, partly from the pressure of my own husiness, as also their inaccessibility situated in the heart of the Sierra Morena, and reached then, only hy risking equestrian performances on mules of a most douhtful pedigree. On my return to Spain in 1870, I was commissioned by some London capitalists (interested in the English Quicksilver Loan of $10,000,000) to inspect these mines and report to them. These mines, since 1869, can he reached hy railroad from four different quarters of the peninsula—Bilhoa, Lishon, Valencia or Cadiz,

I resided for ahout three weeke at the town of Almaden, and I paid special attention to the ahove celebrated mines, and have no douht that all tbe data I collected will be read with interest by your many subecrihers. My letters will he classified into four different heads—their History, Geology, Mining and Metallurgy.

The word Almaden is derived from two Arahic words, which signify, the "Mine of Quicksilver," hut these mines were worked by the Romane many centuries before the consquest of Spain hy the Moors. Four centuries hefore the Christain era, Theofrastus speaks of the *hard arenaceous* cinnahar imported from Spain. In the time of Julius and Augustus Cæsar cinnahar was imported iuto Rome from the Sisaponæ Cetrohrix region (eo called by Pliny,) the present confines of La Mancha, Estremadura and Andulusia. Vitruhiue also mentious that the raw mineral was imported into Rome, and points out the locality where the distillation was then cerried on.

According to Pliny, only 10,000 lbs. of quicksilver were distilled every year in Rome, and it was calculated thet other places in the empire were provided likewise with cinnabar from Spain to about the same amount. It will he seen, then, that it would have taken the Romans about a century to consume the preseut yearly extraction. Nothing ie known, nor do auy documents exist, relative to these mines during the domination of the Goths in Spain. The Moors worked these mines, end appear to have heen the first who distilled the minersl on the epot, employing it in their chemical laboratories of Cordova. The extraction of mineral, however, did uot increase until 1525, when these mines wore rented from the Spanisb government hy two German mining engineers, Mark and Christopher Fuggar, who employed German minere, and it was then for the first time, thet a proper system and order in the workings was carried out. These two hrothere reelized such princely fortunes from these mines that it became a proverh to say "as rich as the Fuggars," and a street exists to this day in Madrid with their name. The yearly production increased considerahly, in consequence of the discovery of the amalgamation of silver ores in Mexico in 1566 hy Bartolome de Medina, at the mines of the Real del Monte, and it rose to about 600,000 lbs. of puicksilver per year.

I well rememher in 1867, while residing at the town of Pachuca Real del Monte, seeing the spot where the Franciscian Friar, Bartolome, made his first experiments in reducing silver ores hy (patio) amalgamation. No monument exists as yet to the memory of this celebrated monk, and the first steps taken in this direction were made by the lete Emperor Maximilian, but frustrated by the tragedy of Queretaro.

In the year 1752 William Bowles (the first Englishman who visited these mines) received ordere from the Spanish government to inspect them, and he mede many improvements in the distillation of the ore, as likewise a better eystem of working the mines. Here we have one of the many instances of Anglo-Saxon pluck end energy, carrying science and knowledge into far distant climes. I may also here mention another extraordinary case. In 1728 Lady Mary Herbert, daughter of the Marquis of Powis, arrived at Madrid, from Paris, and by her acquaintance with the famons Mr. Law had improved her talents and natural gonius for enterprise. She made proposals to the Spanish government for draining the famous mine of Guadalcanal; these were accepted. Lady Mary set out for the mines; in this expedition she was attended by Mr. Joseph Gage. She procured engines from England, as well as miners, engagiug her own fortune therein, as also that of Mr. Gage. Consideriug the great difficulty of traveling in those days—the non-existence of roads—this lady's pluck and energy were most astonishing. About the year 1700 the production increased to 1,800,000 lbs., which amount was annually supplied to Mexico and Peru for the amalgamation of their silver and gold ores, and it has continued ahout the same to tho present day, with an interruption of some four years during the Freuch invasion of the Peninsula. The amount produced in 1870 was about 2,200,000 lbs., upon which the Spanisb government msde $1,250,000, and this has heen the average profit for the last century and a half. In my next I will describe the topography and geology of this district accompanied with euitable illustrations and diagrams.

HENRY SEWELL.

Salt Lake, June 16.

RAILROADS ON THE PACIFIC COAST.—The distribntion and cost of railroads in the States aud territories of the Pacific coast is as follows:

	Miles Complete	Cost and Equipment.
California	1,111.30	$76,902,000
Nevada	567.00	51,500,000
Utah	312.00	30,400,000
Oregon	199.00	7,900,000
Washington	50.00	2,620,000
Total	1,239.30	$169,322,000

IRON.—Furnaces have eo multiplied in Lehigh, Penn., under stimulation of a very high protective tariff, that the *American Manufacturer* warns iron men to desist. It appears tbat the sources of ore are hecoming exbausted; and at this time there is not enough withiu reasonable haul to enpply existing works. A wire-rope factory on a large scale (5,000 feet long) is being built at Wilkesbarre, Penn.

SCIENTIFIC PROGRESS.

Dr. Carpenter's Theory of Ocean Currents.

Dr. W. B. Carpsnter presente in the *Popular Science Review* a very interesting *resume* of the resnlts of his deep-sea investigations. In his first expsdition to the deep channel between the shetland and Faroe Islands, at the depth of 600 fathome in ons place ths self-registering thermomcter indicated a temperatnrs of 45 to 48 degrees Fahr; whilo at another part of the channel, only twenty miles away, a temperaturo of 32 degrecs at the bottom was recorded—a vory marked and curious contrast. The next year most remarkable contrasts of bottom temporature were shown at differsnt depths on ths southern slops of tho samo channel. At a depth of 190 fathome, the temperature was 48 degrees, while only eight miles uorth where the depth increased to 445 fathome, the thermometer sank to 30 deg.—thus showing a difference of deep-sea temperature of 20 degrses within that short descent of only 225 fathoms in depth. At both places the surfaco temperature was 52 degrses. Further where ths surface tsmperaturo was bstween 49 and 50 degrece, serial soundings indicated at 350 fathoms a temperature of 32 degreee, that of freezing water; and from that point to the bottom, 640 fathoms a river of glacial water waa found, below the freezing point of fresh water.

In one of his more recent expeditions off the coast of Spain and Portugal, where the surface temperature of the water was as high as 65 degrcss, serial soundings indicated a loss of ouly 10 degrees for the first 100 fathoms; which, therefore, may be termed the superheated surface, nnder the powerful rays of a midsummer sun. Then, down to 300 fathoms, the temperature lowered very slowly only to 49 fathoms, showing a warm stratum of water. But in the next 200 fathoms there was a descent to 40 degreee; and from this level of 1,000 fathoms to the bottom, at 2,435 fathome or nearly 3 miles—a depth about equal to the hight of Mt. Blanc—the temperature steadily lowered to 36.5 degreee and still lower resulte were obtained near the equator. Here then was a lower stratum of very cold cold water of no less than 1,400 fathoms in thickness. Commander Chimneo found olose to the Eqnator, 3 degrees S. latitude, a bottom temperature at 1,800 fathoma of 35 degrees, and at 2,306 fathoms one of 33.6 degrees.

Whence comes this deep layer of nearly freezing water, and how does it retain its low temperature? As the water above it and the earth below it are warmer, it could not long retain its temperature if stationary, unless continually snpplied from some constant eource of glacial cold. That it possessee the movement of a running stream is shown hy the nature of the bottom, the pebhles there being rounded instead of angular; and that it comee from the polar regions, is proved hy the fact that it may be traced to them in its slightly decreasing temperature. To the westward of the Faroe banks is a steep slope, going down 2,000 fathoms; from here to Labrador and Greenland ie a wide channel, through which a large mass of ice-cold water may pass into the great Atlantic hasin.

But water cannot be alwaye flowing out of the polar regione without water from eome other source constantly flowing in toward it; so thst, if there is such an outflow helow, the circulation must be completed hy a coustant inflow at the surface above. This Dr. Carpenter finds in the Gulf Stream, and the universal movement of heated water from the equatorial to the polar seas.—*The Week.*

Spontaneous Explosions.—F. Moigno says: —When finely pulverized chlorate of potash ie put on a piece of paper (best dredged or dnsted over it, so as to form a thin film of powder), and there ie next poured over it a solution of phosphorus in bisnlphide of carbon, there enenes, when the latter is evaporated suddenly, a most violent explosion, owing to the phosphorus being left in a state of extremely minute division and in intimate contact with chlorate of potash. Thie explosion is analogous to that which ensnes when a small piece of phosphorus and some chlorate of potash are, when placed upon an anvil, struck with a hammer, but, in the instance alluded to, the effect produced is greater, owing to the extreme state of division and intimate mixture of the two suhstances. Care should be taken not to make this experiment with too large quantities of the chlorate and phosphorus solution, for fear of serious accidents which might ensue.

Absorbing Sulphurous Fumes.—M. Cahen, the author suggests for thie purpose the nse of peroxide of manganese of low quality; The absorption of sulphnrons acid gas, included that evolved in metallurgical operations, is instantaneous; and if the ensuing manganese salts do not happen to he commercially of use they can be readily, by means of chloride of sodinm, converted into hyposulphite of soda and other soda salts.

The annual cost of maintenance of the galvanic hatteriee used by the Weetern Union Telegraph Co., is over $125,000.

Gas Burners for Bending Glass Tubes.

The *American Chemist* for January contains a note by Prof. J. Lawrence Smith, "On Bending Glass Tubes for Fitting Apparatus," in which hs reccommends a Bunsen burner flattened at ite extremity so as to give a thin broad flame. An ordinary fishtail or batwing gas-burner will bs found to give, if possible, still better resulte. Mr. H. Carrington Bolton writes that he has employed for some years au ordinary batwing burner attached to a small, short stand (three inchee high, burner inclnded), eo as to rest low upon tho table, in order that raising the arms inconveniently high may bs avoided. Such a burner insures a broad flame, by which ths tubo is heated for two or more inches in length, the tube is turned while in the flame, and removed for bending ne usual, the deposit of carbon which at first sight might seem an objection is really one of the chief advantages of nsing this burner. On placing the glass in ths flame the deposit begins immediately, and prevents too rapid a rise of temperature and consequent cracking of the glass; during ths heating the carbon tends to distribute the heat eqnally over the surface of tho tnbe; and finally, on withdrawing the glass from the flame, too sudden cooling is prsvented, and the glass is, as it were, annealed.

Ths black deposit is readily removed by a dry cloth. This plan was commonly employed in Homann's Laboratory, Berlin. In bending tubee of more than three-sighths of an inch in diameter one end should be cloeed tightly with a cork (or wax), and air blown into the other end at the moment of bending the tube; by regulating judiciously the pressure of the air upon the sides of the somewhat softened tube, the latter will neither bulge out nor collapse, bnt will retain its proper caliber. This cannot be effected, however, with very large tnbes, or with very thin ones, which require the nice manipulation of the professional glass-blower. —*Am. Artisan.*

Faulty Vision in Painters.—Considerable attention has been attracted by a lecture delivered hy Dr. R. Liebrich on this snbject at the London Institution. The lecturer referred particularly to the case of Turner, hetween whose earlier and whoee later paintings a marked differcnce appears. The prominent featnre of the change consists of a vertical *streakiness*, each luminons point being changed into a vertical line. Now it ie commonly eupposed that Turner adopted a peculiar manner and exaggerated it more and more. The fact, accordiug to Dr. Liebrich, appears to he that the change of manner arose from a change in his eyes, a growing dimness of the crystalline lens causing him to see hoth nature and his own pictures incorrectly. The gradual change was traced hy the lectnrer, and its effects illnstrated by the use of lene and of picturee projected on a screen.

Other caees arising from irregularitiee of refraction in the eye were epoken of. It may occur that an eye is normal in one direction and ahnormal in another, and hence distorted pictures are produced, eo there are affectione of the eye in regard to color.

Somo of Turner's admirers have come to the vindication of their favorite, and have been trying to disprove the doctor's reasoning.

Natural Selection in Plants.—An attempt is made by Dr. Chauncey Wright, in the *Memoirs Amer. Academy*, to explain on the principal of natural eelection the existence of the modes of phyllotaxis most frequently found in Nature. These consist of two principal forms, the verticillate and the spiral, of which the latter is by far the most general and most complicatcd. By an elahorate series of circulations he shows that the particular forms of spiral arrangcment actually found in Nature are those which possess the greatest advantage for the plant, hy so arranging the leaves, and, therefore, branches, that they have the most perfect distribution for not intsrfering with one another, both in drawing nutriment from the etem and in exposure to the light.

To Protect Iron and Steel.—Prof. F. Grace Calvert, of England, has diecovered that the carhonates of potash and soda possees the same property of protecting iron and steel from rnst as do those alkalies in a caustic state. If an iron hlade is half immersed in a solution of either of the ahove named carhonates, it exerts so protective an action that that portion of the iron which is exposed to the influence of the damp atmoepheric air doee not oxidize, even after a period of two years.

Similar results have been obtained with sea water, to which have heen added the carbonates of potash or soda. The applications of this fact are numerous and important.

Atmoepheric Thermal Paradox.—The higher we ascend, the colder it hecomes; and yet at very great elevations the raye of the sun exert a heating power greater than that which they are found to produce in the valleys. Prof. Piazza Smyth found, that on the top of Teneriffe, at an elevation 10,000 feet above the level of the sea, a thermometer exposed to the direct rays of the sun, ehowed a temperature of nearly 200° deg. Fah !—*Prof. Phin.*

The conversion of water into vapor develops electricity

MECHANICAL PROGRESS.

A New Methon on Determinino the Quality of Iron.—Mr. VsuRuth, Inspector of Mines for the Dutch government, has devised a method of printing from iron in such a manner as to show its fibre, and give a correct picture of the same for comparison or reference. The sample of iron whose fibre, is to bs examined is first planed, so as to expose a suitable section, through any desired point; this section is immersed in muriatic (hydrochloric) acid for such time as is necessary to eat out the cinder; this time varies from six hours to twenty-four honrs according to ths strength and temperature of the acid solution. The cinder is attacked in a more rapid manner than the fibre of tho iron, and the effect is that ths fibrs is left in relief—in fact, an etched plate is formed, from which, by suitable ink or other substances, an engraving may be printed, showing every fibre of tho iron in clear and distinct manner. Ths application of this simple process is too obvious to need much description. Whenever ths formation of piles in a rail, round or other aection of iron is requirsd, here is a quick and handy method for discovering it. As a means of studying the alteration of fibre in the neighborhood of welds, it is invaluable. It may also be applied in supplying information in relation to Mr. Tresca's valuable memoire on ths flow of eolids.

The Peo Switch has heen adopted as the standard by the Western Union Telegraph Co. The diagram shows ite connections as adapted to the requirements of a way office. It is eo simple, and yet eo perfect, that only a very hrief explanation of the reference marke upon the diagram will be necessary to a full understanding. 1 repreeente a vertical metallic bar or strip upon the ewitch, to which ie connected a wire running into an office, and 2 repeesente the eame wire going ont. A and A′ and B and B′ are metallic huttons, to which are connected the instrument wires. All the hnttons upon the same horizontal line are conuected together at the hack of the ewitch.

As shown in the cnt, the circnt ie "open." To close it, with instrument in circuit, it would he neceesaray only to insert two metal plnge

or pegs; one at the orifice at B′ and 2, and one at A and 1. The course of the current would then be as follows:—From the line at 1 through the peg connection at A to instrument; through inetrument to B and B′; through the peg connection there to the line at 2, and so out to the main line. Should it he desired to connect the line through, without instrument in circuit, the insertion of pegs in the orifice of either A′ or B′ would effect the desired result. The same form of switch, with a modification of connections, would answer for a terminal office. For this, let it be nnderstood, that a wire, leading from a hattery, one pole of which is grounded, is taken directly to one side of the instrument; through the instrument it goes to A; from A, if a peg he inserted in its orifice, it goes to 1 and to the main line. If, instsad of placing the peg at A and 1, it be placed at A′ and 2, the instrument would he connected to line 2. It will be eeen that in the terminal form but one line wire is necessary to be on the ewitch, and but one wire to the instrument to form a circuit, while in the way form two of each are required.—*Jour. Telegraph.*

Railroad Torpedoes.—One of the neatest and most effective little arrangemente for safety in railroad operations is the "torpedo" or alarm signal. Thie little affair consists of a tin hox ahout the size and shape of the smallest-sized blacking-boxee. The box is filled with an explosive compound, and two strips of tin are soldered to two opposite sidee of the hox perpendicular to its sidee or edges, for fastening it to the rail. These hoxes explode on the principle of the percussion-cap, with a lond report. They are in uee on some roads for night signals and in foggy weather, when lights or flags would not he seen in time to prevent accident. Track-men are provided with these torpedoss, and in case of danger they are placed on the rail, far enough from the place of danger to prevent disaster. Usually three of them are placed a few feet apart, to insure their being heard hy the engineer. They are reliable, and will explode at the touch of the wheel at the slowest speed. They cost hut a trifle. It is said that the Reading company uses 35,000 of the torpedoes per annum on the roade which it operates.—*Railroad Gazette.*

Road Steamers—Rubber Tires.

The use of steam on common roads has made great strides during the past year, and it is but fair to Mr. Thompson, of Edinburgh, to state that much of this progress is due to him. Let what will be said on the subject of india-rubber tires, it is day by day becoming more evident that an elastic wheel of some kind is eesential to the full eucceee of ths tractlon engine or road locomotive. One of the great objections to its use hitherto urged against it has been sxtremsly slow speed at which alone it could travel. A nominal velocity of 4 milee an hour really meaus, when all deductions are made for the delaya incurred by stopping for horsee, taking in water, etc., a rate of not more than two miles an hour. This does not tell heavily in one ssnse against loaded engines, but it greatly increases the cost of working them, in that, in returning light for a seeond load, ths duration of a trip is unneceesarily prolonged.

A traction engins, to bs readily efficient, should be competent to travel, when it geta a chance, at six miles an honr; more is nnneeessary for ordinary work. This speed cannot be obtained without springs of some sort. It is however, very inconvenient to apply eprings in the ordinary way to the driving wheels, for reasons too obvious to all builders of snch machines to require comment; and it must further be remembered that, even if thie were not the case, the duties of a epring are but half performed when the spring is located between the engine and the axle. A six feet wheel of sufficient breadth, to be strong enough, will weigh about 18 cwt., in some cases as much as 22 cwt. It is not too much to say that the dead weight, unaffected by the use of springs, will therefore amount in a 12-horse power traction engine to rather more than two tons, which is highly objectionahle.

The only way out of the difficulty lies in placing the spring at or in the tire of the wheel, and the success which has attended Mr. Thompson in hie lahors is due to the fact, that his india rubher tire exactly complies with this condition. The great objection to the india-rubher lies in its enormous cost—over $500 for a moderate sized engine—and the nncertainty of the material. Thus the Ravee on her wonderful trip from Ipswich to Edinhurgh and hack, rendered one leading tire nseless on her journey to the north, and ehe disabled another on her journey to the south. As the tiree cost about $250 each, we have an outlay of ahout $500 for a journey of 900 milee, or a cost of 67 cts per mile for tires alone. The ruin of the tire in this case wae no donht, mainly dne to the heating of the rubher caused by the high epeed maintained.—*Engineer.*

Reducino Steam-Powen.—It is much more economical to reduce power below that which the boiler and engine can give, than to do ths reverse, and to drive the boilere and engine above their fair capacity, not to speak of the danger involved. There are eeveral ways of saving fuel by reduction of power; one is simply to economize hy carrying less pressure in the boiler; another to carry the same preesure, hut to aave steam hy some cut-off arrangement; a third hy changing the size of the main pulley, so as to keep up the same velocity of the mahinery while the engine runs at a lesser velocity. Which of these methods is the most economical is difficult to say. It depends on many circumstances, as for almost every engine there is a peculiar rate of velocity, steam-pressnre, etc., at which it runs to the best advantage. *Manufacturer and Builder.*

Cæsium.—Few sources of the rare metal cæsium have recently heen discovered, which somewhat extend the range of ite distrihution. It has lately been detected in the water of the hot spring of Wheal Clifford, England, hy Col. Yorke, who finds 1.7 parts of the chloride of cæsium in one million parts of the water, making the latter ten times richer in this metal than that of the Durkheim spring, in which it was originally discovered hy Bunsen. Professor Miller had previously found a considerahle amount of lithium in the water of this spring. From an examination of heryl from the Island of Elha, E. Becchi announces in the *Ealrbuch fur Mineralogie* the obtaining 0.80 per cent. of cæsia. Elha is the locality of pollux, the mincral which contains the greateet percentage of this metal.

Quick Work.—The Cabot Co., of Brunswick, in order to enlarge their cotton mill, latsly moved their large smoke stack chimney—78 ft. high, 7 ft. 9 in. square at hase and 5 ft. square at top, containing over 40,000 hricks and weighing over 100 tons—twenty feet without rollers, halls, guys or hraces to steady it. Not one of those engaged had ever witnessed the moving of such a hody. It was accomplished by building such ways as are used in launching ships; surfaces planed and greased, chimney wedged np aud moved hy two jack-screws in 4½ hours. The flues were disconnected from the hoiler at 1 P. M., and at 9¼ the same evening the flues were again connected, fires going and eteam np.—*Industrial Monthly.*

MINING SUMMARY.

THE following is mostly cond- nsed from journals pub lished in the interior,in proximity to the mines mentioned

AMADOR COUNTY.

KEYSTONE.—Jackson *Ledger*, June 22: This mine continues its monthly yield without diminution, never falling below $40,000.

BUNKER HILL.—Work has been resumed on this mine, and will he prosecuted vigorously.

MAHONEY.—Work is heing vigorously prosecuted with flattering prospects. The main shaft is down 500 ft., with a well developed ledge of excellent gold bearing rock.

CALAVERAS COUNTY.

PRUSSIAN HILL.—Calaveras *Chronicle*, June 22: The mill heing put up at this mine, near R. R. Flat will he ready for operation next Monday.

CLEAN UP.—A recent "clean up" in the Calaveras Hydraulic Co's. claim, Central Hill, after a run of 5 or 6 days, gave $1,200 as the result.

EL DORADO COUNTY.

CLEANED UP.—Placerville *Democrat*, June 22: The Oregon Ravine Co. have just completed their "clean up," after a run of about 3½months, with an expense of a little over $2,000. The amount of gold they took out was $4,005 63.

INYO COUNTY.

BULLION.—Inyo *Independent*, Jnne 15: On the 6th inst. there were shipped from the Desp Spring mill 1,721 oz. valued at $2,000—the proceeds of Lida Valley ore.

NEVADA COUNTY.

HOPE GRAVEL MINE.—Grass Valley *Union*, June 21: This mine is again heing worked with success. On Thursday of last week the mill was started np, after an idleness of several months. The first run on a pile of tailings was cleaned up on Tuesday and resulted in $601 worth of gold.

KNIGHT OF MALTA.—Yesterday afternoon the mine sent out some magnificent quartz, showing fres gold sulphurets.

TOWN TALK.—This old gravel mine continues to pay about $2,000 per month, out of which there is a clear profit of ahout $1,200.

GRANITEVILLE.—Nevada *Transcript*, June 18: The Erie Co. struck a 5 ft. ledge on Friday last, the richest of any rock that has ever heen found in this dist. There is a very large seam of gold running through the ledge, and scarcely a piece of the rock hut what shows gold.

The gravel claims of Crandall & Co., near Graniteville, are paying from $10 to $12 per day to the hand.

OUSTOMAH HILL.—Gsntry & Co., have heen washing without iuterruption for several months.

RICH CLAIMS.—Marks & Co's. diggings, at Brandy City, continue to pan out well. Last week they cleaned up $32,000.

BIG PROFITS.—Marks & Co. cleaned np in their drift diggings, at Relief Hill, last wesk, $4,600 while their expenses for the entire run was only $150.

PLACER COUNTY.

SPLENDID PROSPECTS.—Auburn *Stars and Stripes*, June 20: Mining operations are in progress on ths quartz ledge which runs through the Salsig ranch. The Co. have a shaft down ahout 40 ft. in profitable milling rock all the way. For the last 5 or 6 ft. their ledge, which averages from 18 to 20 inches in thickness, has yielded high grade ors, showing free gold, heavily loaded with galena and other suphurets and uniformly yielding up in the hundreds of dollars per ton from working tests.

AUBURN G. M. Co.—The location embraces 1,200 ft. in length of ledge. Ahout 400 ft. west from the eastern extremity of the ledge is the main shaft, which is down 107 ft. A new level has recently heen started to the eastward at a depth of 35 ft. Down to this level the ledge consists of red decomposed quartz very friahle and therefore capahle of heing easily and economically extracted and worked. Dillon & Co., in sinking to a depth of 30 ft., took out and crushed at McFadsn's mill, Ophir, 50 tons which yielded $79 per ton, exclusive of sulphurets. From the 30 to the 60 ft. level the same Co. took out 100 tons which yielded $59 per ton. On a test of average rock from the 97-ft. level it was found to yield at the rate of $81.52 per ton. At the depth of 107 ft. the ledge is 4 ft. 2 inches in thickness, and rauges from 18 inches up to that thickness all the way from the surface.

NORTH STAR.—Anhurn *Herald*, June 22: Since the heginning of the present year the Co. have made 4 clean-ups of $1,180, $1,314, $2,165 and $2,345, respectively.

PLUMAS COUNTY.

SILVER CREEK.—Cor. Plumas *National*, June 15: The Devil's Elhow Co. have completed their gigantic tunnel under what is called the Devil's Elhow Mountain, on Spanish Creek.

Challen & Co., on east side of Gopher Hill, have found a splendid channel of pay grit in their tunnel.

McVay & Taylor are husy at work on the Silver Star claims. They have an open cut run across their mine 1,500 ft. in length, 12 ft. wide, from 5 to 6 ft. deep, and are waiting for lumher to commence laying their flume.

SAN DIEGO COUNTY.

BULLION.—San Diego *Union*, June 13: Bullion amounting to $1,200 was shipped to S. F. hy W., F. & Co. on Sunday.

TRINITY COUNTY

RICH STRIKE. — Weaverville *Journal*, 13: L. Fakes lately struch good diggings near the East Fork of Cañon Creek—himself and 2 other men taking out $100 per day. One day last week they found a nugget weighing 5 ozs.

JUNCTION CITY.—Cor. same: Hagar & Haas, on the hill back of town, will clean up next week, and will do well. Weise & Co., at Red Hill, will wash up soon. Andrew Asmussen has lately opened a claim helow Charles Bartlett's, with fine prospects. Taking it all through, the mines about Junction City will render a good report at the close of the season.

TUOLUMNE COUNTY.

SOULSBY QUARTZ MINE.—Sonora *Independent*, June 22: An English Co. has recently purchased the mine, located at Soulshyville. Active operations will soon he resumed. This will give employment to some 50 or 60 men.

OHIO.—The Co. are engaging hands to recommence work in the tunnel, which lacks but a few ft. of reaching the vein. The vein is from 8 to 9 ft. in width, and averages $20 per ton. A ten stamp mill is on the claim.

Sonora *Democrat*, June 22: PICK UP.—Hart and Wooters, picked up a piece of quartz in the "Riffle" lot claim this week, weighing 31 ounces, well spotted with gold.

YUBA COUNTY.

Grass Valley *Union*, June 18: SMARTSVILLE.—The Blne Pt. Co., after 65 days' washing, took out $90,000.

Nevada.

ELKO COUNTY.

Elko *Independent*, June 22: CONS. S. M. Co.—The ore in some portions of the vein assays as high as $800 per ton, and the whole body runs near $900.

COPE.—Cor. Silver City (Idaho), *Avalanche*, June 13: The El Dorado, on which steam hoisting works have recently heen erected, is in full hlast. The stopes in the old mine look well, and will send out lots of good ore. The shaft is all fitted, and started to sink helow the 1st level (125 ft.) for the 2d. The ledge in the shaft is large, fully 2½ ft., with ahout 6 to 10 inches of splendid rock that will mill $150 per ton.

The Excelsior is heing worked in good earnest. Stopes seem to turn out well; shafts and drifts are heing pnshed right ahead, and much prospecting is heing done.

The Independence, which joins the Excelsior on the north, is hsing worked through a new incline shaft, which has been recently sunk in a large hody of ore as can he found in any camp.

At the Monitor, is a large qnantity of ore waiting shipmsnt, and plenty more on the inside. Several other claims are heing worked vigorously.

ELY DISTRICT.

BULLION.—Ely *Record*, June 16: During the past wesk, W. F. & Co. shipped hullion valued at $106,977.88.

A NEW and important strike has been made on the 423-foot level of the Lightner shaft; as a few days since, in running the lower drift, a large body of very rich ore was cut into. The ore shows fully 8 ft. in width, and is equal in richness to any yet found in the mine.

CHAPMAN No. 2.—This claim is the first west of the Chapman. The shaft is down 90 ft. A drift has heen run from the hottom of the shaft due west, toward the Huhn & Hunt, on the ledge and ore, the entire distance. It is the intention to erect hoisting works.

LOUISE.—A contract has heen let hy the Supt. to sink 50 ft. on the Anna Dickinson, which will make the shaft 120 ft. in depth when completed. This mine is looking well; ledge shows full width, and carries mineral throughout, and a good hody of ore can he ohtained hy sinking. A contract to sink 100 feet on the Grattan shaft has also heen let. On the Goodspeed shaft work is going ahead as usual, and the mine looks extremely well throughout. The shaft is down 60 feet.

IVANHOE.—New shaft down 75 ft., showing 4 feet of ore in the hottom. This ore assays from $75 to $120 per ton, and carries a larger per cent. of gold than any yet discovered in the district.

BOWERY.—Prospecting in the old works continues, and indications are good.

RAYMOND & ELY.—Work on this mine continues as usual, and are shipping usual quantity to mill. On the 423-foot level, in the east drift, an immense hody of high grade ore, 8 feet in width, has heen struck.

HARPER.—Shaft is down 41 feet, and sinking going ahead with good progress. A depth of 50 feet will run a drift, to the ledge and prospect thoroughly.

TOWNSEND.—Shaft 280 feet deep, with the lede 4 feet in width; hut as yet it is harren.

BURKE TUNNEL.—In ahout 600 feet, and pushing ahead.

MOCKING BIRD.—Sinking of shaft continues, and mine looks very well throughout.

ALPINE & MEDASSA CON.—In sinking the shaft, three distinct ledges have been cut through, all carrying ore and assaying well for the depth at which they were cut.

WASHINGTON & CREOLE.—Shaft down 28 feet helow the 442-foot level, and still sinking. Since P. C. Hyman took charge, 2 drifts have hsen started east, one from the 342-foot level, and the other from the 442-foot level. At present, ahout 150 tons of ore on the dump, which will mill on an average $100 per ton.

GREY EAGLE.—Sinking of shaft goes steadily ahead, and good progress is heing made. Ore shows 2½ feet in width in the hottom of the shaft, and looks very well.

CHIEF OF THE HILL.—Have not yet made air connection with the surface. In raising, a fine hody of ore, 2½ feet in width, was opened up. Mine looks well.

DESDEMONA. — Pushing the west drift ahead, and in 125 feet from Fuller shaft. The drift is within 110 feet of the discovery shaft. Sinking of discovery shaft continues, and is within 20 feet of the level of the drift rnnning west from the Fuller shaft.

CONDOR. — Work on sinking new shaft progresses slowly, as the rock is very hard. The old shaft is down 136 ft.

NEWARK.—Will shortly commence timhering the shaft throughout. At present sinking of the winze on the lower level continues.

CHAPMAN. — Commencing to stope on ore. Work on sinking of shaft has heen temporarily suspended. The working force will be increased to-morrow.

AZTEC.—Shaft down 50 ft. Ledge shows wsll in the hottom, and carries about a foot wide of good milling ore.

EXCELSIOR.—Have commenced sinking a new winze on ore, from the 150 ft. lsvel. Have also increased the working force, and are now stoping.

SPRING MOUNTAIN TUNNEL. — Drift on second ledge in 40 ft., and improving as opend out.

PACIFIC TUNNEL.—Pushing tunnel ahead rapidly, and making ahout 4 ft. every 24 hours. Looking very well in the face.

SPRING MOUND.—The whim has heen completed and timbering of the shaft is almost finished.

MEADOW VALLEY.—Shipping and raising the usual quantity of ore. Work on the huilding over the Summit shaft has heen commenced, and the house will soon be completed.

ALPS.—Still sinking on the new working shaft, and making ahout a foot a day as the ground continues very hard. Shaft down 120 ft.

SUNBEAM.—Just cutting into the ledge, with small seams of ore coming in constantly. Expect to he into a good hody of ore in a few more shifts.

STIRLINE. — Mine looking well. The shaft is down ahout 142 ft. with a ledge showing in the bottom.

ORLEANS. — Sinking of shaft going ahead as usual, good progress being made. Ore is showing in huuches through the ledge.

PHENIX.—Shaft is down 246 ft. and contract has heen let to sink it 100 ft. deeper. The mine looks well and promising.

SAN JOSE CON.—Running tracing drift on the ledge towards the Alps. Ledge carries mineral throughout.

INOOMAR.—Sinking of new shaft continues with good progress.

HUMBOLDT.

BULLION.—Unionville *Silver State*, June 22: Amount shipped from the Arizona mine, since our last issue, was $7,786.

ARIZONA.—This mine is heing worked with a force of 90 men, who raise daily a large amount of hoth milling and shipping ore, and are extending explorations in all directions from main level.

REESE RIVER.

MONITOR ORE. — Reese River *Reveille*, Juns 13: There are 50 tons of rich ore at the Manhattan Mill awaiting crushing from the Monitor mine at Belmont; 33, tons of unassorted ore from the same mine were worked at the Mammoth Mill last week which yielded $423 per ton. Ahout 100 tons on the dump,

MURPHY CO.—The mill of the Murphy Co., Ophir Cañon has heen closed down for a short time. In the meantime, work is progressing in the mine, 30 men heing engaged stoping. Sinking and running drifts. A fine hody of ore has heen struck in the third south level, the extent of which has not yet heen developed although it covers the entire surface of the drift.

JEFFERSON CANON ORE.—Mr. J. C. Johnson had crushed yesterday at the Manhattan Mill, 3¾ tons of ore from the Jefferson mine. The ore was divided into 1st. and 2d class. The assay of the former heing $966.08 and of the latter $662.88 per ton. The ore was taken from within 6 feet of the surface.

WASHOE.

BULLION.—Virginia *Enterprise*, June 22: There was yesterday received at the Bank of Cal. $20,293.15 in silver hars from ths Belcher.

LOCAL SUMMARY.—Gold Hill *News*, June 22: CROWN POINT.—Daily yield nearly 600 tons, keeping all the mills of the Co. again running. The water heing out of the 1,300-ft. level, the ore developments heing made at that point are of the richest and most important character.

OPHIR.—Shaft down 1,360 ft., and in good ground for sinking. The drifts both north and south at the 1,100-ft. level show a much more favorahle appearance, giving good promise of ore developments.

YELLOW JACKET.—Daily yield 25 tons from the old workings; prospecting, not developing any new ore bodies as yet.

KENTUCK.—Daily yield 50 tons of milling ore from old workings. The water from the Crown Point heing ahout drained out again, prospectiug at the lowest level of the Kentuck will he resumed.

IMPERIAL-EMPIRE.—The incline is down 92 ft. helow the 1650-ft. level and still making good downward progress. The drift west of the ledge, at the 1,000-ft. level, is in 300 ft., and the rock indicates proximity to the ledge.

JUSTICE.—Yielding daily about 20 tons of good paying ore from the south mine. Thus far no operations have heen resumed in the drift at the 400-ft. level, other than clearing out, repairing, etc., which was interrupted by the water.

SAVAGE.—Daily yield a littls over 200 tons, assays averaging $22. Considerahle prospecting is heing done at the 1,500-ft. level, with no new devslopments as yet.

JACOB LITTLE.—The tunnsl running northerly develops a fine ledge of paying ore, which is evidently ahout 20 ft. wide. Over 100 tons of it is on the dump ready for hauling to mill.

HALE & NORCROSS.—Daily yield, 50 tons, principally from the second station of the lower mine.

NEW YORK CON.—Owing to great influx of water the first of the week, further sinking in the main shaft had to be discontinued.

CHOLLAR-POTOSI.—The Blue Wing and other ore sections are looking and yielding fully as well as at our last report. Yesterday $30-000 worth of hullion was shipped.

RED JACKET.—The ledge is ahout 4 ft. wide, and widens as it passes fnrther into the hill.

CON. VIRGINIA.—The favorahle indication at the 500-ft. level still continues, and the spots of ore give promise of a good hody hefore long.

BELCHER.—Daily yield 280 tons, from the 1,100-ft. level. The main incline is down 420 ft. helow the 850 ft. level and the drift west from ths 1,100-ft. level to intersect it in 100 ft.

CALEDONIAN.—New shaft down 710 ft. At the 400-ft. level the drift is in 132 ft. Prospects are good and all working well.

DANEY.—The shaft is down 80 ft. below the 500-ft. level.

GOULD & CURRY.—Incline down 75 ft. helow the 1,500-ft. level, and making fair progress. The east drift is in 165 ft.

BUCKEYE.—Daily yield 22 tons. The ore stopes are looking and yielding excellently.

KNICKERBOCKER. — Shaft down 317 ft. Rock very hard, and some little water coming in. The new hoisting works operate exceedingly well.

LYONS & LELAND.—The fine hack ledge opened by the lower tunnel is looking splendidly.

SUTRO TUNNEL.—Total length 2,933 ft.

SUCCON.—New shaft down 150 ft., and better progress being made as the rock is getting softer. Mill not running.

JULIA. —The ore the shaft is passing through in sinking, assays about $12 to the ton. One little streak about an inch wide assays over $2,000 to the ton.

SIERRA NEVADA.—Daily yield, 50 tons.

WHITE PINE.

TREASURE HILL MINES. — White Pine *News*, June 15: EBERHART & AURORA CO.'s MINES.—The Beecher and the North Aurora works are pushed ahead as usual, with but a limited force of men. The ore in the different workings shows an increased body. The South chamber, leading from the Lady's chamber of the North Aurora has improved since last report.

BEECHER CO.—There is a force of 10 men employed in the underground works at present running 2 drifts on contract, from the Ward Beecher and No. 4 shafts. Extracting 25 tons of ore per day.

HAMILTON & CO. — Col. Miller is busily engaged in placing the mill and mines in shape. A force of men is at work on the Pogonip & Othello mines, on Pogonip Flat. It is expected that the mine will be crushing in 10 days from date.

SOUTH AURORA.—The Sup. ie making preparations for putting the diamond drill at work.

SILVER WAVE.—The ore in the Boswell chamber holds out in body and grade. The ore on the dumps will be shipped soon.

SAN JUAN DEL RIO—The Co. has let a contract to sink a shaft 100 ft. deep on the ore body. Ore of high grade has been taken out, and there ie a good show for the ore body to hold out.

ORIGINAL HIDDEN TREASURE.—There is a force of 65 men employed in and about the mine. A contract has been made for the hauling of ore to the Big Smoky mill for 3 months. The mill has been running steadily since starting up.

SECOND SOUTH HIDDEN TREASURE.—At the time of the miners' strike, the west drift had reached the west wall of the so-called ore channel. A body of quartz and ledge matter 15 ft. in thickness was cut through before reaching the wall.

COPPER GLANCE.—The ledge as far as developed, ehowe 15 ft. of good milling ore. A contract is let to sink the north shaft 40 ft. A drift will he run south from the bottom of the 40-foot shaft to connect with the main shaft.

PENNSYLVANIA.—The Company hae resumed work.

SUNBEAM.—The owners are cleaning out the shaft and breasts, and will soon commence extracting pay ore.

MAMMOTH.—Working 100 men. Ore in the new cut is opening ont well. About 6 tons is extracted daily, which assaye $100 to the ton.

DOLLY VARDEN.—This mine ie on the southeast slope of Treasure Hill. A hunch of fine ore was found by one of the owners, by accident, a few days since, which assaye $30 to $40 to the ton. Active operations will begin the coming week.

EAST SHEBOYOAN.—The Exchange and Regent drifts show fair milling ore. Supt. Rogers commenced shipping ore to mill the 7th of the month.

Arizona.

ITEMS.—Prescott *Miner*, June 8: The mines around Prescott now being worked, are yielding plenty of rich ore. The Del Pasco Co. are taking out fair quantities of gold.

Placer miners on Lynx Creek are making from $5 to $20 per day. Those at work on the Hassayampa are also doing well.

Mining in Wallapai Dist ie being prosecuted with vigor and success. Both the furnaces and Hardy's mill are running. Rich discoveriee have been made in the vicinity of Cerbat.

Colorado.

COLORADO GULCH.—Cor. Central *Register*, June 12: Three Cos. will work in Frying-pan Gulch. At California Gulch all the old Cos. are at work, and some new ones. The lode minere are all husy, and with good prospects. The American Flag and Lincoln will help to swell the hnllion product thie summer. Paul & Co. intend to erect a 20-stamp mill on the Iowa Gulch, to crush Printer Boy ore. The main shaft is 280 ft. deep. The Pilot Co. have heen taking out good pay dirt all winter.

Walter Jones is working the Cash Creek Co.'s ground this season, and will succeed well.

The McNulty Gulch Co. found good pay on the side of the gulch where it wae supposed the gulch was worked out, or pay streak had run out.

TENNIS & CO. are working the Unexpected lode, in Lake Gulch. Thoir last run of ore yielded a little over 4 ozs. per cord.

STEVENS & Co. are working the Birmingham lode, and have heen taking ont qnite a low grade of ore, hut present indications are that the ore is improving in qnality.

THATCHER, STANDLEY & Co. exhibited on their counters yesterday, a magnificent sugar loaf-shaped gold retort, weighing 500 ozs., from the Leavitt mine, the product of about 65 oords of stamped ore, and worth $19 per oz. in currency. The gross product of the mine for May, $20,000.

CASCADE.—Carihou *Post*, June 13: The "D. D." lode, Cascade Dist., at 18 ft. is opening out into a splendid crevice of ore 30 inches in width. A short distance from this lode, the same parties—Dora & Dickinson—are sinking on the "Andy Johnson" lode, with very flattering prospects.

Idaho.

LOCAL RECORD.—Silver City *Avalanche*, June 13: The Oro Fino has 500 tons of ore on the dump.

THE Elmore has 300 tons out at the mine, and they are running the 8th lovel drifts from the winze with the utmost dispatch. The main shaft is down 70 ft. below the 7th level, and looks splendidly.

THE Golden Chariot hae 250 tons of ore at the mine ready for milling.

THE War Eagle is looking well both north and south in the drifts.

THE Empire shaft is down 90 ft. and the winze 40 ft. The ledge in the bottom of the shaft is 3 ft. wide, showing rich ore.

THE Illinois Central has 100 tons of rich ore on the dump.

The Omega has commenced taking out ore again.

C. S. Miller has reeumed work on the Red Jacket, and has 20 or 30 tons of rich ore on the dump.

THE placer mines all have a good head of water and are running night and day with good pay.

Montana.

ORO FINO.—Deer Lodge *New North West*, June 15: Partiee who have heen prospecting hetween Oro Fino and Silver Bow, have found fair diggings—$8 to $10 per day. Wages are $5 for whites and $1.75 to $3 for Chinese.

BLACKFOOT.—Correspondence same: Asa Brown, reports a rich discovery of gold-hearing quartz at the headof Ophir Gulch. Frank Green's flume is 1¼ miles long, with large certainties. Mining is going on vigorously.

WASHINGTON GULCH. —Correspondence same: Peter Coffey and Juo. Ferris have opened up Milk Man's Gulch, a tributary of Waehington, and are doing well. Pat Williams, Ferris & Co. are working their claims on Washington Bar, near the mouth of Left Hand Fork, and are making from $9 to $12 per day to the hand. Joe Parmantel & Co. are sluicing in the Right Hand Fork, and doing well. Tim Sinnon & Co. will commence cleaning hedrock next week. Duncan Seaton & Co. have put in a hedrock flume in the lower end of Washington Gulch, and expect to make some good rune.

DEER LODGE MINES.—Deer Lodge *Independent*, June 18: There are 12 hydraulics operating on Pilgrim Bar and something over 100 men find employment at $5 per day. Some Co's. clean up from $4,000 to $5,000 per week, and all the claims are said to pay.

Two hydraulics and 17 gronnd sluices are running at Butte, and aome of the Co's. have taken out as high as from 30 to 50 oz. per week.

About 30 men are in the vicinity of Rocker. Wolverton's new diggiugs, on McMinnville Bar, are paying handsomely.

Several hydraulice and a numher of ground-elnices are running in the vicinity of Silver Bow, furnishing employment for from 75 to 100 men.

CEDAR.—The mines at Cedar Creek are paying well.

Utah.

SHIPPED.—S. L. *Tribune*, June 20: Walker Bros. shipped last evening to the East 5 bare of silver bricke, aggregating 6,843 onnces, and worth about $7,100 in coin.

WILL RUN.—H. S. Jacohs' furnaces at Stocton, will start up inside of 30 days.

OPHIR DIST.—Work is going forward rapidly on all the mines, the Pioneer mill ie in full hlast on all the arastras running and the furnaces filling up .The large water mill power of the New Jersey Milling and Furnace Co is almost completed, together with 2 smelters in course of erection.

An immense force of men are employed on the Zella, Tiger, Rockwell and Petaluma, all combined under the one, Tiger.

Work on the minee in Dry cañon is pushed forward vigorously. Wages in Ophir Dist. ranges from $4 to $4.50 per day.

S. F. Stock and Exchange Board.

THURSDAY, June 27.

The salea at the Board for the week ending Wednesday evening, the 19th inst. were only $1,516,000—smaller than they have been for some months. The Raymond and Ely mine has sent down thus far on June account, $229,200. The Eureka Consolidated mine sent to mill, 790 tons of ore last week and 704 this week. The Eureka mine's last "clean up" was 625 onnces. The Savage mine took out last week 1,283 tons ore assaying $23.76 per ton. The Hale and Norcross mine yielded during the same period 425 tons. The Crown Point mine shipped $40,000 this week; the Meadow Valley shipped between the 8th and 14th inst. $54,000; the Pioche sent down this week $11,000, and the Sierra Nevada mine $4,900. The Crown Point mine yielded last week, 2,840 tons of ore valued at $112,000.

Stocks have fluctuated again considerably this week. On Friday they were very quiet although the market was considered firm; on Saturday the same with some advance in prices. Monday waa a bright day and the market opened strong and Belcher advanced $50 over Saturdays sales, Kentuck $70, Gould & Curry $15, Segregated Belcher $16, Yellow Jacket $6, Raymond & Ely $4, Crown Point $30, Caledonia $5, and Chollar-Potosi and Consolidated Virginia each $2, Alpha declined $1 and Savage $2. On Tuesday prices again dropped, Crown Point declining from previous morniug's sales $20, Kentuck $70, Alpha $5, Chollar-Potosi $3, Exchequer $2, Gould & Curry $2, Segregated Belcher $15, Yellow Jacket $5 and Raymond & Ely $2. Savage advanced $8, Hale & Norcross $8 and Ophir $1. On Wednesday prices were still lower, Kentuck showing a decline of $15 from previous morning's sales, Belcher $45, Chollar-Potosi and Savage each $8, Alpha $3, Crown Point, Caledonia, Hale & Norcross, Exchequer and Ophir each $2. Eureka Consolidated, Golden Chariot and Pioche each $8, Segregated Belcher $5 and Yellow Jacket $6. American Flag raised $1.50. To-day's prices show a still further decline aud the market is very weak.

Fifteen mining companies have levied assessments which become deliuquent in June, viz: Adams Hill Cons., Baltimore, Cascade, El Dorado, Gen. Lee, Hidden Treasure Cons., Ida Elmore, Independent, Justice, Minneaota, Pea Vine, Pride of the Mountain, Union Gravel, Virtue, Washington and Creole. The total amount of their assessments aggregates $220,850. Four dividends have been paid thia month, Belcher paying $312,000 or $30 per share; Crown Point, $300,000 or $3 per share; Meadow Valley, $60,000 or $1 per share; and Raymond and Ely, $210,000 or $7. This sums up as dividends $882,000; while the assessments were $220,850 which leaves a balance for the month in favor of stockholders of $661,150.

The San Francisco *Stock Report*, contains a tabulated statement of the monthly bullion product of the principal mines on the coast for the past year. Twenty-seven mines have yielded $13,355,210, while the yield of the same mines in 1870, was $7,465,000—the figurea, showing an increase of nearly $6,000,000. This is probably due to the increased yield of the Crown Point, Belcher and Savage mines, and the new income from the Raymond & Ely, Meadow Valley and Eureka Consolidated mines.

Comparative Prices—Extremes, Advance and Decline.—S. F. Stock and Ex. Board.

	June 20.	*Highest.*	*Lowest.*	June 27.	*Adv.*	*Dec.*
Alpha	$42	42	25	34	—	8
American Flag	18	19½	17¼	18¾	1¾	—
Belcher	950	1120	950	1005	55	—
Buckeye	—	4½	3¾	3¾	—	—
Chollar-Potosi	119	124	109	110	—	9
Caledonia	45	57	53½	53	8	—
Cons. Virginia	22¾	23¾	20	22¾	—	¼
Crown Point	164	200	152½	178	14	—
Daney	2¾	2¾	2¾	2¼	—	¼
Eureka Cona	29	29	27	27¾	—	1¼
Eureka	16½	16¾	16¾	—	—	—
Exchequer	16	16	8	11	—	5
Gould & Curry	—	172½	150	167½	—	—
Golden Chariot	9	9	7	7	—	2
Hale & Norcross	68	76	59	71	3	—
Ida Elmore	—	16	15	—	—	—
Imperial	7	7	4	5½	—	1½
Kentuck	280	370	270	285	5	—
Mammoth	50c	90c	60c	60c	—	30c
Meadow Valley	15	15¾	—	15¾	¼	—
Mahogany	—	21	21	—	—	—
Ophir	37½	38	32½	36½	—	1
Orig. Hid. Treas.	—	11	10	10	—	—
Overman	75	93	75	86	11	—
Pioche	15½	15½	13½	14½	—	1
Raymond & Ely	138	141	131	138	5	—
Savage	142½	153	142½	142½	—	—
Sierra Nevada	—	16	15¼	16	—	—
Succor	4	4	3¾	3⅞	—	⅛
Wash. & Creole	4½	6½	4¼	6½	2	—
Yellow Jacket	129	137	115	124	—	5
Justice	10	10	8	9	—	1
Seg. Belcher	82½	90	78	85	2¼	—

Latest Prices—Bid and Asked.

	BID.	ASKED.		BID.	ASKED.
Alpha Cons	27	27¼	Ida Elmore	—	—
Amador	—	—	Imperial	4⅞	4¾
Belcher	1000	1000	Kentuck	280	280
Chollar-Potosi	100	102½	Meadow Valley	15½	15¾
Crown Point	169	175	Ophir	32½	33
Daney	2	2½	Orig. Hid. Treas	—	—
Eureka Cons	26¾	27	Overman	85½	86
Eureka	—	—	Savage	138	139
Golden Chariot	—	—	Raymond & Ely	134	135
Gould & Curry	152½	155	Sierra Nevada	15	15¼
Hale & Norcross	68	70	Yellow Jacket	114	115

Mining Shareholders' Directory—Meetings, Assessments and Dividends.

[Compiled weekly from advertisements in the SCIENTIFIC PRESS and other San Francisco journals.]

ASSESSMENTS.

NAME, LOCATION, AMOUNT AND DATE OF ASSESSMENT.	DELINQUENT.	DAY OF SALE.
Alpa M.Co., Ely Dist. Nev., June 18, 50c.	July 26	Aug 19
Arizona&Utah M.Co., Nev., June 4, 50c.	July 10	July 31
Bellevue. Placer Co., Cal., June 20, 50c.	July 29	Aug. 19
Cascade Blue G. M. Co. Cal. May 15, 20c.	June 18	July 9
Cherokee Flat B.G. Co ,Cal. June 8, $1.	July 10	July27
Corona Cons., Eureka Dis, June 25, 10c.	July 31	Aug. 22*
Crown Point Ravine M.Co.,May 3, $5	June 20	July 20
DeHauceM.Co.,OraseValley, June 3, 50c.	July 5	July 22
Eagle Quicksilver May 8, $40	July 11	July 15*
Eckendorm M.Co.,CalaverasCo., June 8,	$3, July 12	July 8
El Dorado M. Co., Cal., May 13, 25c.	June 16	July 10
Exchequer Gold Hill, June 26, $3	July 31	Aug. 22
Francis, Mariposa Co., June 18, $1	July 20,	August 12
Gen.Lee S. M.Co., W. Pino,Ap'l 27,10c.	June 26	July 16
Golden Chariot, Idaho, June 22, $2.20.	July 28	Aug. 17
Dutch Flat B. G. Co.,Cal.,June 11, $1.25,	July 16	Aug 6
Hid. Treas. M. Co., W. P., May 11, 10c	June 17	July 8
Hid.Treas.Cons.M.Co.,W.P.,May 11, 10c.	June 17	July 8
Howard Hill M. Co.,G.Valley, June 4, $5,	July 5	July 20
Hubn & Hunt, Ely Dist., May 29, 50 cts.	July 5	July 26
Ida Elmore M. Co., Idaho, May 24, $3.	June 29	July 27
Independent G. M. Co., Cal., May 10,50c.	June 22	July 12
Ingomar M. Co., Ely Dist., June 5, 25c	July 15	August 9
JacobLittleM.Co.,Virginia,Nev.May 30,$5	July 1	July31
Justice M. Co. Storey Co. Nev., $1	June 24	July 15
Kentuck M.Co.,Gold Hill,Nev.,June 12, $10,	Ju 16	Aug 5
Knickerbocker, Nev., May 30, $1	July 3	July 23
Lemon M. & M.Co , Nev., May 29, $1	July 6	Aug.10
Lyons & Wheeler, Arizona, May 18,10c.	June 24	July 15*
Miua Rica M. Co., May 8, 20c	June 10	July 1*
Minnesota M. Co., I. T., May 12, $1.50.	June 22	July 20
Newark M.Co.,Ely Dist.Nev.,June 12, 50c,	July 22	Aug 17
Newton BoothCone M.Co.,Nev.June 6,30c	July 12	Aug5
Ohio Cons. M. Co. Cal., May 21, 10c	June20	July 20
Overman M.Co.,Gold Hill,Nev.,June 5,$4.	July 18	Aug 7
Pacific Borax Co., Nevada, May 4, 20c.	June 6	July 29
Pea Vine S.M.Co.,Ely Dist.,May 14,20c.	June 20	July 12
Potomac S.M Co.,Nye Co.,Nev.June 6,50c	July 15	Aug19
Pride of Mt. M. Co. Nev., May 7, 25c	June 17	July 10
Rising Star S. M. Co , Idaho, Ap'l 27, $1.	June 1	June 20
Roxby, Gold Hill, June 8, 50c	July 6	July 27
Star Cone., Eureka Dist., June 20, 25c.	July 29,	August 20
St.Patrick M.Co.,Placer Co.,Cal.,June 19,	$3, Ju 27	Aug19
Tecumseh, Gopher Dist., June 26, 10c.	July 31	Aug. 22*
Union G. M. Co., Cal., May 20, $2.50	June 22	July 9*
Union G. M. Co., Cal., June 25, $1	July 29	Aug. 19*
Washington M. Co., May 8, $3	June 11	June 29*
Wash. & Creole M. Co.,Nev.,May 13,75c.	June 20	July 17
Winnemucca Chief, Nev., June 19, 15c.	July 30	Aug. 20*
Woodland M. Co., Cal., May 21, 12½c.	June 25	July 16*

MEETINGS TO BE HELD.

Altona No. 1 Oravel M. Co. ..... Annual Meeting, July 5
Beckwith M. Co. ..... Annual Meeting, July 1
Belmont M. Co. ..... Special Meeting, July 25
Beet & Belcher M. Co. ..... Annual Meeting, July 8
Chollar Potosi M. Co. ..... Annual Meeting, July 8
El Dorado South Cons. M. Co. ..... Annual Meeting, July 1
Evening Star No. 1 Co. ..... Annual Meeting, July 8
Hardy Coal M. Co. ..... Special Meeting, July 9*
Kentucky G. & S. M. Co. ..... Annual Meeting, June 29
Keyatono Quartz M Co. ..... Annual Meeting, July 1
Newark S. M. Co. ..... Annual Meeting, July 1
Norman G. M. Co. ..... Annual Meeting, July 9
Ophir C. S. & G. M. Co. ..... Annual Meeting, July 1
Pocahontas G. M. Co. ..... Annual Meeting, July 2
Pride of the Mountain M. Co. ..... Annual Meeting, July 12
Rock Island G. & M. Co. ..... Annual Meeting, July 1
Union Consolidated M. Co. ..... Annual Meeting, July 20
Woodland G. M. Co. ..... Annual Meeting, July 17

LATEST DIVIDENDS—(Within Three Months).

Belcher M. Co., $30 ..... Payable May 10
Belcher, $30 ..... Payable June 10
Black Diamond Coal Co., ½ per cent ..... Payable May 29
Crown Point G. & S. M. Co., $3 ..... Payable June 12
Eastport, Coose Bay, Coal M. Co., $5.00 ..... Payable June 11
Keystone M. Co., $7.50 ..... Payable April 10.
Meadow Valley M. Co., $1.00 ..... Payable June 20
North Star G. M. Co., $7 ..... Payable April 9
Raymond & Ely M. Co., $7 ..... Payable June 10

——*Advertised in this journal.

Leather Market Report.

[Corrected weekly by Dolliver & Bro., No. 109 Post st.]

SAN FRANCISCO, Thursday, June 27, 1872.

SOLE LEATHER.—The Eastern market ie higher, and some tannere have advanced their prices here. We quote as below:

City Tanned Leather, ₱ lb	26@29
Santa Cruz Leather, ₱ lb	28@29
Country Leather, ₱ lb	25@28
Stockton Leather, ₱ lb	26@29

French skins continue firm. All California skins are scarce and bring full prices.

Jodot, 8 Kil., per doz	$80 00@	
Jodot, 11 to 18 Kil., per doz	70 00@	88 00
Jodot, second choice, 11 to 15 Kil. ₱ doz	60 00@	76 00
Lenie Quenie, 16 to 18 Kil. ₱ doz	75 00@	77 50
Levin, 12 and 13 Kil., per doz	68 00@	70 00
Cornellian, 16 Kil., per doz	70 00@	
Cornellian, 12 to 14 Kil., per doz	60 00@	68 00
Ogorau Calf, ₱ doz	54 00@	
Simon, 18 Kil. ₱ doz	65 00	
Simon, 20 Kil. ₱ doz	68 00	
Simon, 24 Kil. ₱ doz	72 00	
Robert Calf, 7 and 8 Kil	35 00@	40 00
French Kips, ₱ lb	1 10@	1 30
California Kip, ₱ doz	60 00 to	80 00
French Sheep, all colors, ₱ doz	15 00	
Eastern Calf for Backs, ₱ lb	1 15@	1 25
Sheep Roans for Topping, all colors, ₱ doz	9 00@	13 00
Sheep Roans for Linings, ₱ doz	5 50@	10 50
California Russett Sheep Linings	1 75@	5 50
Best Jodot Calf Boot Legs, ₱ pair	5 25	
Good French Calf Boot Legs, ₱ pair	4 00@	5 00
French Calf Boot Legs, ₱ pair	4 00	
Harness Leather, ₱ lb	30@	37½
Fair Bridle Leather, ₱ doz	48 00@	72 00
Skirting Leather, ₱ lb	24@	37½
Welt Leather, ₱ doz	30 00@	50 00
Buff Leather, ₱ foot	18@	21
Wax Side Leather, ₱ foot	20@	22

Wool Market.

We fear there is very little prospect of a rise in woola for some time to come. The next great periodical sale of wool in London takea place in a few days, and that will, as it alwaya has, govern to a great extent the prices of woola in the American market.

The demand among manufacturers is not such as to give strength to the market beyond present prices, whilst the importation of foreign wool continues at a rate exceeding former years; add to this the reduction of duties on imported wools of every grade and we have no real grounds for expecting an advance much above present rates.

THE famous Lindell Hotel, which was the finest in the United States, ie to be rebuilt at St. Louis. It will cover a sqnare 226x182 feet.

Mohair—Its Value.

The following letter from a Kentucky, Cashmere goat grower, will be read with interest by all engaged in the growing of this animal in California:

Mr. N. Gilmore, *Dear Sir.*—Your avor of the 2d iust, reached me last night, having been forwarded to me here where I have a pleasant winter home, on account of infirm health. I regret I did not receive your letter in time to seud you a communication which would embody the information which you particularly desire, aud also that the statistics which I have as to the consumption of mohair are at home in Kentucky and of course not now accessible, aud I fear to state from memory only. But I cau state a fact which will not be unacceptable nor inappropriate, viz.: the mail last night brought me a letter from Messrs. Bauendahl & Co., of 86 North street, New York City, in which they inform me they have sold the remnant of my last clip of goat's wool at 77c. per pound, (the former lot and superior wool having heen eold at 85c. per pound, jnst as it was shoru,) and also that they have an order for 1,000 pounds of mohair of ¾ blood for which they will pay 75c. per pound, and inqnire if I have any more and where they can obtain any.

If the publication of these facts will aid you in the good work in which you are engaged they are at your service.

The interest in Cashmeres is growing fast on this side of the Continent, as well as with you.

I had a pair sent to me here from home, with which to hegin to raise them here, as I am sure this State and all the piue land region of the South, ie well adapted to them.

I will retnrn home in May next, and will be well pleased to hear from you at any time, and remain with best wishee, your friend,

Robert W. Scott.

Miltonville, Florida, March 4th, 1872.

P. S.—Please refer any parties who raise mohair, to Messrs. Bauendahl & Co., who have eold several clips for me satisfactorily, and they can do hetter with it than anyone else. The manufacturers should he sustained and supplied when they call for wool, as their demand will he the hest encouragement to raising it.

Gold and Silver in the Red River Country.

Reports are current of remarkable discoveries of gold and silver in the Red River country. What they amount to, will scarcely be known for some time to come. We may expoct during this summer to hear, if we hear anything, the usual alternation of glowing eulogy and disgusted depreciation, acoording to the interests or temperaments of those who originate the reports. At present, the sanguiue view predominates. "One of the oldest explorers of the Lake Superior region" is of the opinion that the silver discoveries will go far to surpass the Silver Islet mines. Considering that Silver Islet is one of the half-dozen richest deposits in the country, this prophecy is tolerably etrong. Why is it that "old explorers" invariably tell the higgest stories, and seem to believe them to? Possibly one reason is, that no one pursues that business steadily unless he is constitutionally hopeful. Hope, pork and beans are the sustenance of the race; and so all old professional prospectors are sanguine, because those who are not so give up the occupation, or die young. We are not inclined to find fault with a peculiarity which lends so much power to the advance of civilization; and though we do not clearly see that promised rival of Silver Islet, we trust the pioneers who are pressing into the Red River country will not give up the search until they find their treasure, or "know the reason why." It may comfort them to remember that there are many degrees hetween Silver Isletand "no pay;" and somewhere on that long scale, they may find a satisfactory, if not an incredibly gorgeuos reward of their perseverance. — *Engineer and Mining Journal.*

Mt. San Bernardino.—The *Guardian* puhlished an account of the ascent of this famous mountain hy W. A. Goodyear, of the State Geological Survey, one day reoently. It took half a day to ascend from the hase of the mountain, a distance of six miles. He was accompanied hy Mr. Frank Thomas as guide. They remained on top of the mountain ahout three hours. The height of the mountain was estimated at 11,000 feet, and it was extremely cold on the summit, the thermometer indicating 32°. The gulches toward the top were filled with snow, supposed to he 20 feet deep. An adjoining peak was pronounced 800 feet higher.

The culminating point of the Mont Cenis Pass, huilt hy order of Napoleon I., reaches an elevation of 6,775 feet above the level of the sea.

El Espirito Santo.

In 1826, Henry Barnard, Esq., then residing n Truxillo, Peru, eent to Richard Harrison, Esq., of Liverpool, England, the bulb of a remarkahle parasitical, orchidacioue plant, which he had found in the neighborhood of Panama, where it wae looked upon with much consideration, and known ae *El Espirito Santo*—the Holy Spirit; but which had never been seen in the conservatories of Europe. The hulh was properly cared for, and soon began to put forth leaves, hut leaves only, until 1831, when it shot up its first flower stem, which sprang from the base of the bulb, while its leavee grew from the summit.

It was not until the blossom appeared that the significance of its local name was apparent. When the flower had fully opened, a most singular and heantiful appearance wae presented. The fructifying column in the center of the flower, with its surmounting anther and the projecting glands of pollen-massee were observed to present a striking resemblance to a dove—the emblem of the third pereon in the Holy Trinity. Hence the name, *El Espirito Santo*—the Holy Spirit—wae reverentially applied by the native residents, from the same religious feeling which had prompted the name of the "passion flower."

The form of a dove assnmed by the parte of this flower, as described ahove, are remarkably true to natnre. The breast, the extended wings, the head and heak, and even two purple dots for the eyee, are all distinctly shown, and almost as true to nature as the art of man can depict them.

Owing to the great heat required hy this plant, and its peculiarly delicate construction, it has been found very difficult to cultivate it, artificially, away from its native region, which is comprised withiu the central portion of the torrid zone of the Western Continent.

Some two or three years since, as Mr. Shuman, the chief florist at Woodward'e Gardene wae crossing the Isthmue of Panama, he took the opportunity to make a collection of some of the most characteristic tropical plants obtainable in that locality, and among othere was a specimen of the *Espirito Santo*, which still occupies the portion of the native wood upon which it was found—for it is a semi-parasitical plant. Under the excellent care and management of Mr. Shuman, with the very superior facilities furnished hy Mr. Woodward, the proprietor of the gardene, for the cultivation of tropical plants, this epecimen, after continuing in vigorous growth for two years, threw np its first flower etem.

ESPIRITO SANTO—HOLY SPIRIT FLOWER.

Both the flowere and leaves, with the distinct ive dove repreeentation within the center of one of the flowers is shown in the accompanying illnstration, which has been engraved from a photograph taken of the eame while at the hight of its show. The bulb, from the tops of which the leaves grow and from the base of which the flower stem springe, is not shown; hut the leaves, flowers and upper portion of the flower etalk is distinctly shown.

Five leaves spring from each bulb, from twenty to thirty inches in length, hy five or six in breadth—lanceolate in form. The flower stem grows from three to four feet in hight, bearing npon its summit a spike of globose, fleshy, yellowish-white flowers, yielding a very peculiar and delicate perfume.

The flowering of this plant attracted much attention and a large number of visitors to the gardens last season. It is expected that it will flower again this eeason. A carefully prepared representation of the flower was made in wax, at the time, hy Mrs. A. O. Cook, of 304 Mason street, which may be eeen in a small vase just to the left of the front entrance to the rotunda mueeum. Copiee of the same have also heen made, and are in possession of eeveral persons in the city. In its native clime, (Central America) this plant blooms just at the commencement of the rainy season, and, of course, just after ite annual period of rest. The flowers hold on ahout one month. It is now known to hotanists as *Peresteria alata*, and is figured in vol. 5, (new seriee) of *Curtis' Botanical Magazine*, (No. of Engraving 3,115). The plant helongs to the order of *Orchidacea*, a class of plants of wide distribution, occupying in some of its varieties almost every portion of the earth from the equator to almoet the extreme northern and southern limits of the poles. It is only, however, ae we approach the equator that the varietiee of this plant assume peculiar or beautiful forme. There, owing to the peculiar condition of the column, the anther containing the pollen, and the often remarkahle development of some one or more of the inner leaves or petals into nnueual forms, the flowers frequently take the most singular and sometimee beautiful or fantastic forms. An insect, or a spider, a hutterfiy, etc., sometimes a hird, as in the *peristeria alata*, not unfrequently a reptile, and sometimes a helmet with visor closed or raised, and often other singular and most heautiful forme are eeen.

Sometimee there is a peculiar sensihility connected with the flower, which makes it a most effective insect trap, so hinged that it immediately entraps and holds fast any insect which may alight npon it, when its size is sufficient to enclose such intruder.

The particnlar specimen at Woodward'e and which ie herewith figured, is a psuedo-bulbous epiphyte plant—having the appearance of a hulh, hut not a real hulh, and growing upon other plants hut not penetrating their suhstance, nor absorbing their juices, ae is the case with a real parasite. This variety is also eometimes found growing upon rocks or upon the earth, generally choosing dry, hilly localities. It grows well artificially in turfy peat or rotten wood. It is thus kept at Woodward's, where it is eeen in a rustic hanging basket.

Standard vs. Narrow Gauge.

Gen. Haupt writes an article on this sub ject for *Van Nostrand*, in which he allows for the narrow gauge in comparison with the wide gauge three advantages: —Slight saving in weight of axles and cross-heams, and an equal addition to paying load; saving in cross-ties, road-hed and hallast, of say $500 per mile on an average; saving in cost of construction consequent upon the use of sharper curves. "These savings can only he determined in each case hy a comparative estimate based aon ctual location, but they will not amount in the aggregrate 10 per cent. of the savings claimed by advocates of the narrow gange."

But how are the two gaugee compared. The writer tells us. "It is not fair," she says, "to compare narrow-gauge railway? equipped with light rolling stock with the standard gauge on which necessarily heavy engines are used, and credit the saving entirely to narrow gauge." A fair comparison, so far as the question of gauge is concerned, would he to put the light engines and cars upon the standard gange, and then note the cost of construction and operation."

That is to say, it is not fair to compare the two systems *as actually built*, hut to compare the narrow gauge road with a theoretical one of broad gauge. Of course any such comparison is of no value to our people. The question is simply this;—can we build narrow gauge roads where broad gauge is too expensive? No one proposee as yet to huild one of these theoretical broad gauges, while many assure us of the feasihility of the narrow gauge. The hest of the argument for our conditions is decidedly with the narrow gauge advocates thus far.

Nickel Mines in the United States are attracting attention as promising handsome returns. The only such mine now worked is in eastern Pennsylvania, and it pays well. One mine on the Mine-la-Motte tract, Missouri, was worked from 1850 to 1855. The ore was the sulphuret, aseooiated with lead and copper. Ahout $100,000 was realized from the croppings of the vein. Croppings of nickle ore are fonnd also in Madison, Iron and Wayne counties, Missouri. The refined metal is worth ahout $3 per lb., and for many pnrposes supplants silver.

Geological Snrvey in Montana and Utah.

The Salt Lake *Tribune*, of June 17th, reports the arrival of Dr. Hayden, U. S. Geologist, at the camp of his party at Ogden, and that the snrvey will soon hreak camp and commence their explorations. Dr. Haydeu, with a chosen few, will take the stage for Fort Ellis and fit out his expedition from that post. His oorps is organized as follows: Dr. Hayden, Geologist; in charge of the whole expedition; Mr. Savage, Assistant; Mr. Logan, Secretary. Mr. Beckler, Topographer; Messrs. Gannet and Wakefield, Astronomers; Dr. Peale, Mineralogist; Mr. Holmes, Artist; Messrs. Platt and Greve, General Assistants. This hranch of the survey will proceed up the Madison Valley from Ellis to Fire Hole hasiu, the land of the Geysers, and will make a thorough investigation of those wonderfnl physical phenomena. The main hranch of the party, under the management of Mr. Stevenson, the Doctor's long-tried assistant, consists of Messrs. Burch and Herring, Topographers; Messrs. Eastlake and Nicholson, Meteorologists; Adams and Coulter, Botanists; Mr. Jackson, Photographer; Mr. Campbell, Assistant Photographer; Professor Bradley, geologist; Mr. Carrington, icthyologist; Mr. Jacohs, naturalist; Mr. Merriman, ornithologist; Mr. Spencer, guest of the party; Messrs. Beveridge, Brown, Jones, Negley, Taggart and West, general assistants. This section of the snrvey will proceed to Fort Hill, where, ahandoning the wagone, etc., they will push up Snake River Valley and through the difficult country of the Tetons. Colonel Reynolds essayed this feat in 1360, hut was obliged to retire. The parties will join in Madison Valley, thus making a complete geological and topographical survey of a vast region hitherto nnexplored. Congress has appropriated $75,000 to accomplieh this work, and reserved 3,000 square miles adjoining Yellowstone Lake to he held as a puhlic park forever. This is a handsome recognition of Dr. Hayden's service in surveying that country last year. It is seldom that we see science and practical utility advance hand in hand. The former generally precedes the latter; hut valuahle as these surveys are to science, they are none the less so to settlers in opening up the agricultural resources of the far west and indicating the richest lands for settlement. The vast collections made by the party are turned into the Smithsonian Institute at Washington to he classified.

Will Our Mines Last?

Men in Eastern Nevada, says the Eureka *Sentinel*, have not as yet overcome the fear that before many years the mines will be worked out, and white men will have to emigrate to some more propitious land. The result is that permanent improvements are held back, men live in shells instead of houses, business is done on short credits, property is of uncertain values, and generally things are arranged as if a speedy transit were contemplated. And yet this year Nevada will ship nearly or quite one million dollars for every thoueand of her inhahitants, including Indians, Chinese, children, and the multitude of worthless, ever-consuming, non-producing hummers, that are the hane of every Nevada town. We helieve there is no just foundation for the fear that mines in limestone are not as permanent as mines in other formations. We last winter took pains to compile and puhlish statistics showing that the world over the mines in limestone had yielded richer and more permanent results than in any other formation. This trnth is particulary apparent in mines where lead and silver are combined. Our attention was again a few days since called to the same object hy meeting a gentleman from Southwestern Missouri. He informed us that the lead miues there were in limestone, as he expressed it, in a country that looked just like this, except our sagehrush. He told us further that twenty-five yeare ago there was general despondency in all that region; that the people believed their mines were exhausted: now these same mines are heing worked at a depth of 800 feet and are paying hetter than ever. We see no reason to despair; White Pine, Eureka and many other limestone districts will he paying long before the men of the present generation shall have ceased their toil.

According to what appeare to be good authority, we have paid, in the past eight yeare, $169,000,000 in freights to foreign ship-ownere or an average of $21,125,000 a year for that period.

Useful Information.

How Birds are Taught to Sing.

Each kind of bird sings its own peculiar notes, but all may be taught to sing regular tunes. The mocking-bird and thrush learn tunes without training. But, by a regular education, other birds may become fine performers. A contributor to the *Nursery* says:

Last summer I was at a friend's house at Nahant. I rose early in the morning, and went down stairs to walk on the piazza. While there I heard, as I thought, some person whistling a tune in a very sweet style. I looked around, but could see no one. Where could the sound come from? I looked up, and saw a little bird in a cage. The cage was hung in the midst of flowers and twining plants.

"Can it be," thought I, "that such a little bird as that has been taught to sing a regular tune so sweetly!"

I did not know what to make of it. When my friend came down stairs, she told me that it was indeed the little bird who had whistled the sweet tune. Then my friend cried out to the bird, "Come, Bully, Bully, sweet little bullfinch, give us just one more tune." And then this dear little bird hopped about the cage, looked at its mistress, and whistled another sweet tune. It was so strange to hear a bird whistle a regular tune!

"Now, Bully," said my friend, "you must give us 'Yankee Doodle'. Come, come, you shall have some nice fresh seed if you will whistle 'Yankee Doodle.'" And the little thing did whistle it, much to my surprise.

My friend then told me that she had brought the bird from the little town of Fulda, in Germany, where there are little schools for teaching these birds to sing. When a bullfinch has learned to sing two or three tunes, he is worth from forty to sixty dollars, for he will bring that price in France or England.

Great skill and patience are needed to teach these birds. Few teachers can have the time to give to the children under their charge so much care as the bird-teachers give to their bird-pupils.

The birds are put into classes of about six each, and kept for a time in a dark room. Here, when their food is given to them, they are made to hear music, so that, when they have eaten their food, or when they want more food, they will sing, and try to imitate the tune they have just heard. This tune they probably connect with the act of feeding. As soon as they begin to imitate a few notes, the light is let into the room, and this cheers them still more, and makes them feel as if they would like to sing. In some of these schools, the birds are allowed neither light nor food till they begin to sing. These are the schools where the teachers are most strict.

After being thus taught in classes, each bullfinch is put under the care of a boy, who plays his organ from morning till night, while the master or mistress of the bird-school goes round to see how the pupils are getting on.

The bullfinches seem to know at once when they are scolded, and when they are praised by their master or mistress; and they like to be petted when they have done well. The training goes on for nine months; and then the birds have got their education, and are sent to England or France, and sometimes to America, to be sold.

All animals, all birds, and all reptiles—even fishes—are susceptible of culture and improvement. So are plants, roots, and fruits. And, above and beyond all, are human beings capable of almost illimitable development and improvement, both of body and mind.

How to Take Care of a Flute.

Anoint the flute thoroughly and repeatedly with pure raw linseed oil prepared by letting it remain unshaken for several weeks, when the clear oil should be poured off for use. It should be applied, inside and out, every time the flute is put away, it having been carefully cleaned from moisture for the first year, after which an application once a month will be sufficient. Pure olive oil will do better, but it must be oil of olives. On taking the flute from its case for use, the oil should be wiped out with an old silk handkerchief (cotton will do for the outside) wrapped tightly around a stick, using as much friction as possible. This will produce a burnished surface, which, besides aiding in filling the pores, adds to the mellowness of the tone. Care must be had to prevent the metal or anything other than the silk from touching the flute, and to apply the pressure equally on all sides, otherwise the bore will become distorted. To stop cracks that have already appeared, pack them full with good beeswax which has been mixed, by melting and stirring, with a small portion (say one sixth) of rosin, sufficient to stiffen but still leave it viscid; apply when cooled, and cram it in with the finger. Do not be tempted to use shellac or any rigid cement, as it will fail on account of the distention and contraction of the wood by change of temperature. It is well to pass your thumb over the cracks, filled as above, before commencing to play, the object being to smooth them down and insure their being tight, which rigid cement will not admit of.

Filing Saws.

The grand secret of putting any saw in the best possible cutting order, consists in filing the teeth at a given angle to cut rapidly and of a uniform length, so that the points will all touch a straight-edged rule without showing a variation of a hundredth part of an inch. Besides this, there should be just enough set in the teeth to cut a kerf as narrow as it can be made, and at the same time allow the blade to work freely without pinching. On the contrary, the kerf must not be so wide as to permit the blade to rattle when in motion. The points of the teeth do the cutting. If one tooth is a twentieth of an inch longer than two or three on each side of it, the long tooth will be required to do so much more cutting than it should, that the sawing cannot be done well. Hence the saw goes jumping along, working hard and cutting slowly. If one tooth is longer than those on either side of it, the short ones do not cut, although the points may be sharp. When putting a cross cut saw in order, it will pay well to dress the points with an old file, and afterwards sharpen with a fine whet stone. Much mechanical skill is requisite to put a saw in prime order.

One careless thrust with a file will shorten the point of a tooth so much that it will be utterly useless, so far as cutting is concerned. The teeth should be set with much care, and the filing should be done with great accuracy. If the teeth are uneven at the points, a large flat file should be secured to a block of wood in such a manner that the very points only may be joined, so that the cutting edge of the same may be in a complete line, or circle. Every tooth should cut a little as the saw is worked. the teeth of a hand-saw for all sorts of work, should be filed fleaming, or at an angle on the front edge; while the back edges may be filed fleaming, or square across the blade. The best way to file a circular saw for cutting wood across the grain, is to dress every fifth tooth square across and about one-twentieth of an inch shorter than the others, which should be filed fleaming at an angle of about forty degrees.—*Industrial Monthly.*

Hardening Plaster of Paris.—In many cases the rapid consolidation of plaster of Paris is a serious inconvenience; and it is said in the Paris journal, *Les Mondes*, that this may be remedied by the addition of from two to four per cent. of the root of marsh-mallow, finely powdered. With this additive, plastere, it is said, will not set for an hour at least. The mixture, moreover, becomes so hard on drying that it may be sawn, filed, or turned, and is applicable to the manufacture of dominoes, dice, and other small articles. If the addition of marsh-mallow root be carried to an extent of eight per cent., the time of setting is still further prolonged, and the hardness of the mass of plaster, when cold, greatly augmented. Such a composition may, while still soft, be rolled out on a glass slab, and thin sheets produced, which never crack in drying, and which may be afterwards easily detached, and polished by mere friction. Colors may be incorporated with the mixture, and good imitations of marble produced by careful manipulation, or the sheets or slabs may be painted upon when dry, and rendered impermeable by polishing and varnishing.

A Wonderful Spring.—Silver Springs, Fla., is one of the greatest curiosites in the South. It burst forth in the midst of the most fertile country in the State. It bubbles up in a basin near one hundred feet deep and about an acre in extent, and seuding from it a deep stream sixty to one hundred feet wide and extending six to eight miles to Ocklawaha river. In the spring itself fifty boats may lie at anchor—quite a fleet. The spring thus forms a natural inland port to which three steamers now run regularly from St. John's, making close connections with the ocean steamers at Palatka. The clearness of the water is truly wonderful. It seems even more transparent than air; you see the bottom, eighty feet below the bottom of your boat, the exact form of the smallest pebble, the outline color of the leaf that has sunk, and all the prismatic colors of the rainbow are reflected. Large fish swim in it, every scale visible, and every movement distinctly seen. If you go over the spring in a boat you will see the fissure in the rocks from which the river pours up like an inverted cataract.

How to Build Brick Chimney-tops.—All the brickwork above the superstructure, whatever the material of the building, should be made with cement mortar, which absorbs less moisture than that made of caustic lime and sand. The bricks for a chimney-top should be soaked in water for a few minutes, so that they will not extract the water from the mortar. In order to have mortar become very hard, it must dry slowly. By laying wet bricks, the mortar will set slowly, dry slowly, and eventually become almost hard as the bricks. Every brick chimney should be covered at the top with a copestone, and arched top, or bricks placed over the flues, like the rafter of a building, for the purpose of turning off the water which would go down the inside, be absorbed by the bricks, and perhaps soak through and wet the paper or kalsomining on the inside. A chimney-top made as above will stand the influences of the weather over a hundred years without repairs.—*Industrial Monthly.*

Good Health.

Times of Eating.

There is a good deal of shoddy in the popular notions and instructions about the number of times and the times of day of eating. Some people say eat twice a day, others three times, and yet others say eat as often as hunger prompts you. Civilized mankind differ very widely in different countries and different occupations regarding this matter; some people eat five or six times a day and are proverbially healthy, others, and our own among them, eat as a rule but three times and are not as healthy.

There have not been wanting legions of preachers on hygiene who have aimed at the restriction of all men to one rigid rule as to the whole habit of eating, insisting that any infringement will certainly be followed by disaster. But the only thing we have or do insist upon as a rule of eating is that there ought to be some rule and this as a rule adhered to. If a man feels better and is better with two meals instead of three let him take only that number; or if four instead of three agree with him he must be foolish to forego any of them; every man must be in some measure a law unto himself.

But we do not believe that any man can long avoid dyspepsia who does not take his meals every day *at the same seasons* respectively; he must have some regularity as to time if he would be well, and all the observations of physiology bear out the statement. At the accustomed time of a meal, the stomach and other digestive organs prepare themselves by a large manufacture of digestive fluid for their normal task whether food comes to them or not; and every time they do so to prepare to digest food without getting it, they are thereby injured. People who eat irregularly—not who eat often—are more often sick and wear out faster than they who observe regular habits.

Nevertheless, for those whose whole lives are regulated like clock work, as to the time of doing everything, it often is a good thing to break in on the routine by some change, which if often repeated would do injury. A change is a rest, and a change in our regular habits may and often does give the physical system a new life. But to follow up late suppers unless they be made a matter of every day enjoyment would be very injurious.

We know from much observation that farmers, especially the younger members of the class, are much in the habit of eating just before retiring for the night. Now if one can do this every night and be healthier by it, of course it is not to be condemned—and we are far from believing, after some lengthened study on this subject, that it is impossible that any man may be more healthy with such a habit than without it. But we do not feel certain no one can be well doing this every other night; he must make it a regular habit or do it only at long intervals.

There is one sort of a person who may profitably, if not take supper just before retiring, certainly take four meals with profit; we mean such as require a large amount of food and who at each of the three meals are apt to eat too much, feeling after eating drowsy, having much flatulence and some hours after the supper having an accumulation of acid in the stomach that makes them imagine themselves hungry and in need of food, when they have only irritated stomache. By dividing the quantity of food to be consumed daily into four instead of three portions, the stomach may be able to dispose of it in a normal manner.—*Prairie Farmer.*

Sick Headache.—The true cause of sick headache lies deep in the patient's idiosyncrasy, and is developed by a hundred different causes. The advice, then, to sufferers is to give as much tone as they can to their nerves by adopting all those methods which experience has shown to be good, and then avoid as far as practicable, all those causes which are known to excite an attack. I need scarcely describe a sick headache—how one rises in the morning more dead than alive; perfectly unable to swallow the smallest particle of food, and often perhaps actually sick; how the head throbs, and the pain increased by the slightest movement; how speaking or doing is a burden beyond bearing; how one prays to be left alone in the utmost quiet, so that he may, if possible, sleep. To other persons the sufferer looks extremely ill, very pale, dark around the eyes, and with contracted pupil. To himself his head feels hot, and the application of cold ice most refreshing. The clamminess in the mouth, the nausea and general gastric disturbances are secondary, and have no connection with any improper meal, and thus is in no way relieved by the too frequent and ignorantly administered purgative. This is not needed, and has no good result. The only remedies which are of any avail are those which act on the nervous system, such as hot tea and coffee; or, after the stomach is quieter, and the more urgent symptome have passed off, a little wine or ammonia. If the headache take more the form of hemicrania, then remedies are occasionally useful, as the local application of the bisulphide of carbon, or galvanism, and internally the bromide of potassium. This is the only drug which I have really seen to be serviceable. Whilst the nausea exists and the worst symptom prevail, even this remedy is of no avail.—*British Medical Journal.*

Origin of Disease.

Most medical writers and students now accept the humoral theory of disease. This was the theory of the ancients. During the last century, the opposite theory was entertained, and it was maintained that disease was primarily of the solid parts of the system, and that the blood and other fluids became corrupted as a consequence of disease of the solid parts. Modern experiments and research have proved the fallacy of this theory, and demonstrated that bone, muscle, nerve, *fascia*, and all other solid parts, are continually renewed by material drawn from the blood, and that these become diseased only when the blood from which they are nourished deviates from its normal healthy character. Modern science justifies the intuitions of the ancients.

In some diseases, we find the blood carrying too much, and in some too little, earthy matter; there is sometimes an excess, and sometimes a deficiency, of various elements of nutrition, and sometimes the blood is in a state of feverish, yeasty ferment. Of course, the nerves, muscles, etc., built from such blood must be of abnormal or defective organization, for a good article of any thing can be made only of good material. Therefore, in disease, our attention must be directed to purifying the stream from which the affected organs derive their sustenance. The source of this stream is the digestive and assimilative systems; and, to insure good blood, from which sound organs can be built up and replenished, it is essential to furnish good blood-making material, and that the organs for transmitting this into blood be in healthy condition. As these organs are themselves built up and their waste repaired by blood from the general circulation, the same rule applies to them as to other parts of the body.

Almost every form of chronic disease can be traced to some dietetic error. The patient has used improper food, or eaten too frequently, or in too great quantities, or the hours of work and rest have not been such as to favor perfect digestion. These errors may not have produced immediate results, and the patient may truthfully assert his present care in the choice of food and the skill with which he orders the conditions for perfect digestion. The errors were probably in years past, when he felt no ill-effect of his folly. But, during these years, the integrity of the vital organs was being steadily impaired, and their vitality depressed. The effect of this is seen in premature decay, and disease of some kind fastens upon the weaker or more outraged organs. Every person born of reasonably healthy parents, and under favorable conditions, has a stock of vitality which, properly treasured and carefully used, should insure health and vigor to the age of three-score or three-score-and-ten years. Yet one-half of the whole community, both men and women, are falling at thirty, and broken down at forty.

Wine as a Beverage—Tendency of Alcohol to Disturb Healthy Action.

In all our common articles of food, the elements of nutrition and respiration, are so nicely balanced in their proportions, that, for the diet of a healthy man, there is no necessity for adding an extra quantity either to the one class or the other; or, in other words, the supply of nutrition and of animal heat is so admirably equalized, in the composition of common food, that any material derangement of the proportions which it affords, is attended with a corresponding derangement of the vital functions. It is obvious, therefore, that if we add a portion of alcohol to the food taken into the stomach, the elements of respiration are increased and the animal heat augmented in a proportionate degree. No part of the alcohol can go to form the tissues of the body, or to renovate and sustain them, as it is destitute of nitrogen, and not an element of nutrition. It can only serve as an element of respiration, to be burned in the lungs of a man, and to add to the amount of his animal heat. The result is, that as the quantity of alcohol is increased from habit, an unnatural exhilaration is produced, leading to an overtasking of the muscular and nervous systems, and to premature decay in the manhood of the victim. To use a familiar phrase, he has "lived too fast." Let us gain a clearer view of this point by contrast. We know that an insufficient supply of food tends to produce paleness of the cheek, because both the animal heat and the nutrition are less than is demanded to keep up the healthful condition of the system. On the other hand, where age has not indurated the skin, an abundance of food keeps up the vital powers, and the face, possessing the ruddy color of health, bears testimony to a well-stored stomach. But when alcohol is added, in such a case, in excess, the nice balance between nutrition and respiration is destroyed, the healthful action of the animal functions is impaired, the ruddy glow of health disappears from the cheek, the deep red of the furnace heated by flame overcasts the countenance, and the habits of the inebriate stand revealed. Now, if pure alcohol will do all this upon a healthy constitution—and none dare gainsay its truth—how much more fatal, and how much more speedy, must be the production of the crisis, in the drinker's career, where deleterious compounds are used in its stead?—*California Culturist,*

Scientific Press.

W. B. EWER.....SENIOR EDITOR.

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ILLUSTRATIONS AND REPORTS OF MINING ENTERPRISES WANTED.—Drawings or photographs of mining works that are of general interest to our readers are solicited for publication in this journal. Official reports of Companies, and descriptions of mines of importance, or of special interest, are also desired. Sketches of any new method and discoveries will be very acceptable.

San Francisco:

Saturday Morning, June 29, 1872

Gold and Legal Tender Rates.

SAN FRANCISCO, Wednesday, June 26, 1872.—Legal Tenders buying, 89; selling, 89½. Gold in New York to-day, 113½.

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End of Volume XXIV.

The present number completes volume twenty-four of the SCIENTIFIC PRESS, and with the commencement of the next volume we shall again assume our former title—MINING AND SCIENTIFIC PRESS, which was first adopted in 1860, and continued some ten years in deference to the great leading industry which gave the first impetus to the settlement of the Pacific Coast. The reason for dropping the prefix of "Mining" some two years ago and now assuming it again will be more fully alluded to next week. In the mean time we would express many thanks for past favors, and solicit a continuance and increase of patronage to the end that our hands and means may be strengthened for the effort to furnish a paper which shall be a still more complete exponent of the mining and mechanical industries of the Pacific Coast. Readers are reminded that the commencement of a volume is a good time to commence new subscriptions.

A Lecture for Horticulturists.

Dr. Wm. P. Gibbons, of Alameda, will lecture on "Scale Insects" before the Farming, Horticultural and Industrial Club, at Oakland, Friday evening, June 28th. These minute pests are more prevalent upon trees on this coast than is generally known. The Dr. has made a special study of the subject, which at present is one of importance. Mr. A. D. Pryall will deliver an essay on the life of the potato and the propagation of new species of the tuber. The public are invited.

Determinative Mineralogy.

[Written for the PRESS—By HENRY G. HANKS.]

The importance of a knowledge of mineralogy to the miner and prospector, cannot be overestimated.

Gold is not the only metal worth seeking. There are many other mineral substances which the world must have, and for which it is willing to exchange gold. Many of these substances lie hidden in our hills; we walk over them without notice, simply because we do not know where to look for them, nor do we recognize them when found.

Any person of ordinary intelligence may learn to recognize the common minerals and metallic ores.

A certain knowledge of mineralogy may be easily acquired, quite sufficient for practical uses, upon which foundation the entire superstructure of the science may be built up in after life. Every prospector, millman, miner or mine owner, should make himself familiar with the general principles of this beautiful science, and avail himself of the advantages such knowledge affords.

No one should expect to become a thorough scientific mineralogist in a few months; but all may gain sufficient knowledge of the science to be of great use to them. The careful study of a few well selected books, a little practical instruction—if it can be obtained—and practice with the blowpipe, and a few tools and fluxes, will soon afford this.

Any natural inorganic substance, possessing definite chemical and physical properties is a

Mineral.

A pure mineral is homogeneous, the smallest fragment is the same both chemically and physically, as the whole. Ores and rocks are mechanical mixtures of minerals, as in granites, which is composed of three minerals, quartz, feldspar and mica.

Minerals are determined by certain tests, such as hardness, specific gravity, fusibility, electricity, polarization of light, double refraction, color of streak, color they impart to borax beads, color they give to blowpipe flame, by the form of the crystals, etc. A thorough knowledge of these properties and familiarity with the different species, constitute the science of mineralogy. The generally accepted definitions of an

Ore

Is a mixture of certain minerals, from which one or more of the economic metals may be extracted in the large way. Several hundred distinct mineral species are known to science, but many of them are so rare that they have only a scientific value.

Ores cannot be recognized by the above method, but the wonderful blowpipe will enable its skillful possessor to distinguish all the substances of which they are composed. The microscope will be found a useful auxiliary to the practical mineralogist.

Ore specimens are usually examined by a series of

Assays,

Which the knowledge of the blow-pipe enables the mineralogist to perform with great rapidity. By an "assay" is meant the determination of a single constituent.

Thus we may first look for sulphur. This is done by fusing the pulverized ore in a cavity on charcoal, with pure carbonate of soda. The slaggy mass obtained by this operation, is placed on a piece of polish silver and moistened with a drop of water. If sulphur is present, a black coloration is left on the silver. Such a reaction would decide the ore to contain a sulphide or a sulphate, unless silenium was present, which would be recognized by the smell.

Copper

Is found by wetting a small fragment with hydrochloric acid, and heating it in the outer blowpipe flame. An intense blue color indicates copper. All ores of

Lead

Give white malleable metlalic beads before the reducing blowpipe flame on charcoal, either with or without fluxes. The resulting bead when placed on a clean piece of charcoal and blown softly across the support, produces an incrustation which is yellow, both hot and cold.

Silver

Beads may be obtained in the same manner, but do not give yellow incrustations and always remain brilliant and white, even when heated by the oxidizing flame.

Gold is best found by washing down a quantity of the ore containing it, closely examining the residue of black sand and sulphurets which usually remains. If further examination is necessary, the gold may be collected by mercury and melted on charcoal into a bead. If it is gold it cannot be oxidized nor will any single acid attack it.

Mercury

Is recognized by yielding metallic globules of that metal in the upper end of a closed tube when any ore containing it is heated with carbonate of soda in the lower part.

Iron

Is distinguished by its being magnetic either before or after strongly heating it, and by the color it imparts to a borax bead held in a loop of platinum wire.

Bismuth

Is known by some peculiarities of its incrustation before the blowpipe, and by the action of water on its acid solution, by which a white precipitate is thrown down.

Cobalt, Chromium, Manganese

And some other metals are known with certainty by characteristic colors they give to beads of borax and microcosmic salt.

The study of the properties of minerals is extremely interesting, and to those who pursue it, it has a rare fascination.

Formerly minerals were described and classified by their form, color, mode of fracture, etc., as shells and fossils are still classified. The diamond, the ruby, the sapphire and other gems formed a group by themselves, while now, having been found to be carbon, the diamond is classed with mineral coal, jet, and graphite.

Minerals Possessing Similar Chemical Characteristics

Are in modern science placed side by side. Thus the simple elements form a distinct group. The carbonates, the silicates, the oxides, the chlorides, the sulphides, the sulphates, etc., form classes or groups. These are subdivided from other peculiarities, as in the case of the silicates—which form a large group—those containing water (hydrous) and those which do not (anhydrous) are the first subdivisions.

The most recent works on mineralogy are so arranged as to form of themselves tables of mineral species for reference. Thus, if the student is sufficiently skilled in determinative mineralogy to decide by experiment, that a mineral is a

Carbonate,

He will turn to that part of the work descriptive of carbonates, and will find that this class is subdivided into hydrous, and anhydrous

Carbonates.

A simple test will reveal the presence or absence of water. If water is found, he may reject all those species which are set down in the anhydrous division, and seek for a description among the hydrous species. But as this mode of determination has many disadvantages, tables have been constructed, which by a multiplicity of subdivisions, so reduce the number of species in the subdivisions as to render the final determination comparatively easy.

[Concluded next week.]

Cincinnati Industrial Exposition, 1872.

We have received a beautifully printed pamphlet of fifty-six pages, containing the list of officers, rules and premium list for the Third Cincinnati Industrial Exposition, which will open on the 4th of Sept. and continue—Sundays excepted—till Saturday evening, Oct. 5th. Five large buildings will give seven acres of covered exhibiting space. Many new features will be presented in the Fine Art, Natural History, and Horticultural Departments. Most liberal premiums are offered and in every respect it promises to be the most comprehensive and perfect Industrial Exposition ever attempted in the United States.

THE KIMBALL Car Company have recently turned out from their shop an elegant palace street-car for the City Railroad Co., which is intended to run from the Grand Hotel to Woodward's Gardens. It will hold 25 persons, and the interior is furnished with California laurel. It is handsomely fitted up with plate-glass windows, damask curtains, mirrors, handsome cushions, carpets, etc., and the roof is beautifully frescoed. The Kimball Car Co. deserve great credit for the style of their work, as does Mr. Woodward for putting such an elegant "turn-out" at the service of the public.

THE FIRE in the Amador mine was still burning on the 22d inst., and heavy caves in the shaft are said to have occurred.

Root's Wrought-Iron Sectional Boiler.

We gave an illustration and description of this boiler in the SCIENTIFIC PRESS of May 20, 1871, and a working model of it may be seen at the Pacific Iron Works, First street, in this city. One of the boilers will arrive from the East by next steamer, which will be set up at the same place for public inspection. The boiler is about to be introduced on this coast by Capt. Holdredge, agent of the company manufacturing them.

One great advantage it possesses lies in the facility with which it can be transported in rocky or mountainous sections of country, owing to its light weight. The working portions is composed entirely of wrought iron boiler tubes which are tested to a pressure of 500 pounds per square inch. The size of the boiler makes no difference in this respect since they are all composed of a greater or less number of the same parts uniform in size and strength. It presents great facility for examination, cleaning and renewal. It furnishes dry steam and is a very rapid generator.

This boiler was among the first introduced to obviate the danger in the use of the old fashioned shell-boilers and carries a high pressure, with at the same time, great economy in fuel. It is claimed that by its use there is much less danger from explosion than by the old style and that the insurance is much less than when the others are used. It can be transported on mules, to mining districts in regions where roads are unavailable. The iron tubes are constructed so as to bear 45,000 pounds per square inch, textile strain, across the sheets, their small diameter permitting them to stand great pressure. It is said that the boiler possesses great durability and permits enlargement or reduction of size, without disturbing foundations or sidewalls. The principal advantage claimed for it is its safety from explosion, secured by the sub-division of water and steam into small compartments and small diameter of the tubes combined with great strength. We advise all who are interested in any way in steam and steam boilers to go and see the Root boiler, when it arrives, or the model which is now on exhibition at the above mentioned foundry.

RECEPTION TO DR. LOGAN.—Dr. T. M. Logan, one of our Sacramento correspondents, and an early and highly respected physician of that city, was made the recipient of a complimentary reception, attended by a banquet, on the occasion of his recent return from Philadelphia, whither he had been to represent the medical fraternity of this State at the late National Medical Convention. The reception was given by the Sacramento Society for Medical Improvement, and was largely attended. The address of welcome, by Dr. Hatch, President of the Society, and the reply of Dr. Logan, were both well conceived, and most appropriate to the occasion. We regret that their length, and the crowded state of our columns, will not admit of their insertion in the PRESS. Several appropriate toasts were given, and duly responded to. The occasion was really a feast of reason and a flow of soul. As an evidence of the estimation in which Dr. Logan is held by the members of his profession at the East, we may remark, that the Doctor has been chosen President of the American Medical Association, by the Convention, to which he was accredited, and whose duty it is to name that officer.

POSTAL CARDS.—The system of correspondence by postal cards which has been for some time in vogue in Great Britain, has now been introduced into the United States. These cards are simply an open card, ruled on one side for the address and on the other for the letter. The address side has a place for a stamp and both card and stamp cost only one cent. For ordinary communications where no particular secresy is required the system is a good one and will no doubt be extensively used.

MARIPOSA ESTATE.—It is said that work has again begun on the mines of the famous Mariposa Estate. A number of Chinamen are taking out ore from the Pine Tree and Josephine mines in Bear Valley, and the Benton mill—90 stamps—is crushing ore. The new work will employ about 1,000 more Chinamen, it is said, and some 200 white men as foremen, mill hands, teamsters, etc.

MINERS are wanted in most all of the mining districts on the coast.

Our Home Industries.

Silver Plating Works of Haynes & Lawton.

No one who has occasion to pass the corner of Market and New Montgomery streets, can fail to be attracted by the magnificent display of plated ware to be found in the establishment of Messrs. Haynes & Lawton, and but few there are, who would at first sight imagine that the beautiful and artistic specimens of plated ware there to be found, are the product of the skill of San Francisco citizens. This is, however, the case, and proves conclusively, that if the Pacific Coast is one of the greatest silver producing regions of the world, that its cities are destined at no distant day to become the principal centers for the manufacture of gold and silver ware.

The work carried on here, is of two principal kinds; to-wit: the plating of White or Britannia Metal, and the

Plating of Amalgamators

For quartz mills. This branch of the business is that which is destined ultimately to become of most importance. The immense extent of the mines of the Pacific Coast, and the enormous aggregate of capital invested in them, render it of the first necessity to possess some method of preventing the escape in the process of extraction of fine particles of gold. More gold is lost through imperfect processes of extraction, than any one is aware of. The copper plates commonly used for amalgamation, require to be treated constantly with cyanide of potassium, to prevent the oxidation of their surfaces, and the consequent escape of the amalgam in passing over them. But it has not been found possible to prevent oxidation entirely by the use of unprepared copper-plates; for this purpose it has been found necessary to have them plated with silver, which has an affinity for the amalgam, and retains it.

The Process

Is the same for plating amalgamators as it is for plating ordinary Brittania ware, the only difference being that for the former a stronger solution and a larger bath have to be used. The raw silver is prepared by cutting it down with acid, by which it is reduced to a fine powder. It is then a chloride of silver, and is reduced to the state of pure silver, by precipitating it with common salt, and washing it in clean water. The articles to be plated are first cleaned by immersion in a kettle of boiling potash where they remain ten or fifteen minutes. They are then rinsed off and scoured and are removed to the solution baths which are elliptical in shape. Of these there are three for plating articles of domestic use, and one for plates. The former holds seventy-five gallons and the latter holds one hundred and fifty gallons. The solution is made of the prepared silver previously described, of cyanide of potassium, and of clear water in the respective proportions of 1 oz., 1 lb., and 1 gallon. Into one of the solutions, which is termed a striking solution, inasmuch as the article receives a coating instantaneously, the articles are first dipped; they are then removed to a second and finally to a third in order to receive a heavy enough coating. This process takes from eight to ten hours. Amalgamators are only treated in one solution, which as we have already intimated is made peculiarly strong. The proper thickness of coating is obtained by the use of Smee's batteries, of which there are ten in the establishment. Two are used for each of the small baths, and three for the large amalgamating ones. From them a circuit is formed round the bath, and to two poles or rods, connecting with them, are hung a series of wires. First pole is on the edge of the bath and has plates of silver one eighth of an inch in thickness depending from the wire attached to it. The other is placed across the top of the bath and has the article to be plated attached to its dependent wires. The first pole is called the positive, the second the negative. A current from the battery dissolves by degrees the silver plates attached to the positive pole and passing through the solution forces it on the articles depending from the negative pole. This is the whole process. Amalgamating plates having received the solution are finished, but spoons, teapots, knives, etc. have to be burnished.

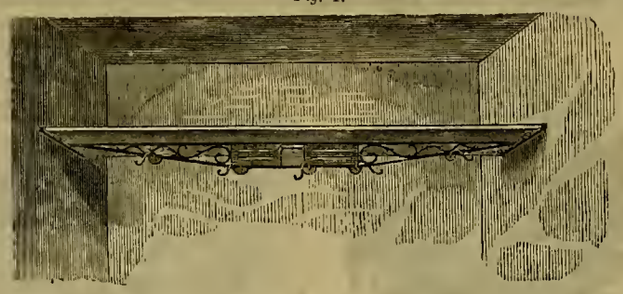
Other Facts.

The amalgamating plates which are used by the principal companies on the Coast, are of various sizes, generally from three to four feet long by one foot wide, but one has been plated recently, of the dimensions of four feet by four and a half. They will stand a year before wearing out. The cost of plating is about $5 per square foot. The other plated articles can be used five or six years without replating. There is used here on an average about 140 ozs. of silver per month, one third of which is required for the amalgamators. But this statement gives only a very faint idea of the real value of the manufacture as the labor, etc., make up the principal cost. The works have been established over four years, and are under the superintendence of Mr. Shipman who came from the East to superintend them.

Hanging Bracket and Adjustable Shelf.

The object of this simple and useful invention, is to supply a want which has long been felt in every well regulated household, namely; —an adjustable shelf which can be readily

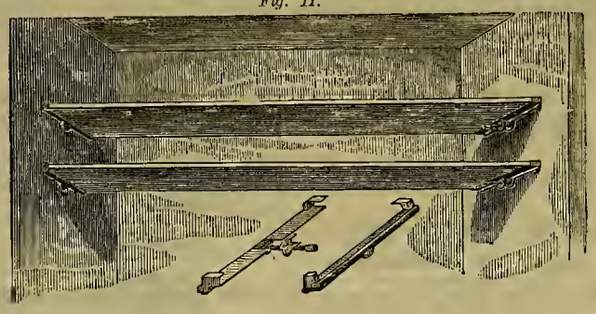
Fig. I.



raised, lowered or removed without either the assistance of a carpenter or carpenters' tools, (which are so seldom to be found in every house when required,) also a drop or hanging bracket to be attached to the adjustable shelf, or to be used independently under a horizontal surface, such as a low ceiling, an ordinary shelf, etc.

Before describing the above inventions, we will give a brief description of their capabilities and merits. The adjustable shelf will prove

Fig. II.



invaluable on book-cases where they can be easily lowered or raised according to the sizes of books; in pantries and drawers as a security against the collection of vermin, as they can be removed and washed; to papered or hard-finished houses they are particularly adapted, not defacing or injuring the wall in the slightest degree, dispensing entirely with the use of nails, and affording the paper hanger or whitener facilities for working, which no other arrangement of shelf can possibly present. In changing dwellings it can be removed without difficulty. Some of its forms can be adapted either to recesses or projections, for hanging signs, cornices, etc., and when erected with any of the many forms which the drop will take, will make a complete wardrobe.

In stores, show cases, country houses, ships' cabins, office closets, and wherever space is limited, it would almost be impossible to overrate the value of this combination. The hook alone, is as protean in its adaptabilities as the adjustable shelf. It can be used equally as well on vertical or horizontal planes, without injuring its surface, with one or many drops, either revolving or stationary, and will serve as a substitute for hat racks, clothes-horses, meat hooks, or revolving dryers in laundries, and a thousand other household purposes too numerous to mention. Its simplicity is shown in the following description and accompanying cuts.

Figures 1 and 2 represent the improved extension shelf. The form shown in Fig. 1 is composed of two light iron arms or trusses suitably ornamented and having at their ends sockets extending along the ends and at right angles to the arms, sustaining and clutching the board which forms the shelf. The outer side of the sockets are grooved to contain rubber or any other elastic material, so that the rubber will rest against the wall. A sliding device operated by a screw at the center, where the arms are placed between the projections of the wall forces the rubber at each end against the wall, firmly gripping it, supports the shelf. Numerous hooks can be cast on these arms for supporting various articles. Fig. 2 shows a modification of the above device, in which the sockets are cast to fit the board for forming the shelf, the rubber being placed in the outer groove as before. One of the sockets is provided with a clamp and set-screw, the clamp working against the board and the set-screw against the socket. By turning the screw the rubber is forced against the wall, the shelf sustaining all the weight the board will support.

Figures 3 and 4 show two forms of the patent drop or hanging bracket used for supporting various articles. Fig. 3 represents a drop suitable to a horizontal surface. A conveniently-shaped hub is used, having a screw at one end for the purpose of attaching it to the ceiling, etc., the sides of the hub containing any number of slots or dovetails, into which the hooks are inserted so as to project at any angle required. The hub may swivel on the screw and the arms project all around,

Fig. IV. *Fig. III.*

and by this means any article may be turned conveniently to the person requiring it. Figure 4 is a modification of the above, suitable to a vertical plane standing at right angles to the wall, etc., and can be used with any number of hooks. This is designed to take the place of the ordinary clothes-hook, over which it has numerous advantages. Further information concerning this patent can be had of S. N. Bliven & Co., (under the What Cheer House, Sacramento street) who are the agents for the sale of it.

Mining Patents. — United States Patents have been received for the Little York Water and Mining Company's claims, and the Picayune Mining Company's claims, in Nevada County.

The Miners strike at White Pine has been satisfactorily settled, and all the mines that suspended work have started up.

Patents & Inventions.

Full List of U. S. Patents Issued to Pacific Coast Inventors.

[From Official Reports to Dewey & Co., U. S. and Foreign Patent Agents, and Publishers of the Scientific Press.]

FOR THE WEEK ENDING JUNE 11TH.

Grain Cleaner.—John H. De Force, Healdsburg, Cal.; antedated June 7, 1872.

Griping-Pulley.—Andrew S. Hallidie, S. F.

Bedstead-Fastening.—Seneca Jones, S. F., Cal.; antedated May 23, 1872.

Rock-Drilling Machine.—Asahel J. Severance, S. F., Cal.

Wind-Wheel.—William I. Tustin, S. F., Cal.

Attachment for Whiffletrees.—James T. Williams, S. F., Cal.

Oyster-Nursery.—Benjamin F. Lyford, S. F.

Note.—Copies of U. S. and Foreign Patents furnished by Dewey & Co., in the shortest time possible (by telegraph or otherwise) at the lowest rates. All patent business for Pacific coast inventors transacted with greater security and in much less time than by any other agency

Notices of Recent Patents.

Among the patents recently obtained through Dewey & Co's Scientific Press, American and Foreign Patent Agency, the following are worthy of mention:

Improved Baling Press.—F. A. Huntington and J. F. Carter, San Francisco, Cal. This press is intended for baling hay, straw, wool, cotton, or other balable substances. It consists mainly in the combination of a single horizontal baling-chamber with a follower, which is operated by a toggle or knee lever without the intervention of any gearing or other machinery. It also consists in a novel construction of the sides of the chamber and the end door and its fastening, for strength and facility of discharge. The chamber for holding the material to be baled has an end door having a flange or rim so as to inclose and hold securely the sides of the chamber, which are slightly beveled; when closed this flange incloses the side and top walls of the baling chamber. The walls of the chamber may be either elastic or hinged a short distance back from the end so as to separate easily to allow the bale to be removed. The door is secured by a hasp on one side and a sort of cam-lever on the other. The latch hooks on a small projecting catch on the lever, when it is standing out from the body of the press; and by drawing the lever down against the side it draws the latch tight and secures the door. The follower is made so as to move easily in the chamber, and has guiding bars at the sides. A lever is hinged to the center of the back end and extends out to a point where it is pinned to the end of another lever.

Machines for Concentrating and Amalgamating Ores.—W. T. Rickard, Monitor, Alpine Co. Cal. The invention consists of a horizontal tank, cylindrical in form, through which a central shaft passes. V or X shaped plates are secured upon this shaft so as to swash the contents of the tank back and forth as the shaft is revolved. The plates may be amalgamated if desired. The machine can also be used as a churn if desired, the same motion being suitable for converting the cream into butter.

The Text of Interesting Decisions in Patent Cases.

DECISIONS OF THE COURT.

U. S. Circuit Court, Southern District of New York.

S. F. DAY AND H. A. MANN vs. BANKERS' AND BROKERS' TELEGRAPH COMPANY.—In Equity. Decision rendered January 20, 1872.

Patent of S. F. Day for Improvement in Electro-Magnetic Telegraphs — Mere Change of Degree not Patentable.

The combination, in an indenting telegraphic registering instrument, of a sounding-box, a lever, and a sounding-post, so arranged that the blow of the armature will be struck directly toward the box (which forms the subject of the second claim of S. F. Day's reissued patent of March 23, 1869), is applicable as well to a local current produced by a local battery as to a main line current where a local battery is not used.

As the use of the arrangement in a local current would be an infringement of the claim, the prior use of the arrangement in a local current is an answer to the claim.

Such a combination was in use in the "Chester sounder" as a successful practical telegraphic instrument before the invention of Day.

A small box having been used in a local circuit for making the sound produced by the stroke of the armature more audible: *Held*, that to increase the size of the sounding-box for use in a main line circuit, so as to secure a larger volume of sound, was an obvious change, and was not an invention. The difference is one merely in degree, not in patentable substance.

Base Bullion.—There was received at Los Angelos on the 24th inst. 434 bars of base bullion from Cerro Gordo for San Francisco.

DOMESTIC ECONOMY.

The Family Table.

Of all the familiar features of the family there is noue that posseeses a greater interest or greater capacity of coutrihnting to the household happiness, than the table. It is the prime unitcr—the first and chief prompter of that nnity which makes the family the integer of hnman organization. It wields a more than patriarchal authority. The father's commands may he forgotten; the mother's wiehes thoughtlessly disregarded, hut with its white cloth, the table is a power which is never resisted or slighted.

The members of the family may be scattered in different places—somo at the counting honse, some at the work shop, eome in the forest, in pursuit of pleasure or duty. The magic of the white cloth reaches them wherever they are, and its mute invitation summons them home. And even when the family is shattered to fragmente and scattered over the whole earth —when each departing member has become the head of a different family, that unforgotten picture of a white cloth and the tea-urn will still assert its power, and gather the wanderers from the distant land to joyous thauksgiving under the old roof tree.

The family board should he honored of all, where churlishnese, coldness, silence and frowns should have no place. It may he made thrice a day the scone of a festival richer and rarer thau picnics in wooden groves or sumptuoue feasts in gilded saloons. Its offering may be frugal and humble—hut no matter; better is its dinner of herbs, if flavored with love and spiced with vivacity, than the rich courses of a grand hotel, where strauge huudreds ewallow and gulp amid a clatter of dishes, regardless of each other's presence, or the wearv and monotonous meale of the boarding house, where the people knew each other too well to be entirely reserved, and too little too he familiar. Each aesemblage round the family table has its peculiar charm, aud each may be made a feast.

The tahle is no place for stiff dignity, or austerity. Biting bread and butter, and taking soup from a spoon may he done pleasantly and gracefully; hut to infuse dignity aud stiffnese iu the operation is inexcusahly ridiculous. Hnnger is a leveler, and eating and drinking is one of the most delightful pleasures. No one has a right to disguise the iunocent satiefaction of it at tho family board, hy the affectation of an exemption from so human a weakness ae an appetite or disdain of the viands set before him. The pleasantest family picturee are those cheerful dining-room assemblages, where father, mother, brother, sisters eat and drink cheerily, as though it did them good, aud cloth, urn, dishes and spoons seem to look happy in general joy.

To Collect the Onors of Flowers.—Roses, and all flowers containiug perfumed oils, may he made to yield their aromatic properties hy steeping the petals or flower leaves in a saucer or in a flat dish of water, and setting it in the sun. The petals should be entirely covered with the water, which, hy the way, should he soft or rain water. A sufficient quantity should be allowed for evaporation, and the vessel should be left undisturbed a few days. At the end of this time a film will be found floating ou the top. This is the essential oil of the flower, and every particle of it is impregnated with the odor pecnliar to the flower. It should be taken up carefully and put in tiuy vials, which should he allowed to remain opeu till all watery particlce are evaporatcd. A very emall portion of this will perfume glove-hoxes, apparel, etc., and will last a long time.

To Cleanse a Stove Pipe.—Raise up the bottom of the pipe, where it is attached to the stove, and hurn it ont hy inserting half a newspaper saturated with coal oil, and the soot will givo very little tronhle. A pipe more than twenty feet long is thns cleared out in an instaut. It should he done when there is very little fire In burning wood a large quantity of water settles in the pipe, especially, if the weather is very cold, and the pipe is horizontal. Thus water sometimes mixes with the soot and forms a paste, which is often troublesome and cannot be hurned out as ahove. In such cases, the only way is to take tho pipe down and release it by slightly thumping the pipe in the usual way.

Pickled Onions.—Choose the small, white round onions, take off the hrown skin, have a stewpan of boilng water ready, and then throw in as many ouions as will cover the top; as soon as they look clear on the outside, take them up as quick as poesihle with a slice, and lay them on a clean cloth, cover them cloee with another, and scald eome more and eo on. Let them lie to he cold, theu put them in a jar, or glass, or wide-mouthed hottle, and pour over them the best white pickling vinegar, just hot, not boiling. Whea cold, cover them; should the outer ekin ehrivel, peel it off. They must look quite clear.

Daying Beef. — It is stated that flies can be kept from beef hung up to dry, in warm weather, by the use of hlack pepper. Heat a ehovel red hot and eprinklo the pepper upon it. The smoke will rout the flies at once. Follow this up three or four days, as occasion may require, and the flies will give it up.

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C. P. R. R.
COMMENCING
Monday, April 29th, 1872.
And until further notice, Trains and Boats will
LEAVE SAN FRANCISCO.

7.00 A. M. Overland Express Train for Sacramento, Marysville, Red Bluff, Colfax, Reno, Ogden and Omaha.

3.00 P. M. San Jose Passenger Train, stopping at all way Stations.

4.00 P. M.* Passenger Train for Stockton, Merced and Sacramento.

6.30 P. M. Overland Emigrant Train, Through Freight and Accommodation.

7.30 A. M. Steamer New World (from Broadway Wharf) —Connecting at Vallejo with Trains of California Pacific Railroad.

4.00 P. M.* Sacramento Steamer (from Broadway Wharf). Connecting at Vallejo with trains of California Pacific Railroad.

2.00 P. M.* Steamer Antelope, from Broadway Wharf, connecting at Donahue with Trains of S. F. and North Pacific Railroad.

8.00 A. M. Excursion Boat (Sundays only) from Broadway Wharf, connecting with Special Train of S. F. & N. P. R. R. for Cloverdale and intermediate points, returning to San Francisco by 7 P. M.

OAKLAND BRANCH.—Leave San Francisco, 7 00, 8 10, 9 2., 10 10 and 11 20 a. m., 12 10, 1 50, 3 00, 4 00, 5 15, 6 30, 8 05 9.20 and *11 30 p. m. (9 20, 11 20 and 3 00 to Oakland only).
Leave Brooklyn, *5 30, 6 40, 7 50, 9 00 and 11 00 a. m., 1 30, 2 40, 4 55, 6 10, 7.40 and 10 10 p. m.
Leave Oakland, *5 40, 6 50, 8 00, 9 10, 10 00, and 11 10 a. m., 12 00, 1 40, 2 50, 3 50, 5 05, 6 20, 7.50 and 10 20 p. m.
ALAMEDA BRANCH.—Leave San Francisco, 7 20, 9 00, and 11 15 a. m., 1 30, 4 00, 5 30, and 7 00 p. m. (7 20, 11 15, and 5 30 to Fruit Vale only).
Leave Haywards, *4 30, 7 00 and 10 45 a. m., and 3 30 p. m.
Leave Fruit Vale, *5 25, 7 35, 9 00 and 11 20 a. m., 1 30, 05 and 5 30 p. m. *Except Sundays.
T. H. GOODMAN, Gen'l Pass'gr and Ticket Agt. A. N. TOWNE, Gen'l Supt.

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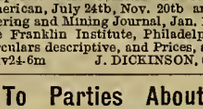
DICKINSON'S
Patent Shaped Diamond Carbon-Points.
Fig. 1 Fig. 2 Fig. 3 Fig. 4



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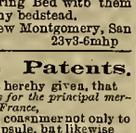

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Any man can make his own Spring Bed with them by attaching them to the slats of any bedstead.
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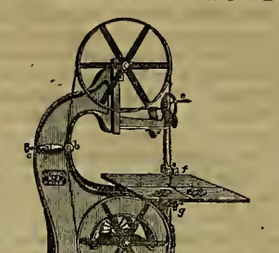

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The News Letter is the most reliable organ representing the moneyed and substantial interests of the City and State; its Banking, Real Estate, Commerce, Insurance, Mining and other Stocks. It reflects the times as they pass; men, manners, literature, theatricals and follies. It is piquant and pungent by turns—wise, witty, grave, gay, lively and severe; the mentor, whip and mirror of the town. Sold by all Booksellers and News Agents throughout the world.
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These Pumps have been tested, and found to be indisputably without an equal wherever tried. They have been sold in the Pacific States now for upwards of 4 years, and we are willing every one in use may be referred to; every Pump will speak for itself. They are constructed in the most simple style, and built in the most thorough manner—especially calculated for simplicity, durability and power. Some of the advantages of the Blake Pump may be summed up as follows: It is positive under any pressure. May be run slow or fast, as may be desired. Will discharge more water than any others of the same dimensions. Has no leaky joints, the steam part being cast in one entire piece. The steam valve is perfectly balanced, is cushioned at each end, and slides with the greatest facility, having no cams nor complex Rotary Arrangements to get out of order. Will start at any point of the stroke, and will discharge all the water of condensation. The Pump has no crank or fly-wheel, thereby saving a considerable item of expense to the purchaser. Having no dead points, it therefore needs no watching, and is consequently ready to start without using a starting bar or any hand-work whatever. The Blake Pump is extensively used on Railroads and Steamboats; is Hotels; for Mining and Fire purposes; in Breweries, Tanneries, Sugar Houses, Factories, Mills, Laundries, and as Boiler Feeders, wherever steam is employed. In fact, wherever water or other liquids are desired to be raised in large or small quantities, or against heavy or light pressure, it is the cheapest and best Pump that can be used. It is offered to the public as the most perfect independent steam Pump ever invented. Forty different sizes are made, capable of throwing from 1,000 to 200,000 gallons an hour, and adapted to any class of work that may be required. Every Pump will be warranted to perform the work required of it by the purchaser, or it may be returned, and the money will be cheerfully refunded. The Blake Pump was awarded a Silver Medal at the Exhibition of Mechanics' Institute, San Francisco, and State Fair at Sacramento, as being the best Steam Pump on Exhibition. The agents have recently imported several of the largest-sized Mining Pumps for water works and deep mines, and will be pleased to refer parties to them; we claim for it, that it is the most simple and durable, and consequently the best Steam Pump ever built. For sale by TREADWELL & CO., Machinery Depot, old stand, Market, head of Front Street, San Francisco, who will be pleased to send circulars to any address, or show its advantages to parties calling on them.

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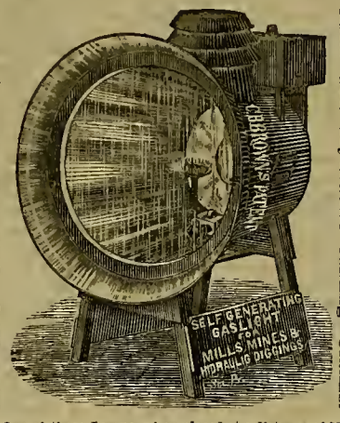

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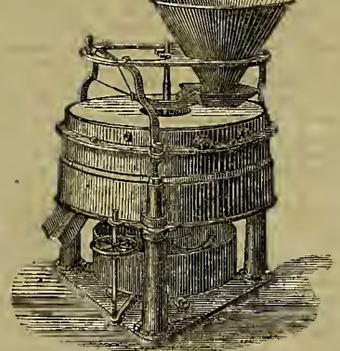

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In these days of thieves and Burglaries, every householder should have a revolver for home protection.
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This Company have removed from the corner of Turk and Larkin streets, to their new and Commodious works corner of Greenwich and Octavia. They have established an office and salesyard at the Junction of Market and Bush, where they will keep constantly on hand an assortment of ORNAMENTAL, BUILDING, CEMETERY and GRINDSTONES. Orders will be received at the above office from all who wish to get good work at low prices. Send for Circular. 5v24-3amslamrly

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The above named Fuse are warranted equal to any made in the world.
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A large and complete stock of these celebrated arms constantly on hand, to wit:
Repeating Sporting Rifles—Oiled Stocks.
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Gold, Silver and Nickle-plated Rifles—beautifully Engraved.
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Full stock constantly on hand of all the different parts of the Winchester Arms.
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Manufacturers and have constantly on hand
SPORTING,
MINING,
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POWDER,
Of SUPERIOR QUALITY, FRESH FROM THE MILLS. It being constantly received and transported into the interior, is delivered to the consumer within a few days of the time of its manufacture, and is in every way superior to any other Powder in Market.
We have been awarded successively
Three Gold Medals
By the MECHANICS' INSTITUTE and the STATE AGRICULTURAL SOCIETY for the superiority of our products over all others.
We also call attention to our
HERCULES POWDER,
Which combines all the force of other strong explosives now in use, and the lifting force of the BEST BLASTING POWDER, thus making it vastly superior to any other compound now in use.
A circular containing a full description of this Powder can be obtained on application to our Office.
16v20-3m JOHN F. LOHSE, Secretary.

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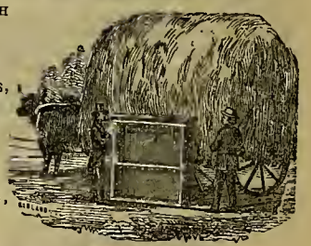

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Office Desks and Book Cases
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18v24-6m SAN FRANCISCO.

The Pioneer Merchant.

In all the vast fields of mercantile enterprise, if there is any one pursuit that takes prominence over others, for its varied pheeee of usefulness, connected at the same time with all the viciesitudes of success and disappointment incident to an intimate connection and direct dealing with all the veried conditions and characters of the great world ontside the cities, thet person or pursuit is found in the Pioneer Merchent.

We eay pioneer; because let there be bnt a breath whispered, that here or there, a mining camp is inevitble, or at this or that point along the line of survey of some projected railway, or interior wagon road, and you find among the first to set hie stakes or pitch his tent at some proposed village site, will be the country merchant.

He leeds off, in every enterprise calculeted to aid the growth and prosperity of the new village. He is looked to, on account of his supposed conuection with merchents aud solid men of the cities, for the influence necessary to secure immediate postal connections with the great centers of trade aud business; and is supposed to be able to do anything, know everything, and everybody.

If school hcuses or churches are wanted, or a 4th of July celebration projected, he is expected to give to every eubscription a liberel starter; and to alleviate the wants of the poor or unfortunate, he is the one first celled upon, and always responds. He tekes stock in every projected turnpike or toll bridge likely to bring trade or travel to his embryo villege; gives liberal support to the first newspaper started, by paying more for advertising his business than any other trade, occupetion or profession.

He ie expected to heve the very best assortment of goods aud of the best quality, and sell them at the very lowest rates, and while doing so, is expected to take his pey in eggs at the very highest price, and even then is told by his cuetomers that they can buy the same kiud of goods cheaper in Sen Francisco.

And finally if a seeson of drouth occurs, with its usual attendante of short crope, "hard times" or a scarcity of money, he is expected to trust his goods in any amount, to everybody and without security, and weit for his pay any indefinite length of time that the nature of the case, or condition of the seesons, or ability or willingness of creditors to pay, mey seem to require.

And thne we find the pioneer merchaut of our mining camps, agriculturel and embryo villages, among the most useful, stirring, enterprising aud intelligent of the world's tradespeople.

New Incorporations.

The following have filed certificates with the County Clerk, Sau Francisco.

Admiral Nelson T. & M. Co.—Juue 22. Location: Little Cottouwood District, Utah Territory. Capital stock, $6,000,000, in shares of $100 eech. Trustеee—Samuel Purdy, R. H. Sinton, George F. Sharp, D. P. Belknap, aud Samuel Storer.

Atlantic and Pacific Cons. G. M. Co.—June 19. Location: El Dorado County. Capital, $5,000,000—in 25,000 sharee. Trustees—James S. Houseman, John Crocker, Jemes Curtis, Isidor Burns, S. Selomons, William Holden, Samuel Beatty, Daniel McLeod and H. Kosminsky.

Meetings and Elections.

The Star Consolidated Mining Compeny have elected the following Trustees for the ensuing yeer: O. F. Giffin, G. T. Lawton, L. S. Adams, J. H. H. Williams and Robert Sherwood.

The Mission Bay Bridge Compauy elected as Trustees on the 25th iust., Leland Stanford, C. P. Huntington, Mark Hopkins, Robert Robinson, and J. L. Wilcutt.

The Washingtou and Creole Mining Compauy have elected the followiug Trustees: C. F. Mc Dermott, Martin Tarpey, M. Skelly, A. J. Bowie Jr. aud Geo. D. Roberts.

The Imperial Mining Company elected the following Trustees on the 25th inst.: A. K. P. Harmon, J. D. Fry, H. C. Kibbe, J. H. Dobinson, Wm. Norris, Alpheus Bull and Thomas Bell. W. E. Dcan was elected Secretary.

The Mahogeuy Mining Company met on the 26th inst. and elected the followiug Trustees: Tyler Curtis (President), R. McKee, O. H. Bogart, John McFadden Thos, J. Owens. Secretary and Treasurer.

Silver Dollars to the number of 310, came up by the last Panama steamer, from the wreck of the Spanish Galleon Leocadia, which was sunk on the coast of Ecuador, 70 years ago. They were fished up by the Pacific Coast Wrecking Co., and are oxidized so as to look very little like silver.

A Day Among the Mills.

Milling Operations in Six and Seven-Mile Canons.

Tbe following is a eummary of tbe working condition of tbe various mills in the Six and Seven-Mile cañons, commencing witb tbe

Parke & Bowie.

To Ira S. Parke helongs the credit of perfecting a process, wbereby tbe tailings and slime can he made to give up their minute deposits of silver and gold. Various other parties bave essayed the same thing, but witbont meeting witb financial success. During the past four years the saving of gold and silver, from the waste of other mills, has grown to be an important branch of industry. Parke & Bowie are now running two mills on tailings and slime, hoth of wbicb are taxed to their utmost capacity. At present they are working seventy tons per day. The feeders for these mille are the old Savage works at Empire, the Nevada mill, Winfield mill, Bassett mill, and the Land mill, in Seven-mile Cañon. Two fourteen-mule teams are engaged in bauling tbe tailings from the Desert, whicb were lost in early times. Tbe lower mill is engaged on tailings gathered in a reservoir at Sugar Loaf in '63, '64 and '65. The above-mentioned firm are working seventy-five men, five teams (two of tbem the finest in the State), and six cart horses. Tbe mill is constructed so strongly, that a ten-horse team witb 30,000 pounds can be driven in upon the upper floor directly over the pans. Five pans are nsed in tbis mill, and six cbarges are put througb in twenty-four hours. We saw some of the "flonr" from this mill. It heats "Genessee" altogetber. We were strongly tempted to bring away a bandful in our pockets. The amalgamating processes in hotb mills are under the personal supervision of Mr. Sbay. In tbe upper mill one of the finest engines in tbe country is in operation. It is 65-horse power, witb 14-inch cylinder, 32-inch stroke, and has a piston-balance valve. The driving wbeel makes 75 revolutions per minute. Only two-tbirds of the capacity of tbe engine is taxed in running a full mill. The firm are about to put in a new ohlong pan called a "double muller." Tbe pan is 11 feet long, 5¼ feet wide, and 5 feet deep. It will hold about 5 tons. The muller will make 85 revolutions per minute. Two settlers will he used with this pan. There will be two discharge tubes leading from the pan into each settler. Tbe advantage this pan has over others, consists in the violent agitation produced witbin by the two mullers working togetber and throwing tbe pulp against each otber. Amalgamation is greatly facilitated by this procese. Thie pan is the invention of Mr. Parks. A patent has been applied for. The pan will work equally well in tailings or quartz pulp. A new style of boiler has been ordered for nse in this mill, called the Root Safety Boiler. It has no shell—is merely a number of tuhes, 10 feet in lengtb, set up on an incline of 30 degrees. A tube can be replaced at any time, and tbe capacity can he increased by putting in additional tuhes.

Nevada Mill.

The Nevada Mill bas 21 stamps and 12 Greeley pans. It is running on Chollar ore, and crushing 50 tons per day. Tbis mill has uuusual facilities for saving slime.

Winfield Mill.

This mill has 18 stamps. It is crnshing 40 tons of Chollar ore daily.

Land Mill.

The Land mill has 20 stamps. It is working on Cbollar ore, and crushes 45 tons per day. At this mill we saw a New Haven rock-breaker. Never before did we witness such a striking illustration of the power of mind over matter. Great bowlders of quartz would disappear in its rapacious maw with marvelous celerity.

Evans Nfll.

This is an energetic little mill, having but 6 stamps. It crushes 15 tons of Savage ore per day. Tbe battery bas a self-feeder and a double discharge. The drop of tbe battery is at the rate of 106 per minute. Tbis mill bas two Horn pans, with a settler to eacb pan. In connection with tbe other macbinery tbere is a Knox pan, which is used solely for testing rock sent to the mill hy prospectors.

Mariposa Mill.

This mill has 12 stamps, and works 40 tons of Hale & Norcross ore per day. It was leased from the bank of California by Messrs. Fair and Mackey tbree years ago. After it had been run for seven montbs the mill was thoroughly overhauled, and new tanks, pans and settlers substituted. The battery makes 95 drops per minute. The mill bas 5 Horn pans, 3 settlers and 1 clean-up pan. Its working capacity has been increased from 24 tons to 40 tons with tbe same number of stamps. It is, in all prohability, tbe steadiest running mill in the State. Tbe average loss of time is only an bour per month. Great economy has been practiced by the foreman in saving slime and tailing. We were shown a plan of a 10-stamp mill, as designed by Mr. Bisbee, which, as regards economy and convenience, we do not helieve can be surpassed.

Sierra Nevada Mill.

This 20-stamp mill crusbes from 55 to 60 tons of ore per day. It bas 2 pans and 1 settler. The rock from the Sierra Nevada mine is worked principally for the gold, which is caugbt in the battery and on copper plates. The water used in this mill is pumped out of tbe mine. The ore is brought directly from the mine to the mill hy a cbute.—*Virginia Enterprise.*

New Lighthouse.—Tbe Oregon Iron Works situated in Portland, have just finisbed tbe iron work for tbe new ligbthouse being erected at Cape Foulweather, situated 170 miles soutb of tbe moutb of the Columbia river. Tbere are five flights of stairs, corkscrew style, floors, framework for the lantern to sit on, with railing and a hundered other fixtures, all of as elegant wrought iron work as could be turned out of any similar establishment, which reflects great credit on a young manufacturing place like Portland. The lighthouse is to be a first-class one; it will be built principally of brick. The mason work will be eigbty feet bigb, the lantern portion about twenty feet, making tbe entire huilding fully one hundred feet in bight. The light is to be a stationary one, but it will he so arranged that it can be easily changed to a revolving one if it is afterwards found desirable to do so. The entire work is under the snpervision of Mejor H. M. Robert, Government engineer for the river and harhor improvements of the Pacific coast. It will be a beautiful structnre, a valuable acquisition for the safety of the sbipping of this coast, and will be lighted about the 1st of January next. The entire cost will be from $90,000 to $100,000.—*Cor. Bulletin.*

Sutro Tunnel.—The *Territorial Enterprise* of tbe 9tb says:—The Sutro Tunuel is now in a distance of 2,911 feet. During the past week the tunnel was pushed forward ten feet. Day before yesterday the work of opening the tunnel to its full hight and width was commenced. Good progress is being made on the new air sbaft, whicb is fifty-four feet in depth, tbirty feet of whicb was made this week. A cross-cut, eigbteen feet in length, has been made from tbe tunnel, and from the end of this they are preparing to make a "raise" to meet the work that is being done above. Shaft No. 1 is now down 203 feet and is in good gronnd, hut very wet; No. 2 is down 498 feet, in good ground, but tbe water is fast increasing; No. 3 is down 263 feet in bard ground; No. 4 is down 254 feet, in good ground, but the water is coming in. The company now employ 280 men, and are pushing the work as rapidly as possible at every point. The progress of the tunnel will hereafter be watched witb considerable interest as it is fast approaching a point wbere it is likely to cut some of the leads crossing through from the Flowery to the Devil's Gate range.

To Wine Shippers.—In enswer to a letter from the Wine Growers' Associetion of Napa and Sonoma, the C. P. R. R. Company makes the following proposition:

"If the Sonoma people will agree to forward their wines via the 'Overlend Route,' we are prepered to give the following retes, eud issue through bills of lading accordingly—nemely: On wine, in wood, in carloads, from Santa Rosa (or Nepa), to Chicego, St. Louis and New York, $2.21 per 100 ponnds. In quautities less than carloads, $3 per 100 pounds. To Indianapolis, Cincinnati, Boston, Philadelphia and Baltimore, in car loads, $2.46 per 100 pounds; in less quantities, $3.46 per 100 pounds.

Temple of Diana at Ephesus.—After being buried for years, this femous temple wae discovered about twelve months ago by Mr. Wood who has been searching for it since 1863. A large area has been cleared to the pevement; the deposit above was 22 feet deep, and various architectural marbles have been recovered. The scale of the architecture is colossal, exceeding in proportions all other Grecian temples. The style of eculpture is bold and effective ae decoratiou, but inferior to that of the purer periods of Grecian art. Mr. Wood is shipping the best of the specimens to the British museum.

Blast at Dutch Flat.—A dispatch, dated June 26th, etates that a blaet of 3,500 pounds No. 2 Giant Powder, in Harriman & Taylor's gravel bank, at Gold Run, on that day, threw down and broke 200,000 cubic yards of gravel. The blest was a decided success.

San Francisco Metal Market.

PRICES FOR INVOICES

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

THURSDAY, June 27, 1872

Iron.—			
Scotch Pig Iron, ₱ ton	$30 00	@	85 00
White Pig, ₱ ton	70 00	@	75 00
Refined Bar, bad assortment, ₱ lb	— 04½	@	— —
Refined Bar, good assortment, ₱ lb	— 05	@	— —
Boiler, No. 1 to 4	— 05½	@	— —
Plate, No. 5 to 9	— 06	@	— —
Sheet, No. 10 to 13	— 08	@	— —
Sheet, No. 14 to 20	— 08	@	— —
Sheet, No. 24 to 27	— 09	@	— —
Horse Shoes	7 50	@	
Nail Rod	10		
Norway Iron	8		
Rolled Iron	5		
Other Irons for Blacksmiths, Miners, etc.	5	@	6
Copper.—			
Sheathing, ₱ lb	— 40	@	— 45
Sheathing, Yellow	— 30	@	— 33
Sheathing, Old Yellow	— 12	@	— 12½
Composition Nails	— 28	@	— 30
Composition Bolts	— 28	@	— 30
Tin Plates.—			
Plates, Charcoal, IX ₱ box	19 00		19 50
Plates, I C Charcoal	17 00		17 50
Roofing Plates	16 00		16 50
Banca Tin, Slabs, ₱ lb	— 50		— 55
Steel.—English Cast, ₱ lb	— 15		— 16
Drill	15		16
Flat Bar	17		18
Plough Points	3 75		
Russia (for mould boards)	12½		
Quicksilver.—₱ lb	— —		— 65
Lead.—Pig, ₱ lb	— 05¾		— 06
Sheet	10		— —
Pipe	— 9		— 10
Bar	— 06½		— 07
Zinc.—Sheets, ₱ lb	— 11		— 11½
Borax.—Refined	— 27		— 30
Borax, crude	— 6		— —

HINTS FOR INVENTORS. We will send on receipt of stamp for postage, FREE, our 52-page Circular, containing 112 Illustrated Mechanical Movements; a digest of PATENT LAWS; information how to obtain patents, and about the rights and privileges of inventors and patentees; list of Goverment fees, practical hints, etc., etc. Address DEWEY & CO., Publishers and Patent Agents, San Francisco.

State University.—The next term of the Preparatory Department will begin April 20th, 1872.

The course of study embraces the Ancient and the Modern Languages and the higher Mathematics, and is specially adapted to the University curriculum.

Terms, $12 a term. GEORGE TAIT, Oakland.
13v3bp-tf

50 CENTS A COPY

Will be paid at this office for a few copies of the Scientific Press of January 7, 1871. Subscribers having broken files on hand will please examine and see if they cannot accommodate.

Philadelphia Agency.—W. H. Daffin, formerly of San Francisco, is our correspondent and business agent, Frankford, Philadelphia, Pa.

H. Bahlen & Bro., formerly of Havilah, Kern county, will please communicate with this office.

A NEW BOOK ON MINING.

The Explorers', Miners' and Metallurgists' Companion; Comprising a Practical Exposition of the Various Departments of Exploration, Mining, Engineering, Assaying, and Metallurgy. The Most Practical and Comprehensive Work on Mining Subjects Extant. Comprising 640 Pages, and 81 Engravings. By J. S. Phillips, M. E. Price, bound in cloth, $10 (in coin); in leather, $12. Forwarded by mail, in cloth, $11.40, currency; in leather, $13.75. Issued and for sale by Dewey & Co., Patent Agents and Publishers Scientific Press, S. F.

MARAVILLA COCOA.—No breakfast table is complete without this delicious beverage. The *Globe* says: "Various importers and manufacturers have attempted to attain a reputation for their prepared Cocoas, but we doubt whether any thorough success had been achieved until Messrs. Taylor Brothers discovered the extraordinary qualities of 'Maravilla' Cocoa. Adapting their perfect system of preparation to this finest of all species of the Theobroma, they have produced an article which supercedes every other Cocoa in the market. Extire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homeopaths and invalids we could not recommend a more agreeable or valuable beverage." Sold in packets only by all grocers, to whom also may be had Taylor Brothers' Original Homeopathic Cocoa and Soluble Chocolate Steam Mills—Brick Lane, London. Export Chicory Mills, Bruges, Belgium. jun29-5w

RICHARD H. BUEL, Consulting Mechanical Engineer, 7 Warren Street, New York. Advice and assistance given to those who desire to invest funds in meritorious and valuable Patent Rights. Machinery of all kinds bought and sold. Unusual facilities for testing engines, boilers and other machinery. I refer particularly to Professor R. H. Thurston, of the Stevens Institute of Technology, who has consented to associate himself with me in consultation on matters of special importance. jun15-3t

Continental Life Insurance Co., 302 Montgomery street, corner of Pine.

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The Pacific Rural Press is now in its third volume. Its columns contain a large amount of original information upon the different branches of husbandry on this coast. Its great variety of contents is properly systemized for the convenience of the reader, and ably prepared in pleasing language and style. Each number contains something of rare interest to every member of the household.

The state of this new field of agriculture, so different from all others; the new and improved methods of farming necessary here; and the absence of any published record of farming and rural experience on this coast, form a combination of circumstances which render a really good journal of greater importance to farmers here than are similar issues to farmers in any other part of the world.

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This is a new 16-page monthly newspaper, of special information for wholesale and retail tradesmen. It will also contain reading of interest and importance to all business and professional men on the coast.

OUR TABLE OF CONTENTS

Will comprise Full Prices Current and Monthly Review of the Wholesale Markets; Diagrams of the Fluctuations of the Produce Markets; Rates of Freight and Passenger Fares—corrected monthly; Illustrations and Sketches of Prominent Mee and Buildings; Editorials on Manufacturing and Industrial Progress; Departments containing appropriate reading matter and reviews for various branches of trade, including "Grocery and Provisioo," "Dry Goods;" "Trades and Manufactures," etc., etc.

Our first issue for May consists of 24 pages, embracing FORTY-FIVE COLUMNS of important reading matter—mostly original and by first-class writers. Sample copies, post paid, 10 cts. Yearly subscription, in advance, $1. Subscribers to the Scientific Press or the Pacific Rural Press will be supplied at half price.

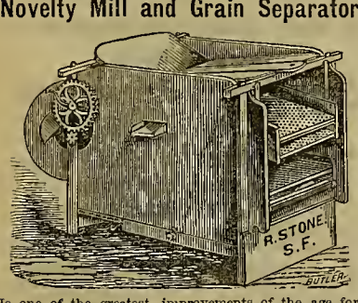
Published by MURRAY, DEWEY & CO., At the Publishing Office of the Scientific Press and Pacific Rural Press, San Francisco.

THE NEW U. S. MINING LAWS.

The new Laws of 1872, governing the location and purchase of Placer and Quartz Mines, and Agricultural Lands in Mining Districts, of the U. S., printed in circular sheet, for sale at this office. Single copies 10 cts. Usual discount to the trade.

THE PATENT

Novelty Mill and Grain Separator



Is one of the greatest improvements of the age for cleaning and separating Grain, while it combines all the essential qualities of a first-class Fanning Mill. It also far excels anything that has been invented for the separation of Grain. It has been thoroughly tested on all the different kinds of mixed Grain. It takes out Mustard, Grass Seeds, Barley and Oats, and makes two distinct qualities of wheat if desired.

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R. STONE,

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Mining and Other Companies.

Owing to the time necessary to mail the present large edition of the Scientific Press we are obliged to go to press on Thursday evening—which is the very latest hour we can receive advertisements.

Corona Consolidated Mining Company—

Location of works, Eureka District, Lander County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 25th day of June, 1872, an assessment of Ten Cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company, No. 409 California street, up stairs, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the 31st day of July, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the 22d day of August, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. F. CRONISE, Secretary.

Office, 409 California street, San Francisco, California. Jun29-3t

Eagle Quicksilver Mining Company---Lo-

cation of works, Santa Barbara County, California.

Notice is hereby given that at a meeting of the Board of Trustees of said company, held on the 8th day of May, 1872, an assessment of $40 per share was levied upon the stock of said company, payable immediately in gold coin of the United States, to the Secretary at his office, room 5, No. 302 Montgomery street, San Francisco, California.

Any shares upon which said assessment shall remain unpaid, on Thursday, July 11th, 1872, shall be deemed delinquent, and will be duly advertised on Saturday, July 13th, 1872, for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 15th day of July, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees. WM. H. WATSON, Secretary.

Office—Room 5, No. 302 Montgomery street, San Francisco California. ma11.

Excelsior Mill and Mining Company—Lo-

cation of works, Cope Mining District, Elko county, State of Nevada.

Notice is hereby given, that at a meeting of the Trustees of said Company, held on the 20th day of June, A. D., 1872, an assessment of Two Dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, No, 415 Moutgomery street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on Saturday, the 27th day of July, A. D., 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Mouday, the 19th day of August, A. D., 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. FRANK SWIFT, Secretary.

Office, No. 415 Montgomery street, San Francisco, Cal. Jun22-3t

Hudson Gold Mining Company—Location

of works, Cherokee Mining District, Plumas county, State of California.

Notice is hereby given, that a meeting of the Trustees of said Company, held on the 18th day of June, A. D., 1872, an assessment of Ten Cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the company, No. 411 California street. Any stock upon which said assessment shall remain unpaid on Saturday, the 27th day of July, A. D., 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the 17th day of August, A. D., 1872, to pay the delinquent assessment, together with costs of advertising and expenses of the sale.

J. L. KING, Secretary.

Office, 411 California street. Jun22-3t

Lyons & Wheeler Mining Company—Lo-

cation of works, Maynard Mining District, Mohave County, Arizona Territory.

Notice.—There are delinquent upon the following described stock, on account of Assessment, No. 2, levied on the 18th day of May, 1872, the several amounts set opposite the names of the respective Shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Archibald C. Peachy.....	7	100	$10 00
Archibald O. Peachy.....	8	100	10 00
Archibald C. Peachy.....	9	100	10 00
Archibald C. Peachy.....	10	100	10 00
Archibald C. Peachy.....	11	100	10 00
Archibald C. Peachy.....	12	100	10 00
Archibald C. Peachy.....	13	100	10 00
Archibald C. Peachy.....	14	100	10 00
Archibald C. Peachy.....	15	100	10 00
Archibald C. Peachy.....	15	100	10 00
Archibald C. Peachy.....	17	100	10 00
Archibald C. Peachy.....	18	100	10 00
Archibald C. Peachy.....	19	100	10 00
Archibald C. Peachy.....	20	100	10 00
Archibald C. Peachy.....	21	100	10 00
Archibald C. Peachy.....	22	100	10 00
Archibald C. Peachy.....	23	100	10 00
Archibald C. Peachy.....	24	100	10 00
Archibald C. Peachy.....	25	100	10 00
Archibald C. Peachy.....	26	100	10 00
Archibald C. Peachy.....	27	100	10 00
Archibald C. Peachy.....	28	100	10 00
Archibald C. Peachy.....	29	100	10 00
Archibald C. Peachy.....	30	100	10 00
Archibald C. Peachy.....	31	100	10 00
L. L. Robinson.....	34	5000	500 00
E. Martin Smith.....	36	2500	250 00
L. Maynard.....	37	2500	250 00

And in accordance with law, and an order of the Board of Trustees, made on the 18th day of May, 1872, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Company, Room, No. 3, No. 419 California street, San Francisco, California, on the 15th day of July, 1872, at the hour of Three o'clock P. M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

T. W. COLBURN, Secretary.

Office, room No. 3, Hayward's Building, No. 419 California street, San Francisco, California. Jun29-3t

Mina Rica Mining Company—Location of

Works, Auburn Mining District, Placer County, Cal.

There are delinquent upon the following described stock, on account of assessment levied May 8th, 1872, the several amounts set opposite the names of the respective shareholders, as follows:

Name.	No. Certificate.	Shares.	Amount.
Slosson, R. D.....	7	550	$110

And in accordance with law, and an order of the Board of Trustees, made on the 8th day of May, 1872, so many shares of each parcel of stock, as may be necessary, will be sold at public auction, at the office of the Company, No. 320 California street, room No. 5, San Francisco, California, on Monday, the first day of July, 1872, at two o'clock, P. M., of that day, to pay said delinquent assessments thereon, together with cost of advertising and exponses of sale.

Jun15-3t GEO. R. SPINNEY, Secretary.

San Francisco, Juns 13, 1872.

"Pacific Ramie Company"—Notice Is

hereby given, that at a meeting of the Board of Trustees of said company, held on the 11th day of June, A. D., 1872, an assessment of Twenty Cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary at his office, No. 214 Battery street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 13th day of July, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, August 8th, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. THOS. R. HAYES, Secretary.

jun22-td

Stockholders' Meeting—Office of the

Hardy Coal Mining Company, San Francisco, June 4, 1872

In accordance with a resolution adopted at a meeting of the Trustees of the Hardy Coal Mining Company, held this day, a special meeting of the stockholders of said company is hereby called, the same to be held at the office of the company, 338 Moutgomery street, San Francisco, California, on Tuesday, the 9th day of July, at 11 o'clock A. M., to take into consideration and decide upon the proposition to increase the capital stock of the said company, from two hundred thousand dollars, divided into four hundred shares of five hundred dollars each, the present capital stock of the company, to five hundred thousand dollars, divided into five thousand shares of one hundred dollars each.

I. BARTLETT,
E. WARD McLEAN,
JACOB HARDY, } Trustees

Tecumseh Gold, Silver, and Copper Min-

ing Company—Location of Works, Gopher District, Calaveras County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 26th day of June, 1872, an assessment (No. 14) of ten (10) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, F. J. Herrmann, at the office of the Company, No. 634 Washington street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the 31st day of July, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the 22d day of August, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

F. J. HERRMANN, Secretary.

Office, 634 Washington street, Room No. 2, up stairs, San Francisco, Cal. Office hours from 11 A.M. to 2 P.M. June29-3t

Union Gold Mining Company—Location of

works, Howland Flat, Sierra County, Cal.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 25th day of June, 1872, an assessment of one dollar ($1.00) per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company rooms, No. 22, Merchants' Exchange, California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 29th day of July, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the 19th day of August, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

ALFRED K. DURBROW, Secretary.

Office, room No. 22, Merchants' Exchange, California street, San Francisco, Cal. June29-3t

Winnemucca Chief Silver Mining Com-

pany—Location of Works, Humboldt County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the 19th day of June, 1872, an assessment of fifteen cents per share was levied upon the capital stock of said Company, payable immediately, in United States Gold coin, to the Secretary, at the office of the Company, No. 409 California street, up stairs, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the 30th day of July, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the 20th day of August, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. F. CRONISE, Secretary.

Office, 409 California street, San Francisco, Cal. June29-3t.

Woodland Gold Mining Company—Lo-

cation of Works, West Point Mining District, Calaveras County, California.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the 21st day of March, 1872, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificates.	No. Shares.	Am't.
John H Wood, Trustee.....5	20	$2 50
John H Wood, Trustee.....8	20	2 50
John H Wood, Trustee 9	20	2 50
W H Rhodes.....23	500	62 50
George Bower.....24	500	62 50
Isaac S Allen.....25	500	62 50
H O Howard, Trustee.....2	200	25 00
Wallace Everson 29	442	55 25
C F Brown, Trustee.....30	500	62 50
C F Brown.....33	26	3 25
William Stuart 34	606	75 75
William J Gunn.....36	126	15 75
Frederick Madge.....44	1,000	125 00
Frederick Madge.....45	300	37 50
John H Wood, Trustee....47	200	25 00
John H Wood, Trustee....49	50	6 25
Thomas Anderson.....54	250	31 25
Jules Greenhood.....57	500	62 50
Jules Greenhood.....58	500	62 50
Frederick Madge.....62	150	18 75

And in accordance with law and an order of the Board of Trustees, made on the 21st day of May, 1872, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, by John Middleton & Son, at No. 310 Montgomery street, San Francisco, California, on the sixteenth day of July, 1872, at the hour of one o'clock, P. M. of said day, to pay said delinquent assessments thereon, together with cost of advertising and expenses of sale. F. MADGE, Secretary.

Office, No. 64 Merchants' Exchange, California street, San Francisco, California. Jun29-3t

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O. F. Richards & Co., Agents, corner Clay and Sansome streets, San Francisco, Cal.

Norman Gold Mining Company---Location

of works, Aqueduct Mining District, Amador County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said company, held on the 27th day of June, 1872, an assessment of five cents per share was levied upon the cap tal stock of said company, payable immediately in United States gold coin, to the Secretary at the office of the company room 5, No. 302 Montgomery street San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on Thursday, the 1st day of August, 1872, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the 22d day of August, 1872, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. H. WATSON, Secretary.

Office—Room 5, No. 302 Montgomery street, San Francisco.

Editors Scientific Press.—An erroneous impression prevails that the GIANT POWDER Company's Works exploded. This is not the case; but the works of the Hercules Powder Company (which is a totally different substance) were destroyed by the explosion.

The undersigned will fill all orders for both grades Giant Powder, as heretofore.

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Fourth of July Celebration !

☞ Headquarters of the Grand Marshal, No. 417 Kearny street.

A CORDIAL INVITATION

Is extended to all Military and Civic Organizations in this City and County to participate in the Celebration of the approaching Anniversary of American Independence. The heads of all organizations are earnestly requested to signify their acceptance of this invitation, and make immediate application at these headquarters, that they may be assigned positions in the line.

By order.

R. BEVERLY COLE,
26v3td-hp Grand Marshal.

To Engineers and Millmen.

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Self-Acting Lubricators for Cylinders.

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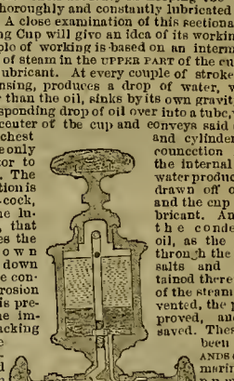
The principle of working is based on an intermittent condensation of steam in the upper part of the cup containing the lubricant. At every couple of strokes, the steam condensing, produces a drop of water, which, being heavier than the oil, sinks by its own gravity, and raises a corresponding drop of oil over into a tube, which arises in the center of the cup and conveys said oil directly to the chest and cylinder, this tube being the only connection from the internal part of the Lubricator to the water produced by of the engine. The drawn off once a the condensation is and the cup filled day by a side-cock, bricant. Another again with the lu- the condensing advantage is, that oil, as the water process refines the through the lubri- settling down cants and acids cant carries down tained therein. In which may be con- of the steam chest this way corrosion vented, the power and cylinder is pre- proved, and an of the engine im- saved. These Lu- mense amount of packing bricators have been adopted by over EIGHTY RAILROADS in the United States.



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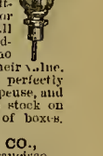

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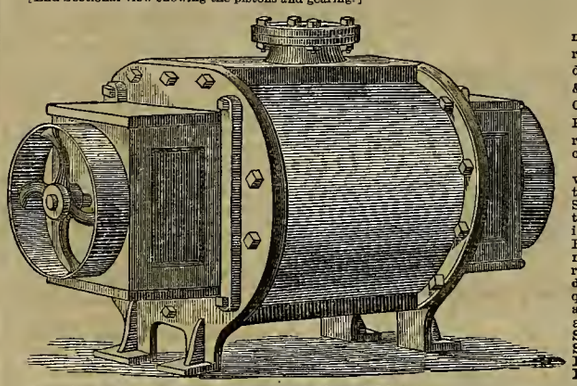

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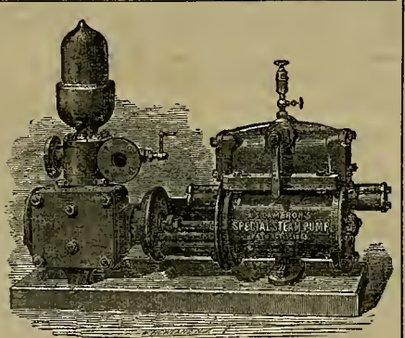

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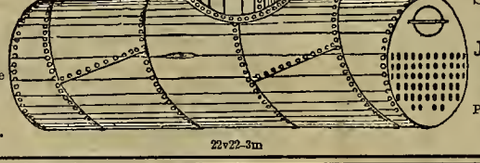

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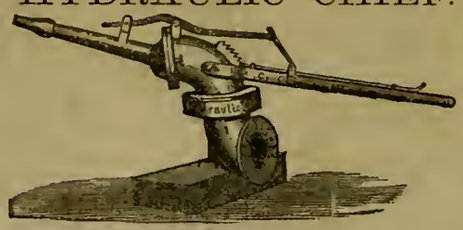

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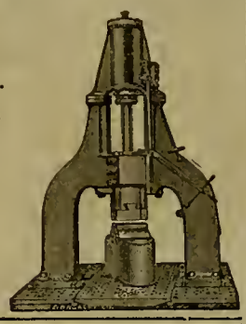

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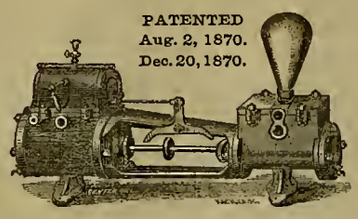

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